Early childhood education

3

Acknowledgment

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Summary

Target

The target associated with Outcome 3 of the 2020 National Agreement is to increase the proportion of Aboriginal and Torres Strait Islander children enrolled in Year Before Full-time Schooling (YBFS) early childhood education to 95% by 2025.

Background

- Aboriginal and Torres Strait Islander (First Nations) children who attend preschool are more likely to be developmentally on track. Participation in preschool programs has shown benefits for children, parents/families and the broader society. It is also amenable to policy interventions.
- High-quality play-based preschool programs provide opportunities for children to develop and practise a range of fundamental skills, such as listening to others, taking turns, sharing, making up games and stories, problem solving, and learning socially acceptable ways of dealing with conflict to help them to transition to primary school and beyond.
- Children who attend a preschool program have better language, literacy, cognitive and problem-solving skills when they enter primary school than their peers who do not; these skills are linked to later academic achievement.
- There is evidence that children from disadvantaged backgrounds may benefit from preschool programs, but the extent and type of benefits depend on the quality and intensity of the programs themselves.

Current status

- The estimated total number of First Nations children enrolled in preschool in the state-specific YBFS cohort increased from 14,573 in 2016 to 18,920 in 2022. This increase is likely due to a combination of 3 factors:
  - an increasing number of First Nations children in the population
  - an increasing likelihood of children identifying as First Nations in the data
  - an increase in the likelihood of being enrolled in preschool.
- According to the official estimates, the proportion of First Nations children enrolled in preschool increased from 77% in 2016 to 99% in 2022 and the target is reported to be on track to be met in 2025. However, caution must be used when interpreting these rates as there is uncertainty in both the numerator and denominator, which means that the true rates may be higher or lower than estimated.
- The estimated proportion of First Nations children enrolled in preschool in the YBFS cohort increased between 2016 and 2022 for every state and territory except the Northern Territory.
- The proportion of services which met or exceeded the quality standards increased from 61% in 2016 to 84% in 2022. A higher proportion of stand-alone preschools than long day care centres met or exceeded the quality standards, although the gap has narrowed since 2016.
- Two of the 3 states with the lowest estimated enrolment rates are those with non-government/mixed models of preschool delivery (New South Wales and Queensland).

Key findings

- While some preschool programs are free, one of the biggest barriers to preschool enrolment is the financial cost involved. The fees are only one component – there are also associated costs, such as transport, food and clothing. Families have to balance the cost of preschool with all their other expenses, including housing.
- Cross-sectional analysis showed that, compared to their counterparts, children were more likely to be enrolled in preschool if they were:
  - older
  - without developmental difficulties
  - spoke only English at home
  - from areas of least disadvantage
  - from areas of lower mobility
  - with a parent who had completed year 10 or above
  - with a parent who had some post-school qualification, and was working.
- The regression analysis in this chapter highlighted the importance of parental education and employment status on First Nations preschool attendance, net of other factors. The findings also showed that children with developmental difficulties were less likely to attend preschool. Further, they demonstrated that preschool attendance varies between states and territories at a statistically significant level, net of child and family characteristics, which reinforces the importance of policy and funding arrangements in affecting this target outcome.

Key factors

- Policy and program interventions can improve preschool enrolments by increasing capacity in geographic areas that have service gaps, promoting the benefits of preschool participation, cutting back costs, and improving cultural safety and engagement with families and communities.
- Considering the role of parental education and employment, improving employment and educational opportunities for First Nations people is likely to improve total preschool participation rates in the long term.
- The statistically significant effect of developmental difficulties on preschool enrolment highlights the need for targeted social policy to support children with developmental difficulties to improve their preschool attendance.
- Preschool enrolment is essentially a service use indicator that is affected by the interaction between ‘supply’ and ‘demand’. Supply factors are, in turn, directly affected by government policy and funding arrangements experienced at local community levels, as well by the availability of a trained workforce. Children can attend preschool only if there is an available place near them. Other relevant supply factors are accessibility, cultural safety, affordability, workforce availability and suitability for an individual child and their family.
- Future research in this area would benefit from data that allowed not only modelling of both supply and demand factors at the individual level but also granular spatial analyses that could rapidly identify areas with service gaps.

3.1 Introduction

Outcome 3 of the 2020 National Agreement on Closing the Gap (National Agreement) is that Aboriginal and Torres Strait Islander children are engaged in high-quality, culturally appropriate early childhood education in their early years.

The target associated with this outcome is to increase the proportion of Aboriginal and Torres Strait Islander children enrolled in Year Before Full-time Schooling (YBFS) early childhood education to 95% by 2025.

Outcome	Aboriginal and Torres Strait Islander children are engaged in high-quality, culturally appropriate early childhood education in their early years.
Target	By 2025, increase the proportion of Aboriginal and Torres Strait Islander children enrolled in Year Before Full-time Schooling (YBFS) early childhood education to 95%.
Indicator	The proportion of Aboriginal and Torres Strait Islander children in the state-specific YBFS age cohort who are enrolled in a preschool program.
Measure	*Numerator* – the estimated number of children in the state-specific YBFS age cohort enrolled in a preschool program. *Denominator* – the estimated number of children in the state-specific YBFS potential population. This proportion is presented as a percentage.

The first 5 years of a child's life (including the antenatal period) are critical for their development across a range of domains. These domains include physical and emotional health, cognitive skills, fine and gross motor skills, ability to self-care and to self-regulate emotions, language and communication, social skills, and the development of safe and secure interpersonal relationships – all of which are associated with positive outcomes across the life course (Centre for Adolescent Health, Murdoch Children's Research Institute 2018; Guhn et al. 2016).

Ensuring that Aboriginal and Torres Strait Islander (First Nations) children get the best start in life is a goal shared by families, communities and governments (NIAA and SNAICC 2021), and has been one of the core elements of the Closing the Gap agenda since the first Council of Australian Governments (COAG) agreement in 2008 (COAG 2012; Australian Government 2020).

The early childhood period (0–5 years) was the focus of 2 main targets in 2008:

- halve the gap in mortality rates for First Nations children under 5 (aged 0–4) (by 2018) – though rates improved over the period, this target was not met (NIAA 2020)
- ensure all First Nations 4-year-olds in remote communities have access to early childhood education within 5 years (by 2013).

In the 2020 National Agreement, the original child mortality target was replaced with a focus on increasing the proportion of First Nations babies born with a healthy birthweight, and a new target for a child development outcome measure was added.

Increasing the proportion of First Nations children participating in early childhood education has remained a key focus throughout, however. The original COAG target expired unmet in 2013. In December 2015, the target was expanded to 95% of all First Nations children enrolled in early education in the YBFS by 2025 (which was also included in the 2020 National Agreement).

3.1.1 What is preschool and why does it matter?

The Closing the Gap outcome 3 refers to children's participation in high-quality, culturally appropriate early childhood education; however, the specific indicator is focused on one key component of the early childhood education and care system: preschool programs.

Box 3.1: What is preschool?

In Australia, a preschool program is defined as a structured, play-based learning program:

- delivered by a qualified teacher
- aimed at children in the year or two before they start full-time schooling.

This definition is the same for all types of institutions that provide a preschool program – whether government funded or privately provided – and for all service settings. Preschool programs are often called early childhood education, early learning or kindergarten (SCRGSP 2022).

The range of services that preschools offer differs across states and territories and between service providers. The entry age also varies slightly across jurisdictions but is generally around 4 years of age.

Preschool curriculums are guided by the Early Years Learning Framework (EYLF), which focuses on the developmental needs, interests and experiences of each child, while considering individual differences. Fundamental to the curriculum is a view that children's lives are characterised by belonging, being and becoming.

Introduced in 2009, the EYLF was being reviewed/updated at the time of writing of this report to ensure it reflected best practice. Potential areas for updating included strengthening First Nations perspectives throughout the framework (including in its vision, principles, practices and outcomes) and replacing cultural competence with cultural responsiveness. One goal was to strengthen the link between the EYLF and the National Quality Framework (NQF) in respect to the importance of First Nations ways of being, knowing and doing, and inclusion (see https://www.acecqa.gov.au/nqf/national-law-regulations/approved-learning-frameworks for more information).

Participation in preschool programs has shown benefits for children, parents/families and broader society (AIHW 2015; Phillips 2017; PWC 2014) and is amenable to policy interventions (Nous Group 2020). (In this chapter, 'parents' refers to biological parents [including single parents], social parents and carers.)

Preschool benefits for children

High-quality play-based preschool programs can enhance children's development through a mix of structured individual and group activities and unstructured free play. These provide opportunities to develop and practise a range of fundamental skills, such as listening to others, taking turns, sharing, making up games and stories, problem solving, and learning socially acceptable ways of dealing with conflict to help children transition to primary school and beyond (Sylva et al. 2010; Warren et al. 2016).

The short- and long-term benefits of preschool are well established in the research literature, both in Australia and overseas (for comprehensive reviews, see Productivity Commission 2014 and Warren et al. 2016). In general, children who attended a preschool program were more likely than their peers who did not to have better language, literacy, cognitive and problem-solving skills when they entered primary school, which are then linked to later academic achievement (Harrison et al. 2009; Schweinhart et al. 2005; Sylva et al. 2010; Yoshikawa et al. 2013).

For First Nations children, having attended preschool has been associated with an increased likelihood of being developmentally 'on-track' in the first year of full-time school in all rounds of the Australian Early Development Census (AEDC) (previously the Australian Early Development Index, or AEDI) – even after controlling for other child-, family- and area-level characteristics (for example, AIHW 2018; Biddle and Bath, 2013; Falster et al. 2021; Jorgensen et al. 2017). For more information, see Chapter 4 on the early child development outcome.

While the AEDC provides cross-sectional estimates of the impact of preschool on child development, longitudinal data from the Footprints in Time study (otherwise known as the Longitudinal Survey of Indigenous Children, or the LSIC) shows benefits of preschool attendance on positive cognitive and developmental outcomes for children aged 5 and 7. Longer term effects associated with preschool attendance were also seen, with reduced social–emotional difficulties and increased reading and abstract reasoning skills at later ages (Arcos Holzinger and Biddle 2015).

There is evidence that children from disadvantaged backgrounds may benefit from preschool programs, but the extent and type of benefits depend on the quality and intensity of the programs themselves (Lynch 2005; Magnuson et al. 2004; Pascoe and Brennan 2017; Sylva et al. 2010).

- For example, the Perry Preschool Project is often cited as evidence of the long-term benefits of preschool attendance. However, the program's founders and staff have been clear that the success of the program is due to a high level of investment in a specific curriculum (with an intensive 2-year program, which included home visits) and would not be generally applicable for all preschool programs (Schweinhart et al. 2005).

Preschool benefits for parents/families and broader society

Having their children participate in preschool can provide parents with increased social networks and decreased isolation, connections to other services and resources, and increased time with other children if they have them. Preschool programs (and wrap-around child-care services) also support parents' engagement in employment, education and/or volunteer work (Kellard and Paddon 2016; The Smith Family 2021).

Preschool attendance in Australia is not compulsory. However, the Australian Government and state and territory governments all recognise its benefits. Since 2008, they have committed to increase participation of all children in high-quality education and care under a series of National Partnership Agreements on Universal Access to Early Childhood Education and Care (UANP) (since replaced by the Preschool Reform Agreement, in effect for 2022–2025). Universal access means that every child, in the year before they start full-time schooling, has access to, and participates in a quality early childhood education program.

This program is one that is presented by a qualified early childhood teacher in accordance with the EYLF and the NQF, and delivered:

- for at least 600 hours per year
- in a form that meets the needs of children, parents and community
- at a cost that does not present a barrier to participation.

The estimated number and rates of First Nations children enrolled in preschool have increased since the first Closing the Gap Agreement, but not all eligible children attend preschool in the YBFS. Understanding the factors underpinning the increase and identifying areas where improvements are needed are essential to ensure all First Nations children have access.

This target outcome focuses on the factors associated with, and progress towards, the goal of having 95% of First Nations children enrolled in preschool in the YBFS. It begins with an overview of the preschool system itself, then presents the most recent data on progress towards the target, including variations by state and territory. Attention then turns to the factors that affect preschool enrolment, referencing the results of an analysis of 2021 AEDC data on the child, location and parent variables associated with preschool enrolment. A discussion of additional factors that either enable or hinder preschool enrolment follows.

3.1.2 Preschool system in Australia

State and territory governments are responsible for the delivery of preschool in Australia, but the system itself is complex and rapidly changing. There are variations in the settings in which preschool programs are delivered, how those services are managed and funded, whether children are guaranteed a spot in a preschool in the YBFS, costs to families, and age at entry into (and exit out of) preschool and into primary school (see Appendix 3B for more information).

Preschool programs are delivered within 3 primary types of settings, each of which may be government or non-government (and may be First Nations controlled or mainstream):

- stand-alone preschools
- preschools attached to primary schools
- long day care centres (LDCs – also known as centre-based care), where the program is offered within a broader context of child-care provision. As the main purpose of LDCs is to support parental employment and study, they are open for longer hours and more weeks a year than stand-alone/school-based preschools, which generally follow school hours/school terms. LDCs also generally provide meals. Some children will attend both a stand-alone/school-based preschool and a LDC in the YBFS.

A small number of programs are also delivered in community settings through mobile preschool services or, more recently, through non-face-to-face (for example, video-based) delivery.

States and territories are commonly categorised into 2 groups, based on their predominant models of preschool service delivery:

- government model – where most preschool services are owned, funded and delivered by the state or territory government (Western Australia, South Australia, Tasmania, the Australian Capital Territory and the Northern Territory). Children may also access preschool programs through an LDC instead of, or as well as, preschool services

- non-government or mixed model – where the state may provide some services, but more often provides support to non-government stand-alone preschools, and where a large number of preschool programs are run within LDCs (New South Wales, Victoria and Queensland). In 2022, New South Wales and Victoria committed to a future change in their models, where they will provide a fully funded extra year of school (for example, preschool) to all children in the YBFS (by 2025 for Victoria, and 2030 for NSW).

For more information on how individual states and territories structure their systems see Nous Group (2020), while information on current and previous funding arrangements can be found at Preschool - Department of Education, Australian Government (https://www.education.gov.au/early-childhood/preschool).

Regardless of where they are provided, all preschool programs are governed by a regulatory framework (Appendix 3A).

Preschool providers

In 2022, there were about 13,000 providers of preschool programs across Australia. Of those, one-third were stand-alone preschool services, and the rest were LDCs. There is a great deal of variation across states and territories, reflecting whether there is a predominantly government or non-government model of preschool provision in that jurisdiction. Table 3.1 presents the distribution of the number of preschool services by management type in 2022.

Table 3.1: Preschool services[(a)], by management type and setting, 2022

		State/territory								
Setting	**Management type**	**NSW**	**Vic**	**Qld[(b)]**	**WA**	**SA**	**Tas[(c)]**	**ACT**	**NT**	**Total**
Stand-alone preschool	Government	156	237	194	687	338	151	80	124	1,967
	Non-government	654	919	431	254	22	56	4	7	2,347
Centre based care[(d)]	Government	218	108	23	16	61	12	4	15	457
	Non-government	3,131	1,807	1,727	754	415	121	178	95	8,228
Total		**4,159**	**3,071**	**2,375**	**1,711**	**836**	**340**	**266**	**241**	**12,999**

(a) Includes preschool programs delivered to children aged 3–6. Preschool programs may be delivered by stand-alone preschools, preschools attached to a school or LDCs.

(b) Queensland data include a small number of centre-based day care services providing a preschool program.

(c) In Tasmania, preschool services are not delivered in a centre-based day care setting, but in a school setting.

(d) School-based preschools that provide supplementary centre-based day care services are included in the centre-based day care with preschool category. Some preschools are reclassified to centre-based day care due to collection methodologies.

Source: Productivity Commission 2023 (Report on Government Services Table 3A10).

Fees

Non-government providers set their own fees based on their running costs (and whether they are for-profit or non-profit). They then receive a range of subsidies depending on:

- whether they are LDCs or stand-alone preschools
- their state/territory
- their location
- the number of children they have in the YBFS cohort

- the number of children they have who receive additional equity funding (usually including First Nations children, children from families with low income or from disadvantaged areas, children with disability or additional needs and children with English language needs).

Stand-alone preschools — including those managed by non-government organisations and those managed by government departments (such as those attached to primary schools) – are funded primarily by state/territory governments, with parents sometimes paying additional fees where required. During COVID-19, state/territory governments increased their funding to support both parents and providers.

Under the National Partnership Agreements on Universal Access to Early Childhood Education and care (UANP), the Australian Government provided states/territories with a set amount of funding per child in the YBFS that they could use flexibly to promote universal access and reduce costs. With the new Preschool Reform Agreement in 2022, states/territories will receive a per child funding amount of $1,340, and the money now must go directly to the preschool provider to reduce fees for each child's family.

How much each individual family pays is then based on their circumstances and number of days/sessions. The bulk of subsidies for families using LDCs is through the child-care subsidy system.

3.1.3 Measuring preschool enrolment – issues and considerations

The indicator used to support this target is defined as the proportion of First Nations children in the state-specific YBFS age cohort who are enrolled in a preschool program.

Calculating the indicator thus requires yearly data on:

- the number of First Nations children in each state and territory currently enrolled in preschool who are in their 'last year' of preschool (that is, YBFS)
- the population of First Nations children in each state and territory who are in the YBFS age cohort. This population is made up of those already in preschool who are in the YBFS, and those not in either preschool or primary school, but who are expected to enter primary school the next year.

In practice, however, it is unknown which individual children (either in preschool or in the population) intend to go to school in the next calendar year (except when they are at the maximum age by which they are required by law to enter primary school).

- For example, when a child has the option of entering school the next year or staying home/in preschool, it is the parents' decision to make. Previous research (Hanly et al. 2019) has shown that, for New South Wales (which has the biggest potential age range for starting school), the children most likely to delay school entry are boys, those from more advantaged families/areas and those with developmental difficulties.

At a collective level, this creates uncertainty in both the numerator and denominator, which, in turn, means that the true rates may be higher or lower than estimated.

This section presents the official estimates of the indicator, noting the cautions discussed earlier, as well as estimates from an alternative approach for comparison.

Official estimates

At the time of writing of this report, the data on the numerator come from the National Early Childhood Education and Care Collection (NECECC), which is incorporated into the Australian Bureau of Statistics' (ABS's) *Preschool education*, *Australia* publications and data set (ABS 2023a). The denominators are estimates by the ABS, based on a combination of Census data, births data, schools data, and state-based age cut-offs. (More details on how the numerator and denominator are defined and measured are presented in Appendix 3B. See Productivity Commission (2024) for target data specifications.)

As noted in the *Closing the Gap Annual Data Compilation Report July 2023* (Productivity Commission 2023) and the *Closing the Gap Dashboard* (Productivity Commission 2024), caution must be used when interpreting the statistics on the target indicator because:

- the coverage and methodologies in the NECECC differ over time and between states and territories
- the levels of Indigenous identification differ between the data collections, between states and territories, and within data collections over time
- the accuracy of population estimates tend to diminish the further away they are from the Census on which they are based. The denominator estimates use population data based on the ABS 2016 Census of Population and Housing. There are plans to readjust the denominators in the future, using data from the 2021 Census, which would also require back-casting the previous rates (Productivity Commission 2024).

These factors led to an increasing number of states and territories having estimated enrolment rates above 100%, including:

- in 2017, South Australia
- in 2018, Victoria, South Australia, the Australian Capital Territory
- in 2019, Victoria, South Australia, Tasmania, the Australian Capital Territory
- from 2020 onwards, Victoria, Western Australia, South Australia, Tasmania, the Australian Capital Territory.

Enrolment rates over 100% are implausible and as such it is not possible to measure progress towards the goal or to identify areas where there are gaps in either the supply of preschool places or where First Nations children are less likely to be enrolled in preschool.

Alternative estimates

An alternative specification of preschool enrolment rates is also presented for comparison. It keeps the same numerator, but uses a different denominator by taking the number of children who are in their first year of primary school in each calendar year and assigning them as the YBFS cohort in the previous calendar year (Schools denominator). In other words, the number of children in their first year of school in 2023 are assumed to be the YBFS cohort for 2022 (see Appendix 3B for more detail).

The 2 specifications lead to similar denominators in the first year (2016), after which they start to diverge, with the Schools denominator yielding a higher number of First Nations children in the YBFS cohort than in the current specification and a lower number of non-Indigenous children. This leads, in turn, to lower estimated enrolment rates for First Nations children and higher enrolment rates for non-Indigenous children than in the official estimates.

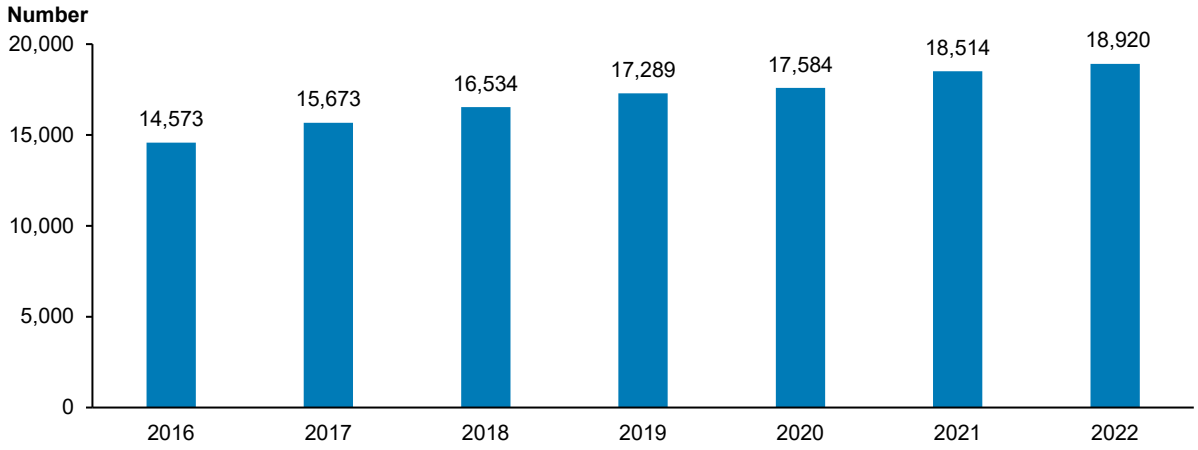
3.2 Early childhood education target: current picture and time trends

3.2.1 National trend

Number of First Nations children enrolled in preschool

The estimated total number of First Nations children enrolled in preschool in the state-specific YBFS cohort increased from 14,573 in 2016 to 18,920 in 2022 (Figure 3.1; supplementary Table S3.1).

Figure 3.1: Number of First Nations children enrolled in preschool in the YBFS, 2016–2022



Source: ABS, cited in Productivity Commission 2023.

The increase in the number of First Nations children enrolled in preschool is likely due to a combination of 3 factors:

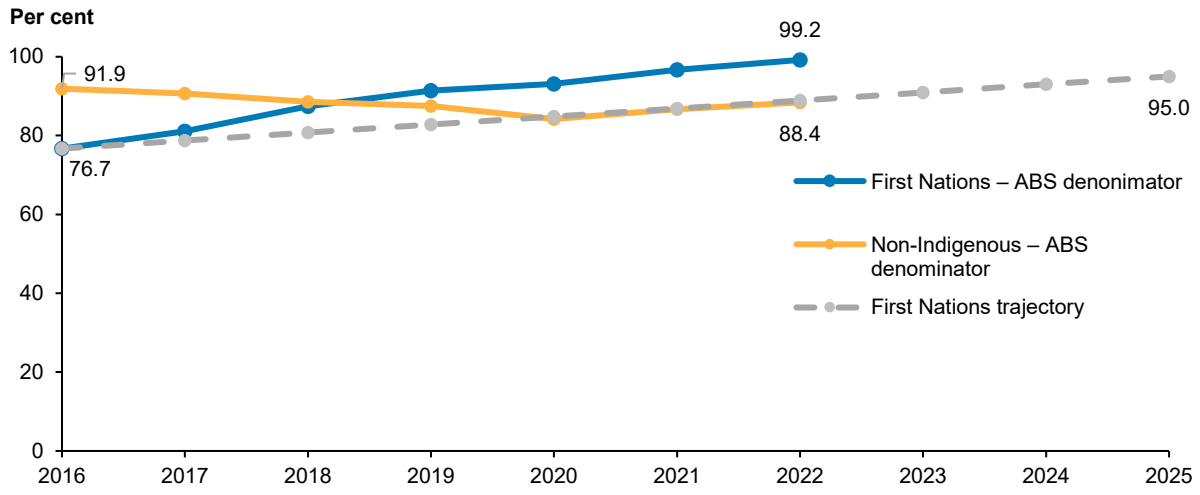
- an increasing number of First Nations children in the population (population growth)
- an increasing likelihood of children identifying as First Nations in the data
- an increase in the likelihood of being enrolled in preschool.

Enrolment rates

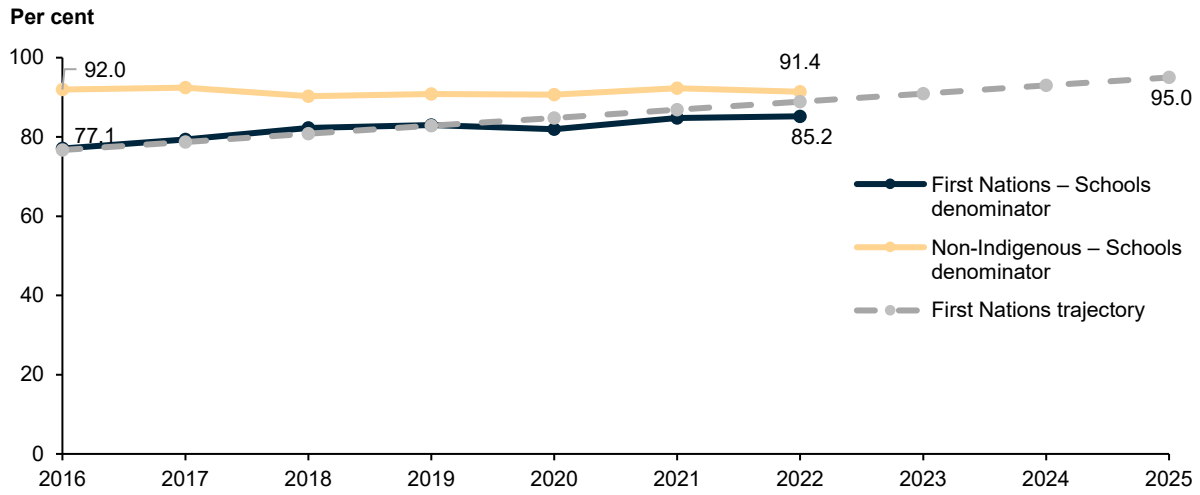
Figure 3.2 presents the yearly estimated enrolment rates for both First Nations and non-Indigenous children for each of the 2 specifications (Table S3.2). Each figure also includes the straight-line trajectory of yearly growth needed to reach the goal of 95% enrolment by 2025 (Productivity Commission 2024).

Figure 3.2: Estimated percentage of children in the YBFS cohort enrolled in preschool, by Indigenous status, trajectory towards the 95% goal, and denominator specification, 2016–2022

(a) Official estimates



(b) Alternative estimates



Sources: Figure (a): ABS, cited in Productivity Commission 2024; Figure (b): numerators from ABS, cited in Productivity Commission 2024; AIHW estimate of denominator from ABS Schools data using TableBuilder.

According to the official estimates (Figure 3.2(a)), the proportion of First Nations children enrolled in preschool increased from 77% in 2016 to 99% in 2022, having surpassed the 95% national target between 2020 and 2021. The pattern for non-Indigenous children differed, with the estimated proportion enrolled in preschool dropping from 92% in 2016 to 88% in 2022 (Productivity Commission 2024).

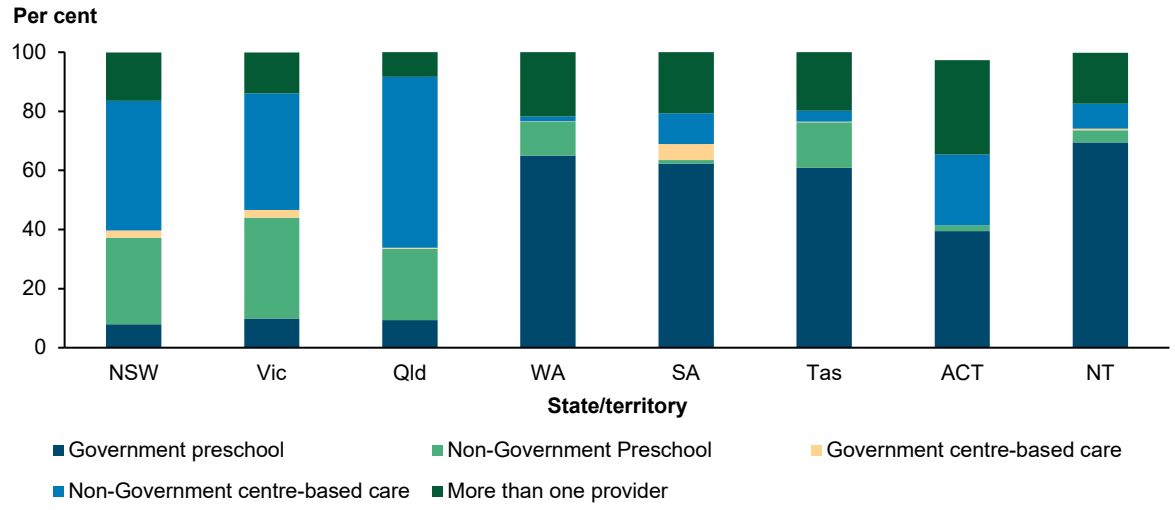
However, the alternative estimates (Figure 3.2(b)) present a different picture, with First Nations enrolment rates rising steadily from 77% in 2016 to 85% in 2022 – below the national trajectory point of 89%. This specification suggests that an additional 753 First Nations children in the YBFS would need to have been enrolled in 2022 for the national trajectory target point of 89% to be met, and an additional 2,175 First Nations children would need to have been enrolled in 2022 for the 95% national target to be met.

The estimated enrolment rates for non-Indigenous children show some small yearly fluctuations and are slightly lower in 2022 than in 2016 (91% compared with 92%).

3.2.2 State and territory

While the national picture is important, it is essential to examine variations by state and territory. As discussed in Section 3.1.2, there are considerable jurisdictional differences in how preschool programs are provided, managed and funded. These differences are evident in Figure 3.3 and Table S3.3, with non-government centre-based care the predominant setting for First Nations children in the YBFS enrolled in preschools in New South Wales, Victoria and Queensland in 2022, and government preschool the predominant setting for those in the remaining states and territories.

Figure 3.3: Percentage distribution of First Nations children in preschool in the state/territory-specific YBFS cohort, by provider setting and management type and jurisdiction, 2022



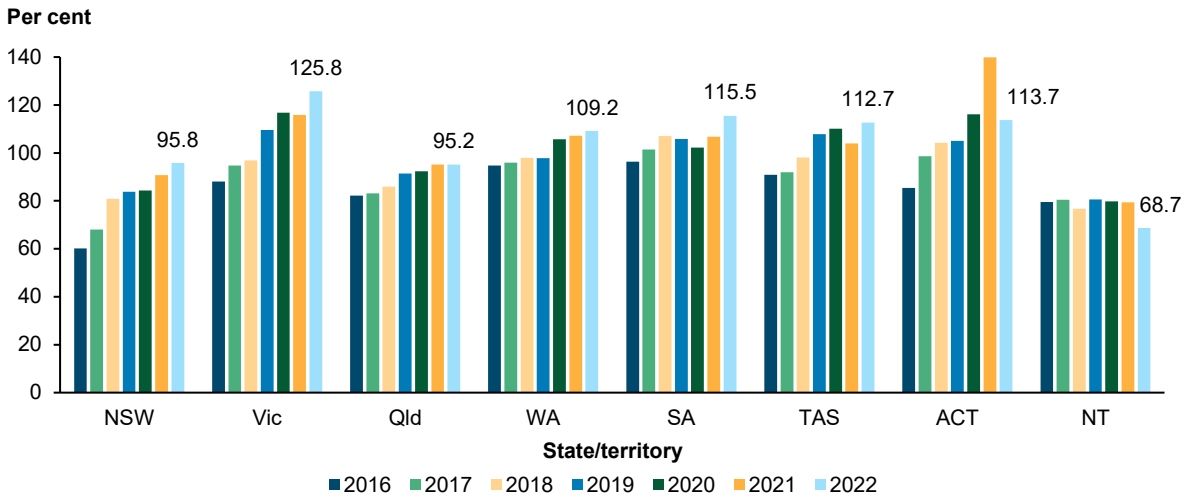
Source: AIHW analysis of ABS preschools collection [TableBuilder].

Figure 3.4 presents time trends in the estimated preschool enrolment rates for First Nations children in the YBFS by state and territory with both sets of denominators. It is important to note that once data are disaggregated by jurisdiction, the numbers for both numerator and denominator in some jurisdictions, particularly Tasmania and the Australian Capital Territory, are relatively small, which means that small changes (or errors) in either the numerator or denominator can lead to large changes in the overall rates.

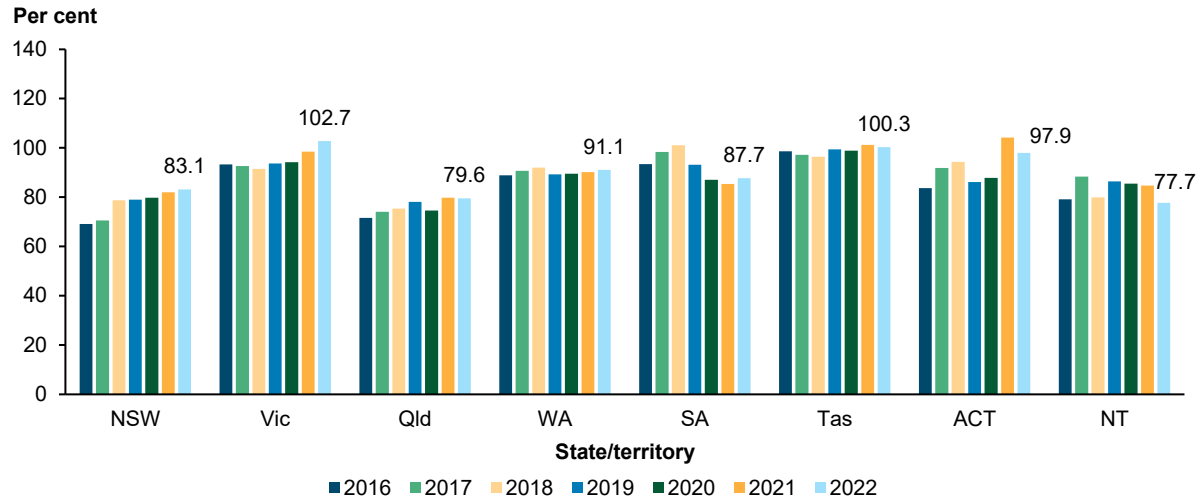
According to the official rates (Figure 3.4(a)), well over 100% of First Nations children in the YBFS in 5 states and territories in 2022 were enrolled in preschool, with the highest rates in Victoria and South Australia. The only jurisdiction that had an estimated rate under the national target goal of 95% enrolment was the Northern Territory, where an estimated 69% of First Nations children in the YBFS were enrolled in preschool in 2022 (a considerable drop from the estimated 79% in 2021). It is not known whether this a real decline or a reflection of underlying data quality issues. The Australian Capital Territory was an extreme outlier in 2021 (with an estimated 140% enrolment rate), but, again, the small numbers and data quality issues need to be taken into consideration.

Figure 3.4: Estimated percentage of First Nations children in the YBFS cohort enrolled in preschool, by state and territory and denominator specification, 2016–2022

(a) Official estimates



(b) Alternative estimates



Sources: Figure (a): ABS, cited in Productivity Commission 2024; Figure (b): numerators from ABS, cited in Productivity Commission 2024; AIHW estimate of denominator from ABS Schools data using TableBuilder.

As with the national rates, the different denominator specifications lead to different patterns at the state and territory level. According to the data using the Schools denominator (Figure 3.4(b)):

- 3 states/territories had enrolment rates already above the national target goal of 95% enrolment (Victoria, Tasmania and the Australian Capital Territory)
- the estimated rates for Victoria and Tasmania are just over 100%, which suggests that there are still data quality or specification issues
- the estimated rates for the Northern Territory are higher than the official rates (78% compared with 69%) and are closer to those of Queensland and New South Wales (which are lower than in the official rates).

In both sets of estimates, 2 of the 3 states with the lowest estimated enrolment rates are those with non-government/mixed models of preschool delivery (New South Wales (95.8%) and Queensland (95.2%)).

To understand the reasons for lower preschool enrolment and attendance rates in the Northern Territory – and improve them, the Northern Territory Government engaged the Nous Group to conduct a review. A discussion paper was released for consultation in mid-2023, and a final report with 14 recommendations for making system level changes has been published (Nous Group 2023).

3.2.3 Enrolment for 600 hours or more

One of the criteria for universal preschool access is that every child in the YBFS cohort has access to and participates in at least 600 hours of preschool per year. Attendance data were not available for all of NSW and Victoria in 2021, Victoria in 2020, and for a large proportion of Queensland services, thus attendance data are not presented here. However, we acknowledge the importance of attendance and the fact that it has already been identified as a data development priority in the Closing the Gap Agreement and the Preschool Reform Agreement. The data on hours of enrolment come from the ABS preschools collection and apply only to those children already in preschool.

In 2016, 93% of First Nations children enrolled in preschool in the YBFS were enrolled for at least 600 hours a year (which equates to 1,033 enrolled for fewer than 600 hours). Since 2017, 97% have been enrolled for at least 600 hours a year. In 2022, 511 First Nations children in preschool were enrolled for fewer than 600 hours (AIHW analysis of ABS preschools data).

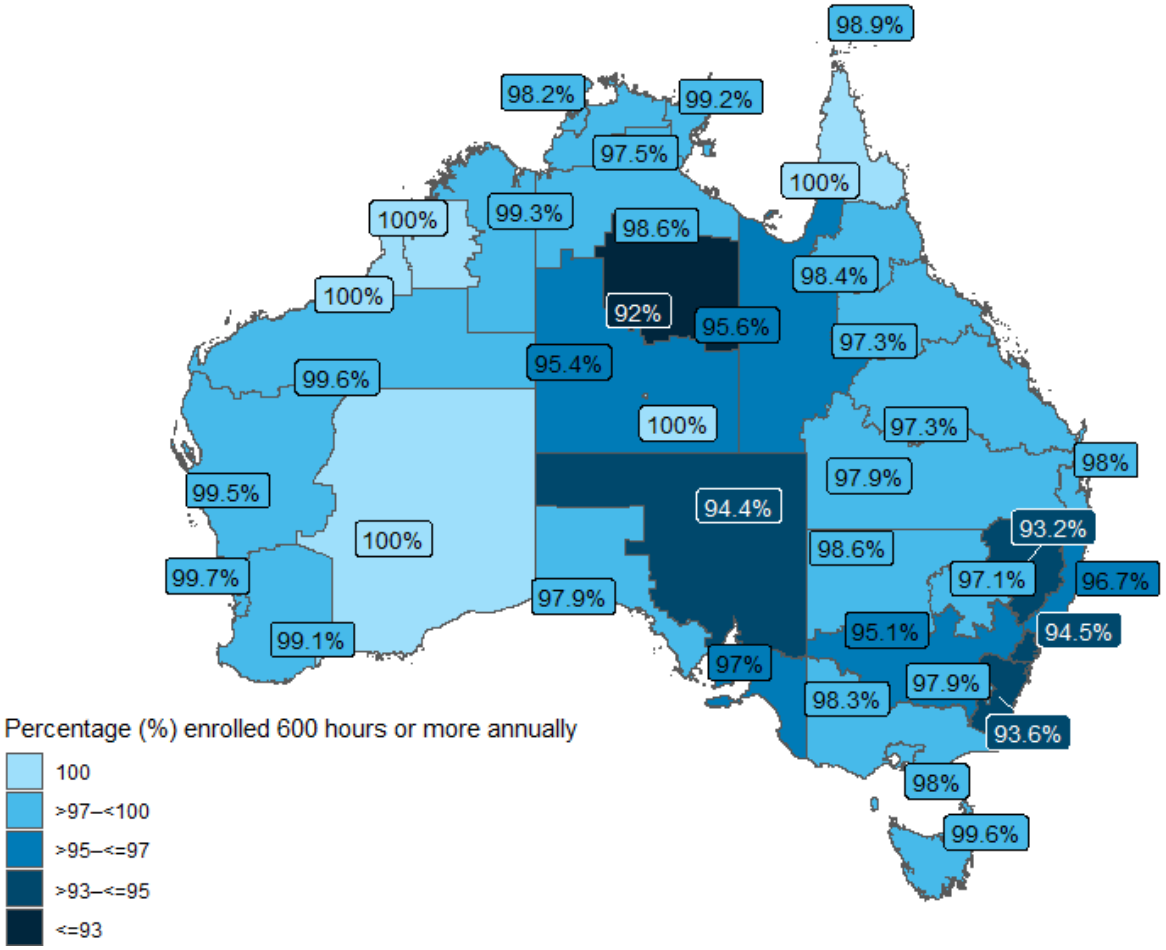
Indigenous Regions

The ABS preschools collection data can be disaggregated to smaller geographic areas, such as IREGs. Figure 3.5 presents the proportion of First Nations children in the YBFS cohort in 2022 who were enrolled for at least 600 hours by IREG (see Table S3.4).

There were 5 IREGs where every First Nations child in the YBFS in preschool was enrolled for at least 600 hours (all in Queensland, Western Australia and the Northern Territory):

- Kalgoorlie (169 First Nations children in the YBFS enrolled in preschool)
- Cape York (155 First Nations children in the YBFS enrolled in preschool)
- Broome (116 First Nations children in the YBFS enrolled in preschool).
- Alice Springs (115 First Nations children in the YBFS enrolled in preschool)
- West Kimberley (94 First Nations children in the YBFS enrolled in preschool)

Figure 3.5: Proportion of First Nations children in YBFS enrolled in preschool for 600 hours or more annually, by IREG, 2022



Source: AIHW analysis of 2022 ABS preschools collection data [TableBuilder].

The 5 IREGs with the lowest proportion of First Nations children in the YBFS cohort enrolled in at least 600 hours of preschool annually included:

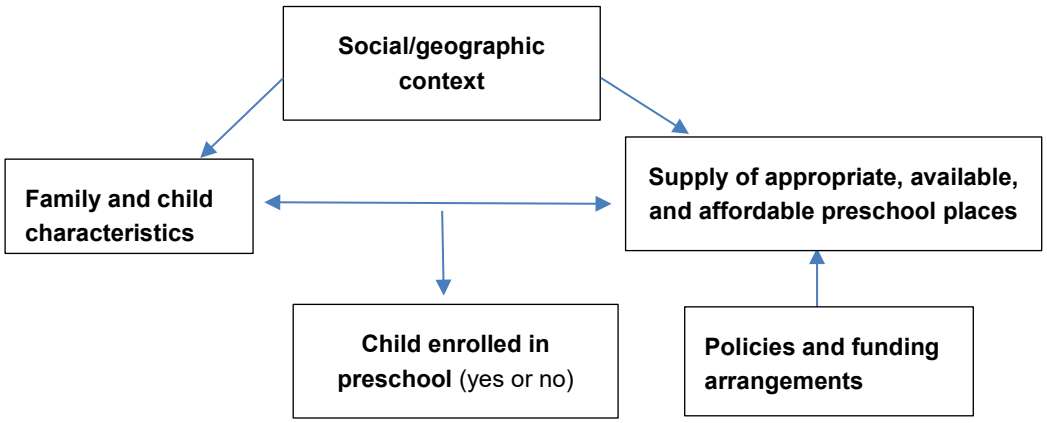
- Tennant Creek: 92.0% (46 First Nations children in the YBFS cohort enrolled in preschool)
- North-Eastern New South Wales: 93.2% (560 First Nations children in the YBFS cohort enrolled in preschool)
- South-Eastern New South Wales: 93.6% (363 First Nations children in the YBFS cohort enrolled in preschool)
- Port Augusta: 94.4% (220 First Nations children in the YBFS cohort enrolled in preschool)
- Sydney–Wollongong: 94.5% (1558 First Nations children in the YBFS cohort enrolled in preschool).

The potential factors that underpin the variation in preschool enrolment are discussed in Section 3.3.

3.3 Literature review

Unlike most other Closing the Gap targets, preschool enrolment is essentially a service use indicator that is affected by the interaction between 'supply' and 'demand' factors (Figure 3.6).

Figure 3.6: Key factors affecting preschool enrolment



3.3.1 Importance of logistical factors

At an individual level, whether a child is enrolled in preschool in the YBFS depends on both whether:

- there is an available spot in a local preschool program that is affordable, convenient, has hours/days that fit the family's schedule and is culturally appropriate

and

- the parents/carers are aware of the place, want their child to attend, and have not only the resources to navigate the system and enrol the child but also the transport to get them to preschool (O'Connell et al. 2016; The Smith Family 2021).

Factors such as distance and availability of services are often cited as the reason for lower estimated enrolment rates in *Remote and very remote* areas than in urban and regional areas – as measured by the number of First Nations children in the YBFS cohort per 100 4-year-olds in the community (Productivity Commission 2024).

Supply factors are directly affected by government policy and funding arrangements, which are experienced at local community levels, as well as by the availability of a trained workforce (with the supply of private providers at the local level also being affected by market forces). Research has shown that policy and program interventions can improve preschool enrolments by:

- increasing capacity in geographic areas that have service gaps
- promoting the benefits of preschool participation
- cutting back costs
- improving cultural safety and engagement with families and communities (NIAA 2021; Nous Group 2020; SNAICC 2019).

The process of finding a place and enrolling in a preschool program can be complicated. In qualitative studies including both First Nations and non-Indigenous parents, some respondents reported feeling overwhelmed and discouraged by the process; some were

wary about the amount and types of information required and worried whether it would be kept private or turned over to other government departments. Parents with lower literacy levels or for whom English was a second language found the process particularly daunting, and some felt embarrassment or shame about having to ask for help (Beatson et al. 2022; Kellard and Paddon 2016; The Smith Family 2021). It is important to note that these are systemic issues.

3.3.2 Importance of culturally safe/culturally responsive preschool services

As stated in the Outcome 3 of the Closing the Gap Agreement (see Section 3.1), it is important that First Nations children participate in preschool programs that are of high quality and culturally appropriate. Parents' own experiences with the education system and other government services and the legacies of colonisation may affect their decisions about whether and where to send their children to preschool – cultural inclusion is vital (Brennan et al. 2014; Kellard and Paddon 2016; Krakouer 2016; NIAA and SNAICC 2021; The Smith Family 2021). Families need reassurance that the early learning environment is respectful of their culture and language to fulfil their need for cultural safety in preschool services (Beatson et al. 2022; Harrison et al. 2010).

Often, there is little information available about a preschool's cultural responsiveness. Often, too, there are no First Nations staff at individual services to help parents in their decision-making (although there are often community perceptions about individual services that influence decisions).

The *2021 Early Childhood Education and Care National Workforce Census* (Social Research Centre 2022) collected data from all approved child-care services (Western Australia and South Australia did not participate but provided high-level data) during the reference week of 10–16 May 2021. The final data included nearly 147,000 centre-based day care (CBDC) staff in just over 8000 CBDC services. The findings show that:

- 3% of the CBDC workforce identified as First Nations people
- 60% of CBDCs had at least one First Nations child attend in the reference period
- 22% of CBDCs had at least one First Nations paid contact staff member
- 46% of First Nations children in CBDCs had access to at least one First Nations paid contact staff member.

Dedicated (stand-alone) preschools were invited to participate in the data collection for the Census, but it was not mandatory to do so. Data are presented separately for child-care services and for dedicated preschools, but it is not possible to disaggregate the CBDC data into preschool program/child-care staffing.

Data from the dedicated preschools who participated showed that the proportion of preschool staff who were First Nations ranged from 0.1% in Victoria to 37% in the Northern Territory (excluding Western Australia and South Australia).

Supporting indicator (Indicator SE3b) for the Closing the Gap Agreement is the number of Aboriginal and Torres Strait Islander early childhood education and care service providers. In 2022, there were 108 Aboriginal community controlled First Nations-focused integrated early years services (Table 3.2). There are also other First Nations-specific preschools run by states and territories (and other non-government organisations), as well as First Nations-focused preschools (https://education.nsw.gov.au/teaching-and-learning/curriculum/early-learning/public-preschools).

Table 3.2: Aboriginal and Torres Strait Islander community controlled First Nations-focused integrated early years services, by state and territory

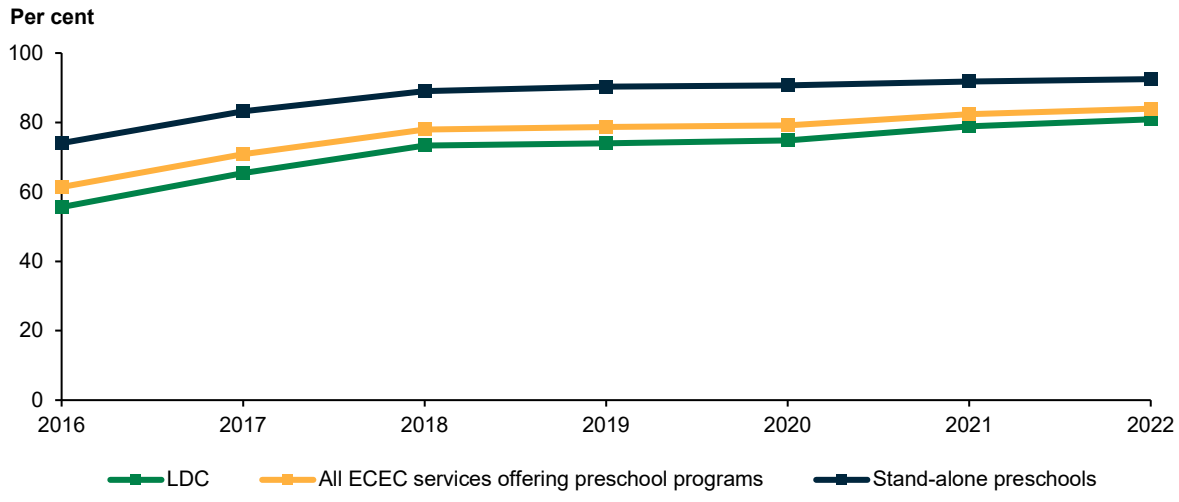
	State/territory								
Year	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
2016	41	9	20	6	4	2	1	3	**86**
2017	41	9	21	6	4	2	1	3	**87**
2018	41	9	22	6	4	2	1	4	**89**
2019	43	9	22	6	4	2	1	6	**93**
2020	44	9	22	6	4	2	1	8	**96**
2021	44	10	22	6	4	2	1	10	**99**
2022	45	11	26	7	4	2	1	12	**108**

Source: SNAICC unpublished register; Productivity Commission 2024.

3.3.3 Quality learning environment

The quality of the programs being delivered – and of the service as a whole – is another determining factor for families. These ratings are publicly available and early childhood and education services are required to display them. Under the NQF, the proportion of services that meet or exceed the quality standards rose from 61% in 2016 to 84% in 2022 (Figure 3.7; Table S3.5). A higher proportion of stand-alone preschools than LDCs met or exceeded the quality standards, although the gap has narrowed since 2016. In 2022, about 81% of LDCs met or exceeded the quality standards compared to about 94% of stand-alone preschools.

Figure 3.7: Proportion of services offering preschool programs that met or exceeded quality standards, by service type, 2016–2022



Source: AIHW analysis of Australian Children's Education and Care Quality Authority data. Note that these do not include government provided services in Tasmania or Western Australia.

Additional analyses found that the proportion of services that met or exceeded quality standards in 2022 ranged from:

- 72% in the Australian Capital Territory to 89% in South Australia
- 82% in the most disadvantaged areas to 86% in the least disadvantaged areas (using the ABS derived Index of Relative Socioeconomic Disadvantage, or IRSD)

- 67% in Very remote and 78% in Remote areas to 85% in Inner and outer regional areas and Major cities.

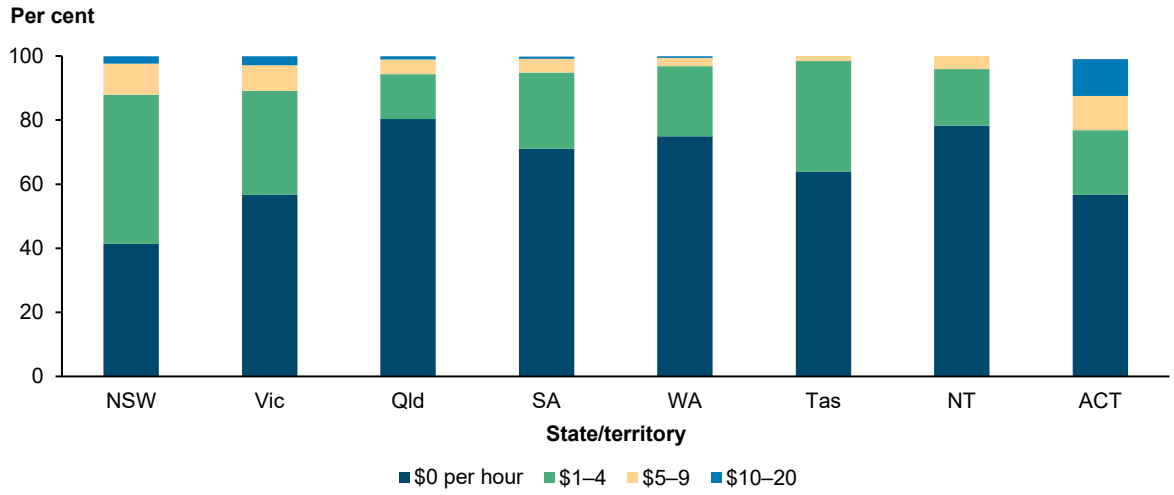
Nearly 100% of programs were delivered by a qualified preschool teacher (Productivity Commission 2022). The exception was the Northern Territory, where the proportion was 75%.

3.3.4 Financial costs

One of the biggest barriers to preschool enrolment is the financial cost. The fees are only one component – there are also associated costs, such as for transport, food and clothing. The cost of preschool needs to be balanced among all family expenses, including housing.

One indicator of the financial cost to families is the breakdown of the per-hour fee that they pay after subsidies have been received (out-of-pocket cost). Nationally, the percentage of families of First Nations children in preschool in the YBFS cohort who pay no fees has slightly increased, from 60% in 2016 to 63% in 2022 (ABS 2023a). This proportion varies between states and territories – in New South Wales in 2022, it was 41% compared with 80% in Queensland. Relatively few First Nations families paid more than $10 an hour (after subsidies) – 12% of the YBFS cohort in the Australian Capital Territory, 2.8% in Victoria and 2.4% in New South Wales (Figure 3.8; Table S3.6).

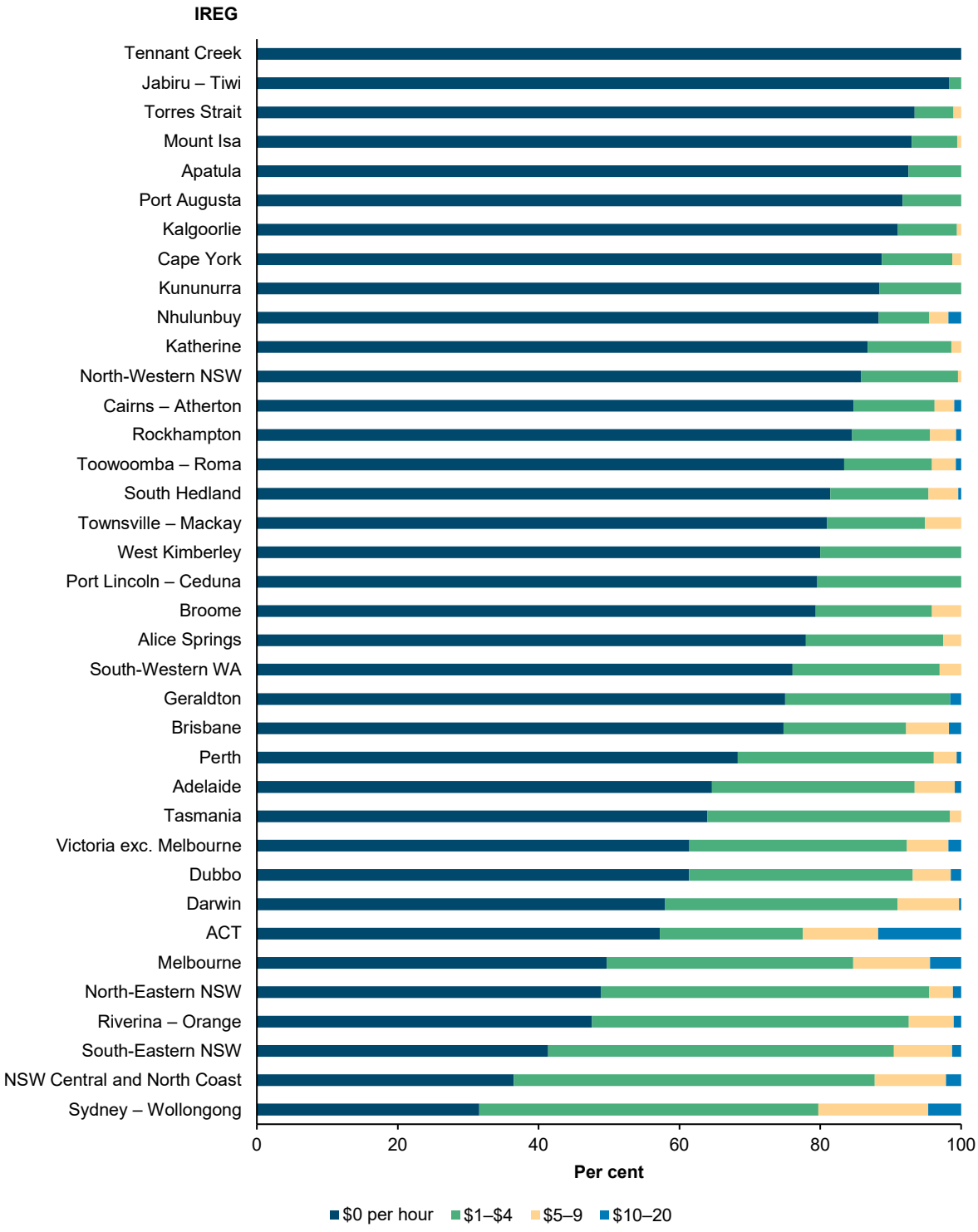
Figure 3.8: Distribution of fees paid by families of First Nations children in the YBFS cohort, by state/territory, 2022



Source: AIHW analysis of ABS preschools collection data.

Fees paid by families vary considerably by geographic location (Figure 3.9; Table 3.7). Less than a third of those in the Sydney – Wollongong IREG paid no fees (31%), compared with 100% of those in the Tennant Creek IREG. Just over 1% of First Nations families paid $10 or more an hour (306 families) and no family paid $20 or more.

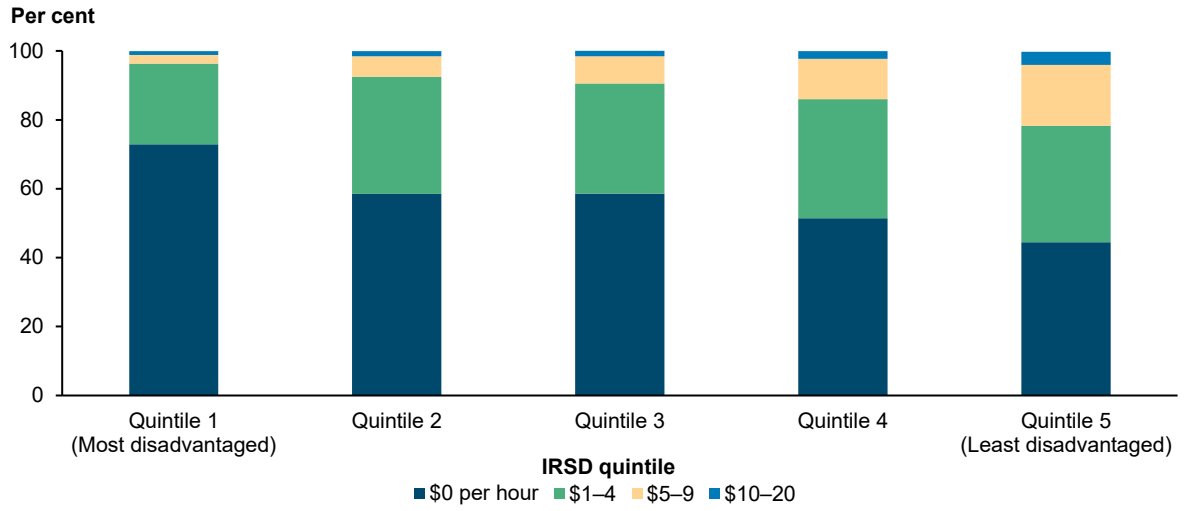
Figure 3.9: Distribution of fees paid by families of First Nations children in the YBFS cohort, by IREG, 2022



Source: AIHW analysis of ABS preschools collection data.

The proportion paying no fees is also highest among those First Nations families living in the most disadvantaged areas (73%) and lowest among those living in the least disadvantaged areas (44%) (Figure 3.10; Table S3.8).

Figure 3.10: Distribution of fees paid by families of First Nations children in the YBFS cohort, by IRSD, 2022



Source: AIHW analysis of ABS preschools collection data.

3.3.5 Parental/household characteristics

Using data from the 2016 Census, Crawford and Biddle (2018) found that preschool enrolment among First Nations children was higher for those living in households where a parent was employed, or in higher income households. Using LSIC data, the AIHW (2018) found that having a main carer who was employed, living in a household with mid-level or high income, having a primary carer with post-school qualifications, and living in less disadvantaged areas significantly increased preschool enrolment.

Employment status may affect preschool enrolment (for example, those already employed may need to place their child in some form of formal care and/or may be better able to afford the cost of preschool), but preschool enrolment can also directly affect employment (by providing parents with care that allows them to work) (AIHW 2018; Crawford and Biddle 2018). These findings suggest that improving employment opportunities and residential stability for First Nations people will also improve total preschool enrolment rates in the long term.

Hewitt and Walter (2014), also using LSIC data, found that it is not only the size but also the main source of the household income that is strongly associated with preschool attendance. When all income measures were included in the model, children in households with benefits as the main source of income, which were also more likely to be low income households, were statistically significantly less likely to be attending preschool. In households where the main source of household income was not government benefits, First Nations children were statistically significantly more likely to attend preschool. Hewitt and Walter (2014) also found that the longer a child had lived in the same house, the higher was the likelihood of their being enrolled in preschool.

When Crawford and Biddle (2018) compared First Nations and non-Indigenous rates of preschool participation within family type/employment classifications, they found that, in every grouping, First Nations rates of preschool participation were higher than non-Indigenous rates.

Higher levels of parents' own educational attainment may be linked to higher financial resources; they may be more likely to have had positive school experiences themselves or may have higher levels of literacy and the resources to navigate the complex preschool enrolment and funding system (Beatson et al. 2022; Kellard and Paddon 2016; The Smith Family 2021).

3.3.6 Children's characteristics

One of the child-level factors associated with higher likelihoods of preschool enrolment was being in the older age groups (for example, 5- and 6-year-olds) within the preschool eligible age group (Hewitt and Walter 2014). The likelihood of enrolment was lower if parents were concerned about the child's learning and development and if parents reported that the child was in poor health (compared with excellent health), with qualitative studies showing that parents expressed concerns about whether children with disability or additional needs would receive proper support (Kellard and Paddon 2016; Warren et al. 2016).

In contrast, the AIHW (2018) found no statistically significant association between either the child's reported health status or whether the child had a long-term health condition on being enrolled in preschool.

An initially counterintuitive finding in Hewitt and Walter's (2014) study was that children who had ear or hearing health issues were more likely to be in preschool. The authors hypothesised that this may be due to the fact that ear/hearing health screening programs are often conducted in preschools – meaning that the issue may have been picked up more consistently among children at preschool (and not that this hearing health issue may independently have affected the likelihood of attending preschool).

3.4 Modelling factors affecting preschool enrolment

This section presents the findings from a series of multivariate regression analyses on the factors affecting preschool enrolment among First Nations children in the YBFS, using the latest AEDC) collection for 2021 (Department of Education, Skills and Employment 2022). For more information about logistic regression analysis see Appendix A.

The AEDC is a national assessment conducted every 3 years to examine how children have developed by the time they enrol in the first year of full-time schooling, when most children are aged 5 or 6. Teachers collect data on children in their first year of school, responding to around 100 questions that measure early childhood development across 5 key areas known as domains. Children are allocated a score against the domains to determine whether they are developmentally on track, developmentally at risk or developmentally vulnerable.

The 5 domains are physical health and wellbeing, social competence, emotional maturity, language and cognitive skills (school based), and communication skills and general knowledge. As well as detailed information on child development, the AEDC contains information on whether the child was known to have attended a preschool in the year before the AEDC assessment. Preschool enrolment status was unknown for 12% of First Nations children in the 2021 collection, and for 13% in the 2018 collection. Unknown preschool status was not randomly distributed but varied by IREG, ranging from 3.2–27% (see supplementary Figure S3.1)

This information on preschool attendance in the YBFS from the AEDC data is used in this section for modelling the factors associated with preschool attendance. The rich set of other

information collected in the AEDC on the characteristics of the child, on the parents (labelled as Parent 1 and Parent 2, where Parent 1 is the main carer and usually the mother) and on the local-area characteristics of where the child lives gives a wide range of factors to consider in this analysis.

The 2021 AEDC included data for 20,646 First Nations children, representing 6.8% of all children in the collection, up slightly from 6.2% in the 2018 AEDC collection. (Only children with a known preschool status were included in the modelling analyses.) Of the 18,190 First Nations children with known preschool status in 2021, the vast majority (87%) had attended preschool in the YBFS, the same percentage as in the 2018 collection.

Specific variables selected under 3 broad categories of factors were as follows:

- child's characteristics:
  - sex, age, whether they were identified as having a developmental difficulty, and whether they spoke a language other than/as well as English at home. Note that developmental difficulties is the term used in the AEDC collection and includes physical disability, visual Impairment, hearing impairment, speech impairment, learning disability, emotional problem, behavioural problem, chronic illness (e.g. Otitis Media), neurodevelopmental disorder, and others.
- parent characteristics:
  - highest level of high school completed, post-school qualifications, occupation/employment status – for Parent 1 and Parent 2
- location characteristics:
  - state/territory
  - remoteness (for more details, see https://www.abs.gov.au/statistics/standards/australian-statistical-geography-standard-asgs-edition-3/jul2021-jun2026/remoteness-structure/remoteness-areas)
  - SEIFA IRSD for the local community
  - residential stability in the local community. Child-level data on residential stability (Hewitt and Walter 2014) were unavailable, so an area-level measure of residential stability was included (proportion of the population who changed address within the past year).

Nearly 20% of the First Nations children spoke a language other than/as well as English at home, and 65% had no identified developmental difficulties. The majority lived in *Major cities* (40%), followed by *Inner and outer regional* areas (47%), with 13% in *Remote and very remote* areas. Twenty per cent lived in areas termed as having 'high mobility,' where 20% or more people had moved house in the previous year. Forty-four per cent of First Nations children lived in the most disadvantaged areas, with another 25% in the next most disadvantaged quintile (see tables S3.9 to S3.12).

Cross-sectional analysis of the child, location and parent variables with preschool status suggest that children with the following characteristics were more likely to have been enrolled in preschool than their counterparts (see tables S3.9 to S3.12):

- older children
- those without developmental difficulties
- those who spoke only English at home
- those from areas of least disadvantage
- those from areas of lower mobility

- those with a parent who had completed year 10 or above, had some post-school qualification, and was working.

These results are generally in line with previous research, noting that with any cross-sectional analysis there is the potential for reverse causality (for example, attending preschool is associated with lower developmental vulnerability or risks on some of the other AEDC indicators).

Exploratory multivariate logistic regression analyses on having attended preschool suggested that several of the parent variables could be condensed into smaller groups – for example, the key variable within the employment/occupation category was whether the parent was currently employed, not the specific occupation. Similarly, the key variable for post-school qualifications was whether the parent had any qualifications (not which ones). All models that include parent variables also included a separate category for missing data.

Four final models were run sequentially:

- Model I: included only the child characteristics
- Model II: added the location variables to the variables included in Model I
- Model III: added Parent 1 variables to those included in Model II
- Model IV: added Parent 2 variables to those included in Model III.

The full set of results are presented in Table 3.3 and the key findings by type of characteristic are summarised below. The results from these logistic regressions are also presented as marginal effects in Table S3.13. It is important to note that the results from individual variables are the effects controlling for all other variables in the model, and may differ from the findings of the cross-tabulations.

The enrolment outcome was also modelled separately for aggregated remoteness categories (*Major cities*, *Inner and outer regional* areas, *Remote and very remote* areas). While there were differences in the effects of some variables (for example, child characteristics were no longer statistically significant in *Remote and very remote* areas and residential stability was stronger), for the most part the results were the same (and the statistical significance of states and territories did not change). Results are not presented here.

3.4.1 Multivariate logistic regression results

Child characteristics

- First Nations children aged 5 or 6 and above in their first year of full-time school were more likely to have attended preschool than their younger counterparts. This finding needs to be investigated further; a possible explanation could be the absence of a nearby preschool or the costs associated with preschool.
- Children who spoke only English at home were more likely to have attended preschool.
- There was a negative association between developmental difficulties and having attended preschool – that is, the estimated odds ratio of having attended preschool were 0.7 to 0.8 times as low for children with a recorded developmental difficulty as those without.
- These child characteristic effects did not change a great deal with the addition of the other variables to the model. For instance, the effect of gender is never statistically significant in any of the models; but the age effect is very strong and persistent in all models.

Location characteristics

- Children in *Inner regional* areas were slightly more likely to have attended preschool than those in *Major cities*; but First Nations children in *Remote* and *Very remote* areas do not have a lower likelihood of preschool enrolment than those in *Major cities*.
- Area-level socioeconomic disadvantage (as measured by SEIFA IRSD quintile ranking of the neighbourhood the child lives in) is statistically significant only in Model II before parents' characteristics are added to the model (when they are no longer statistically significant).
- Children in areas where 10% or fewer people had changed addresses in the previous year (areas of low mobility) were more likely to have gone to preschool than those in areas where more than 20% of the population had changed addresses.
- Children living in Victoria, Western Australia, South Australia, Tasmania, the Australian Capital Territory, and the Northern Territory were all more likely than children living in New South Wales to have attended preschool, even after controlling for child-level, other location factors, and parental characteristics. (Enrolment rates in the AEDC are higher for First Nations children in the Northern Territory than for those in New South Wales (91% and 87%, respectively), but these are only for children with known preschool status.) Children living in Queensland were less likely than those in New South Wales (and the other states and territories) to have attended preschool.

Parental characteristics

- Parents' high school attainment and post-high school qualifications are positively associated with the child's having gone to preschool. Several of these effects are quite strong.
  - For instance, year 12 completion by Parent 1 alone doubles the odds of preschool enrolment in Model III results (and is 1.9 times the odds of preschool enrolment in Model IV) compared with children whose Parent 1 had a year 9 or below level of education. Even year 10 or 11 completion by Parent 1 increases the odds of preschool attendance by their children (about 1.3 times compared with children whose Parent 1 had a year 9 or below level of education).
- Having an employed Parent 1 also roughly doubles the odds of preschool enrolment, and this effect persists even when the employment status of Parent 2 is taken into account. The introduction of Parent 2 variables into the model did not change the direction or statistical significance of the Parent 1 variables.
  - One example is the effect of Parent 2 employment. In the Model IV results, the employment of Parent 2 (the father usually) increases the odds of the child's preschool enrolment 1.4 times compared with when Parent 2 is not employed. But this does not reduce the importance of the Parent 1 employment status on preschool enrolment, which is still associated with 2 times higher odds in both models IV and III.

The results from these multivariate regressions are not only useful for identifying which variables or factors are statistically significantly associated with preschool enrolment. Some of the results can also be used to identify groups of children who may be missing out (such as those with developmental difficulties) so that policies and programs can be targeted at those groups. Other results show the potential future impact of the other Closing the Gap socioeconomic targets (such as increasing educational attainment and employment) on preschool enrolment, but those are longer term effects.

Table 3.3: Multivariate logistic regression results (odds ratios) for preschool attendance, First Nations children in the 2021 AEDC (with variable reference categories in parentheses)

Variable definition		Variable effects modelled	Model I	Model II	Model III	Model IV
Child characteristics	**Sex** (male)	Female	1.08	1.05	1.08	1.08
	Age (<5 years)	5 years	1.54***	1.35***	1.36***	1.37***
		6+ years	1.71***	1.24*	1.29*	1.30*
	Developmental difficulties (none)	Developmental difficulties recorded	0.74***	0.71***	0.82***	0.84***
	Language(s) at home (languages other than, or in addition to English)	English is the only language at home	1.21***	1.30***	1.17*	1.16*
Location characteristics	**Remoteness** (*Major cities*)	*Inner regional*		1.12*	1.16*	1.16*
		Outer regional		1.01	1.06	1.07
		Remote		0.99	1.07	1.10
		Very remote		1.07	1.16	1.18
	State/territory (NSW)	Vic		2.54***	2.63***	2.67***
		Qld		0.64***	0.62***	0.61***
		WA		1.82***	2.18***	2.18***
		SA		3.00***	3.07***	3.07***
		Tas		8.46***	8.21***	8.11***
		ACT		2.17*	2.46*	2.53*
		NT		1.81***	2.08***	2.14***
	SEIFA (IRSD) 1st quintile (most disadvantaged)	2nd quintile		1.15**	1.03	1.01
		3rd quintile		1.35***	1.10	1.07
		4th quintile		1.54***	1.13	1.07
		5th quintile – most advantaged		2.06***	1.36	1.28
	Residential stability (20%+ of population at a different address 12 months ago)	<=10% in a different address		1.39***	1.50***	1.50***
		>10%–<20% in a different address		1.09	1.10	1.10
Parent 1	**Highest grade of high school completed** (year 9 or below)	Year 12			2.07***	1.87***
		Year 10 or 11			1.29***	1.25**
		Unknown			1.18	1.24
	Post school qualifications (none)	Any post high school qualifications			1.59***	1.44***
		Unknown			0.97	0.90
	Employment status (not employed)	Currently employed			2.13***	2.00***
		Employment status unknown			1.25***	1.25***
Parent 2	**Highest grade of high school completed** (year 9 or below)	Year 12				1.23*
		Year 10 or 11				1.01
		Unknown				0.91
	Post school qualifications (none)	Any post high school qualification				1.24**
		Unknown				1.21**
	Employment status (not employed)	Currently employed				1.28**
		Employment status unknown				1.12

*** = $p<0.001$; ** = $p<0.01$; * = $p<0.05$.

Source: AIHW analysis of 2021 AEDC (excludes records with 'unknown' or 'missing' preschool status).

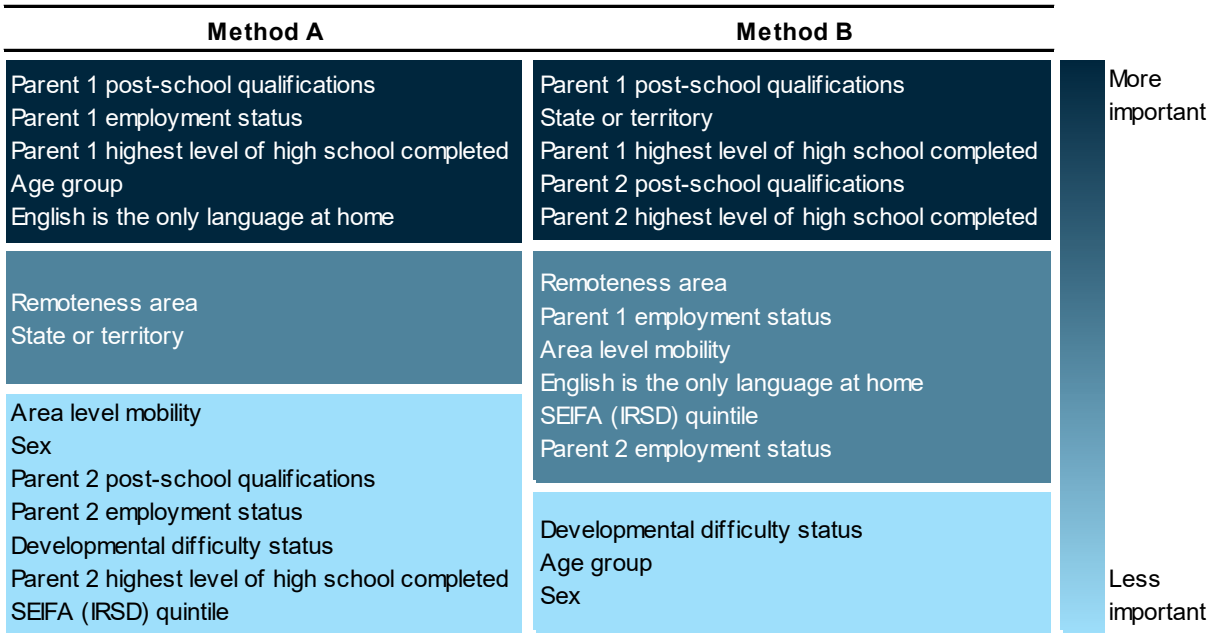
3.4.2 Random forest analysis

The results of random forest analyses are shown in Figure 3.11. For more information about random forest analysis see Appendix A.

Both methods A (the Gini method) and B (the permutation method) emphasised the educational attainment (post-school qualifications and highest level of school) and employment status of Parent 1 as being among the most important factors associated with preschool attendance among First Nations children.

State or territory, remoteness area and speaking a language other than English at home were also estimated to be relatively important variables, appearing in either the most important or next (medium) importance group across both methods. These findings were broadly consistent with the statistically significant odds ratios estimated for these variables in the logistic regression model (see Table 3.3).

Figure 3.11: Relative importance groupings of variables predicting preschool attendance, First Nations children in the 2021 AEDC with known preschool status



Notes

1. Based on a random forest model estimated in the R language using the ranger package (R Core Team 2022; Wright and Ziegler 2017).
2. The number of importance groups was determined for each method based on the distribution of the normalised variable importance values.
3. Method A was based on the bias-corrected Gini method of determining variable importance. Method B was based on the permutation method of determining variable importance (Nembrini et al. 2018; Wright and Ziegler 2017).
4. Numerical variable importance is obtained using a random forest implementation. Rather than showing the variable importance values, which may be misused, variables are grouped based on the numeric values but with clear distinctions between the groups.

Source: AIHW analysis of 2021 AEDC.

These variables are also likely related to the overall availability (supply) and cost of preschool in local areas, as well as to the difficulties that families whose language is other than English may have in accessing and enrolling their children in preschool if the preschool does not provide information in community languages. Previous research has also shown that families of children with a developmental difficulty have challenges in finding appropriate preschool services.

Compared with the findings of the logistic regression model, however, developmental difficulties, the age group of the child and the education or employment characteristics of Parent 2 were ranked as being less important. This is likely due to the differences in methodology between the random forest approach and logistic regression.

3.5 Policy implications

The immediate and long-term benefits of quality early childhood education for children, their families and for society are considerable (AIHW 2015; Phillips 2017; PWC 2014; Productivity Commission 2014; Warren et al. 2016) and First Nations children who attend preschool are more likely to be developmentally on track, even after controlling for other variables (AIHW 2018; Biddle and Bath 2013; Falster et al. 2021; Jorgensen et al. 2017).

Outcome 3 of the 2020 National Agreement on Closing the Gap is that Aboriginal and Torres Strait Islander children are engaged in high-quality, culturally appropriate early childhood education in their early years, with a national target goal of 95% enrolment in preschool by 2025.

The extent to which the target is on track is difficult to measure because of methodological issues around how best to capture the YBFS population and the different sources of data for the numerator and the denominator. The official estimates suggest that, in 2022, the percentage of First Nations children enrolled in preschool in the YBFS in 5 states and territories has exceeded 100% (were above the national target) and that only the Northern Territory is below the national target.

Estimates with an alternative specification of the denominator yield a different picture, however, with only Victoria, Tasmania, and the Australian Capital Territory having rates exceeding the national target. Those estimates find that while the national enrolment rate has been rising it was slightly below the national target trajectory point in 2022. This is more in line with estimates from the AEDC data collection. The logistic regression results from the AEDC data showed that children in all states (other than Queensland) were more likely than those in NSW to have attended preschool.

Unlike most other Closing the Gap targets, preschool enrolment is essentially a service use indicator, affected by the interaction between ‘supply’ and ‘demand’. The literature review underscored the importance of both these elements. On the supply side, children can attend preschool only if there is an available place near them. Other relevant supply side factors encompass accessibility, cultural safety, affordability, workforce availability and suitability for an individual child and their family.

Most quantitative research on preschool enrolment at the individual level is unable to take these structural factors into account and focuses on the child, family and broader locational factors that help explain the observed variation in preschool attendance. The analysis of the 2021 AEDC carried out for this chapter is of that nature, using the limited range of variables collected in the AEDC to explain the variation in First Nations children’s preschool attendance in the YBFS.

Strategies for improving preschool attendance

This analysis highlighted the importance of parental education and employment status on First Nations preschool attendance. It suggests that improving employment and education opportunities and residential stability for First Nations people is likely to improve total preschool participation rates in the long term.

Findings also showed that children with developmental difficulties (i.e. physical disability, visual impairment, hearing impairment, speech impairment, learning disability, emotional

problem, behavioural problem, chronic illness, or neurodevelopmental disorder) were less likely to attend preschool, net of other factors. This highlights the need for targeted social policy to ensure that appropriate and culturally safe preschool places are available to support children with developmental difficulties.

The analysis also revealed the statistically significant variation in preschool attendance between states and territories, net of child and family characteristics, reinforcing the importance of policy and funding arrangements for this target outcome.

As noted previously, the preschool system itself varies considerably across states and territories, and is in a period of rapid change, with states such as New South Wales and Victoria committing to providing access to free preschool places in the YBFS (which would align their models with those of the majority of other states and territories). Future research in this area would benefit from data that would allow not only the modelling of both supply and demand factors at the individual level, but also granular spatial analyses that could rapidly identify areas with service gaps.

Appendix 3A: Regulatory framework

Since 1 January 2012, most long day care, preschool, family day care and outside hours school care services fall within the scope of the COAG endorsed National Quality Framework for Early Childhood Education and Care (NQF). Tasmania and Western Australia regulate their state-provided kindergartens (preschools) under relevant state education legislation but commit to aligning with the NQF.

The NQF aims to create a uniform national approach to the regulation and quality assessment of early education and care (ECEC) services and replaces separate licensing and quality assurance processes in each jurisdiction. It was established in response to concerns about inconsistent quality standards across jurisdictions, and overlap between Australian Government and state and territory government regulatory arrangements. In 2022, Education Ministers agreed to changes to the NQF based on findings from the 2019 NQF Review (https://www.acecqa.gov.au/national-quality-framework).

The NQF has 4 key components:

- a national legislative framework (the National Law and National Regulations)
- a national body, the Australian Children's Education and Care Quality Authority (ACECQA), responsible for establishing consistent and efficient procedures for the operation of the NQF
- a National Quality Standard (NQS) with 7 assessable quality areas
- a national quality rating and assessment process to complement the NQS (Productivity Commission 2014).

Key elements of the NQF include:

- specified educator-to-child ratios so that each child receives the individual time and attention they need
- an approved learning framework to support each child's learning and development
- educator qualification requirements so that educators are better able to lead activities that inspire children and help them learn and develop.

Individual providers are authorised only for a specific number of places each day.

Appendix 3B: Measuring preschool enrolment

3B.1: Numerator (number of children enrolled in preschool in the YBFS)

Data source

Data on the number of children enrolled in preschools are sourced from the yearly Early childhood education and care collection (ECECC).

The ECECC collects data from all service providers delivering a preschool program to children aged 3 to 6 years (inclusive) enrolled during the reference period. A service provider is considered in-scope if it was providing a structured, play-based learning program, delivered by a degree qualified teacher, aimed at children in the year or two before they start full-time schooling (a preschool program) during the reference period.

Children as of 1 July in the collection year who were aged 3 to 6 and enrolled in a preschool program during the reference period are included in the collection. To be considered enrolled, the child must have attended the preschool program for at least 1 hour during the reference period (including attended an early childhood education program online or remotely due to COVID-19 impacts) or be absent due to illness, extended holiday leave or COVID-19 impacts, and expected to return. Note that the ECECC contains information only on children currently enrolled in preschool – there is no information available from this collection on preschool-aged children in the community who are not enrolled.

The ABS publishes the yearly data in its *Preschool education, Australia* publications, and makes the child/episode level data available through TableBuilder and in DataLab. For more details, see ABS 2023a.

State/territory variation in terminology and entry requirements by age

Table 3B.1: Preschool program terminology and age entry requirements, by state/territory

	Preschool		Transition to primary school Foundation year (Year before year 1)	
State/territory	**Program name**	**Age of entry**	**School year**	**Age of entry**
NSW[(a)]	Preschool	Generally 4- and 5-year-olds	Kindergarten	5 by 31 July
Vic[(b)]	Kindergarten	4 by 30 April	Preparatory (Prep)	5 by 30 April
Qld	Kindergarten	4 by 30 June	Preparatory (Prep)	5 by 30 June
WA	Kindergarten	4 by 30 June	Pre-primary	5 by 30 June
SA[(c)]	Preschool	4 by 1 May	Reception	5 by 1 May
Tas	Kindergarten	4 by 1 January	Preparatory (Prep)	5 by 1 January
ACT	Preschool	4 by 30 April	Kindergarten	5 by 30 April
NT[(d)]	Preschool	4 by 30 June	Transition	5 by 30 June

(a) New South Wales subsidises early access to community preschool for 3-year-old First Nations children and 3-year-old children from low-income families. In New South Wales, all licensed children's services for children aged under 6 (who have not started kindergarten) are required to offer programs that meet children's educational and developmental needs.

(b) In Victoria, First Nations children and children known to child protection are eligible for free kindergarten through Early Start Kindergarten funding if they are aged 3 by 30 April of the year in which they are enrolled.

(c) South Australia provides early access to department-funded preschool for children who are Aboriginal and Torres Strait Islander or under the Guardianship of the Minister after their third birthday. The compulsory school starting age in South Australia is 6 at the oldest.

(d) In the Northern Territory, children living in *Very remo*te areas can attend preschool from the age of 3, provided a parent/guardian accompanies the child and remains with them at each session until they reach the age of 3 years and 6 months.

Source: ABS 2023b.

As shown in Table 3B.1, there are differences between states/territories in the ages at which children enter preschool and are permitted to enrol in primary school.

Assigning Year Before Full-time School status to children

Based on the information in Table 3B.1, the ABS uses a combination of birth dates and adjustment factors to determine for individual children already in preschool whether they are in a Year Before Full-time School (YBFS) cohort or not (Table 3B.2 presents the guidelines for the 2022 data). The YBFS flag is available in the data in TableBuilder.

Table 3B.2: State/territory-specific YBFS age cohorts based on months and years of birth, 2022[(a)]

State/ territory	Age cohorts by month and year of birth
NSW	All children born between 2 July 2016 and 31 December 2017 and adjusted counts for children born between 1 January 2018 and 31 July 2018 (56%)
Vic	All children born between 2 July 2016 and 31 December 2017 and adjusted counts for children born in January 2018 (74%), February 2018 (63%), March 2018 (52%) and April 2018 (41%)
Qld, WA, NT	All children born between 1 July 2017 and 30 June 2018
SA and ACT	All children born between 1 May 2017 and 30 April 2018
Tas	All children born between 1 January 2017 and 31 December 2017

(a) The adjustment factors used by the Australian Bureau of Statistics (ABS) for New South Wales and Victoria account for the rates at which children are expected to proceed from preschool to primary school, based on advice from the state/territory education departments.

Source: ABS 2023b

First Nations status

Each child's record contains an Indigenous status flag (Indigenous, non-Indigenous, Not stated).

The estimated number of First Nations children enrolled in preschool in the YBFS includes those with known Indigenous status plus, an adjustment to include a share of children enrolled in preschool with a 'Not stated' Indigenous status (in proportion to the ratio of children enrolled with known Indigenous status). In 2022, of the 1,292 children enrolled in preschool with a 'Not stated' Indigenous status, 86 were considered to be First Nations children (Productivity Commission 2023, Table CtG3.A2).

Distribution of children in the ECECC by YBFS cohort and First Nations status

According to the 2022 ECECC data, around 33,100 First Nations and 519,000 non-Indigenous children aged 3–6 were enrolled in preschool programs across Australia (ABS 2023a).

Of those, 57% of the First Nations children and 51% of the non-Indigenous children were assigned by the ABS to the state-specific YBFS cohort (that is, they were expected to make the transition to primary school in 2023).

New South Wales and Queensland had both the highest numbers of First Nations children in preschool overall, and the highest numbers in the state-specific YBFS cohorts (Table 3B.3). In Victoria and South Australia, roughly half the enrolled First Nations preschoolers were expected to transition to school in 2023, compared with nearly three-quarters of those in Western Australia.

Table 3B.3: Distribution of First Nations children enrolled in preschool in 2022, by state/territory

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Not in YBFS cohort	5,527	1,890	3,809	877	938	423	169	555	14,189
In the adjusted YBFS cohort	6,369	1,798	5,349	2,498	1,065	690	189	957	18,917
Total	**11,896**	**3,688**	**9,158**	**3,375**	**2,003**	**1,113**	**358**	**1,512**	**33,106**
Proportion YBFS (%)	53.5	48.8	58.4	74.0	53.2	62.0	52.8	63.3	57.1

Source: AIHW analysis of ABS preschools collection data, using TableBuilder. Includes all First Nations children aged 3–6. Numbers may vary between tables in this appendix because of the introduction of random error in TableBuilder.

The likelihood that a First Nations child in a preschool program in 2022 was in the YBFS cohort increased by remoteness (Table 3B.4): in *Major cities*, 55% of First Nations preschoolers were expected to transition to primary school in 2023, compared with 72% of those in *Very remote* areas. This pattern may be related to the overall availability of preschool places (because First Nations children and children in the YBFS have priority for places, if the overall number of places is limited, they will make up a higher proportion of the total number of preschoolers). There was much less difference between areas based on their SEIFA scores (Table 3B.5).

Table 3B.4: Distribution of First Nations children enrolled in preschool in 2022, by remoteness

	Major cities	Inner regional	Outer regional	Remote	Very remote	Total
Not in YBFS cohort	6,242	4,308	2,638	496	506	14,191
In the adjusted YBFS cohort	7,565	5,156	3,859	1,047	1,292	18,920
Total	**13,807**	**9,464**	**6,497**	**1,543**	**1,798**	**33,111**
Proportion YBFS (%)	54.8	54.5	59.4	67.9	71.9	57.1

Source: AIHW analysis of ABS preschools collection data, using TableBuilder. Includes all First Nations children aged 3–6 with data on remoteness.

Table 3B.5: Distribution of First Nations children enrolled in preschool in 2022, by SEIFA IRSD

	Most disadvantaged	Quintile 2	Quintile 3	Quintile 4	Least disadvantaged	Total
Not in YBFS cohort	5,415	3,363	2,511	1,876	1,014	14,181
In the adjusted YBFS cohort	7,907	4,350	3,145	2,334	1,176	18,912
Total	**13,322**	**7,713**	**5,656**	**4,210**	**2,190**	**33,093**
Proportion YBFS (%)	59.4	56.4	55.6	55.4	53.7	57.1

Source: AIHW analysis of ABS preschools collection data, using TableBuilder. Includes all First Nations children aged 3–6 with data on SEIFA.

Numerators for the official Closing the Gap target calculations

Table 3B.6 presents the estimated number of First Nations children enrolled in preschool in the YBFS between 2016 and 2022, by state/territory. These are the numerators used in the official calculations of the target indicator (they are also used in the Report on Government Services [ROGS] reports).

The accuracy of the data depends on the extent to which the methodology captures the YBFS cohort in each year. However, assessing this would require linking data from the ECECC to schools data.

Table 3B.6: Estimated number of First Nations children in the state-specific YBFS age cohort enrolled in a preschool program, 2022

	State/territory								
Year	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
2016	4,271	1,217	4,200	2,086	962	523	137	1,171	14,573
2017	4,752	1,395	4,451	2,195	984	561	191	1,146	15,673
2018	5,353	1,450	4,577	2,279	1,059	559	182	1,072	16,534
2019	5,531	1,523	4,997	2,231	1,041	645	186	1,142	17,289
2020	5,739	1,594	4,945	2,394	1,010	622	180	1,094	17,584
2021	6,234	1,614	5,209	2,422	1,009	676	248	1,097	18,514
2022	6,369	1,798	5,349	2,498	1,065	690	189	957	18,920

Source: ABS estimates, presented in Productivity Commission 2024.

3B.2: Denominator – potential population of children in the YBFS cohort

Estimating the number of children in the population in the YBFS cohort, particularly at low geographic levels, is difficult both because of the uncertainty around which children will transition to primary school the next year and because of the necessity for reliable population data by age and Indigenous status.

Methodology used to calculate the denominators for the official Closing the Gap reporting

Data for the Closing the Gap reporting uses state/territory-specific YBFS population estimates calculated by the ABS as the denominator.

The ABS calculates the state-specific YBFS population estimates by:

- distributing each state/territory's estimated resident population for children aged 3 to 6 across individual months of birth according to birth statistics for the same time interval (the data used in these calculations were sourced from national, state and territory population and births, Australia)
- aggregating the distributed estimated resident population according to the state/territory-specific YBFS cohort age ranges in each jurisdiction. The same adjustment factors were applied for New South Wales and Victoria as highlighted in Table 3B.2
- deducting the number of children aged 4 and 5 in the state/territory-specific YBFS cohorts that were attending school in each jurisdiction, based on counts reported in Schools, Australia.

The estimates for First Nations children used the same process but with population projections from *Estimates and Projections, Aboriginal and Torres Strait Islander Australians* (ABS 2021b) instead of estimated resident population. This is because data on the estimated resident population for 30 June 2021 by single year of age are not available for this population at the time of writing of this report.

The estimated denominators are presented in Table 3B.7.

Table 3B.7: Potential population of First Nations children aged 4 and 5 in the state/territory-specific YBFS cohort, ABS estimates

Year	NSW	Vic	Qld	WA	SA	Tas	NT	ACT	Australia
2016	7,125	1,392	5,110	2,225	1,011	614	1,480	162	19,119
2017	6,992	1,472	5,355	2,307	979	643	1,431	194	19,373
2018	6,631	1,497	5,329	2,348	1,001	594	1,400	175	18,975
2019	6,602	1,389	5,469	2,301	995	617	1,426	177	18,976
2020	6,812	1,365	5,355	2,274	998	589	1,373	155	18,921
2021	6,880	1,392	5,477	2,268	966	669	1,381	179	19,212
2022	6,656	1,429	5,621	2,296	963	641	1,394	168	19,168

Source: ABS (unpublished) cited in Productivity Commission 2023 (Table CtG 3A.2).

The quality of the estimated denominators depends on the accuracy of the underlying population projections (for example, whether they over- or underestimate the number of First Nations children in each age group), the quality of Indigenous identification in the births data, and the adjustment factors for assigning children to the YBFS cohort. The accuracy of population estimates tends to diminish the further away is the year from the Census upon which they are based, and there is no ability to take into account the changes in levels of identification over time (Productivity Commission 2023).

Alternative methodology for estimating the number of First Nations children in the YBFS cohort

Another option for estimating the number of First Nations children in the YBFS cohort would be to use data from the ABS' National Schools Statistics Collection (Schools) (ABS 2023c).

The National Schools Statistics Collection (Schools data) is a collection of data on students, schools and staff involved in the provision or administration of primary and secondary education (in government and non-government schools) for all Australian states and territories (ABS 2023c). Data on the number of Full-time Equivalent Students by affiliation, sex, grade, Indigenous status, states and territories for 2006–2023 is available in Table 43a of this collection.

Information is available yearly on the number of children by First Nations status in each state/territory who were in 'a Pre-year 1 (Foundation Year)' (in other words, their first year of full-time primary school). Theoretically, then, the children who were in their first year of primary school in 2023 would have been in their YBFS in 2022.

Table 3B.8: Potential population of First Nations children aged in the state/territory-specific YBFS cohort, ABS Schools data

Year	NSW	Vic	Qld	WA	SA	Tas	NT	ACT	Australia
2016	6,181	1,305	5,870	2,348	1,030	530	1,481	164	18,909
2017	6,728	1,506	6,006	2,421	1,000	577	1,298	208	19,744
2018	6,800	1,584	6,075	2,476	1,047	580	1,341	193	20,096
2019	7,005	1,626	6,396	2,499	1,118	649	1,322	216	20,831
2020	7,194	1,692	6,624	2,672	1,160	629	1,280	205	21,457
2021	7,601	1,639	6,529	2,687	1,181	668	1,294	238	21,837
2022	7,664	1,750	6,721	2,743	1,215	688	1,232	193	22,205

Source: ABS (2023c), Table 43a. Data for children in the Pre-year 1 (Foundation Year) for each calendar year were assigned to the previous calendar year as the YBFS cohort (for example, those in their first year of school in 2023 were assigned to the 2022 YBFS cohort).

This approach would provide a potentially more accurate count and the data could also be disaggregated to lower geographic levels (which is not possible with the current specification), allowing areas with lower rates of enrolment to be identified. However, it would also have the disadvantage of having to wait an additional year for the data to be released (for example, 2023 rates could not be calculated until the 2024 Schools data were released), and children may have moved areas in the YBFS and when they entered primary school.

Comparing data from the 2 sources for 2022 shows that, for every jurisdiction (except for the Northern Territory), the Schools data suggest a higher number of children in the YBFS than in the official estimates. In 2016, however, the ABS estimates were higher than the data from the Schools collection.

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