

# Delivery approaches in regional and remote thin markets

A review of the evidence for improving access to quality children's education and care services

February 2025



# **The Australian Education Research Organisation (AERO) is Australia's national education evidence body, working to achieve excellence and equity in educational outcomes for all children and young people.**

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## **Acknowledgement**

AERO's work is made possible by the joint funding it receives from Commonwealth, state and territory governments.

AERO would also like to acknowledge the contribution of Dr Grant Webb who provided an expert review of this content.

## **Acknowledgement of Country**

AERO acknowledges the Traditional Owners and Custodians of the lands, waterways, skies, islands and sea Country across Australia. We pay our deepest respects to First Nations cultures and Elders past and present. We endeavour to continually value and learn from First Nations knowledges and educational practices.

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## **How to cite**

Hinz, B., Nugroho, D., Razak, A., Tang, L., Shirtcliff, R., & Mancenido, Z. (2025). *Delivery approaches in regional and remote thin markets: A review of the evidence for improving access to quality children's education and care services*. Australian Education Research Organisation. <https://www.edresearch.edu.au/research/research-reports/delivery-approaches-regional-and-remote-thin-markets>

## **Publication details**

ISBN 978-1-923066-52-6 (online)

Cover image: AERO

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## Glossary of key terms

Term	Definition
Access	The availability of a place in a children’s education and care service, including in an early childhood education and care (ECEC) service and in an outside school hours (OSHC) service.
Preschool	An early childhood education program delivered by a degree-qualified teacher in the year or 2 before a child starts full-time school (depending on the jurisdiction). Preschool programs may be delivered in a standalone service, within long day care services, within schools and, in some circumstances, in online delivery modes.  Alternative terms for preschool in some jurisdictions include kindergarten, pre-preparatory and reception.
Regional and remote	Geographic areas that are increasingly far from major cities. These terms encompass ‘outer regional’ and ‘very remote’. They are in line with the classifications developed by the Australian Statistical Geography Standard and Australian Bureau of Statistics (ABS) and used by the Australian Early Childhood Development Census. In some places and publications, ‘rural’ is used to refer to areas elsewhere described as ‘outer regional’ or ‘remote’.
Thin market~	‘Under-served or unserved markets ... arising from inadequate provision of childcare services to certain cohorts or areas’ (Australian Competition and Consumer Commission [ACCC], 2023, p.24).  This project focuses on thin markets in regional and remote areas rather than on unserved and underserved cohorts.
Underserved~	Underserved areas include regional and remote communities where low populations lead to lower-than-needed levels and types of provision.
Unserved~	Unserved areas typically have no providers able or willing to supply any level of service, even with existing government supply-side funding programs, due to the very high costs of supplying these markets. Usually, these are remote, very remote and relatively disadvantaged areas.

~ Definition adapted from ACCC (2023).

## List of abbreviations

Abbreviation	Full term
ABS	Australian Bureau of Statistics
ACCO	Aboriginal Community Controlled Organisation
ACCC	Australian Competition and Consumer Commission
AERO	Australian Education Research Organisation
AIFS	Australian Institute of Family Studies
ECEC	Early Childhood Education and Care
FDC	Family day care
ICPA	Isolated Children's Parents' Association of Australia
IHC	In Home Care (the Australian Government program)
LDC	Long day care
NQF	National Quality Framework
NQS	National Quality Standard
NRWC	National Rural Women's Coalition
OECD	Organisation for Economic Co-operation and Development
OSHC	Outside school hours care (also known as OOSH [outside of school hours] care in some parts of Australia)
OSHCA	Outside School Hours Council of Australia
PC	Productivity Commission
RCT	Randomised controlled trial
SNAICC	Secretariat of National Aboriginal and Islander Child Care
UK	United Kingdom
US	United States



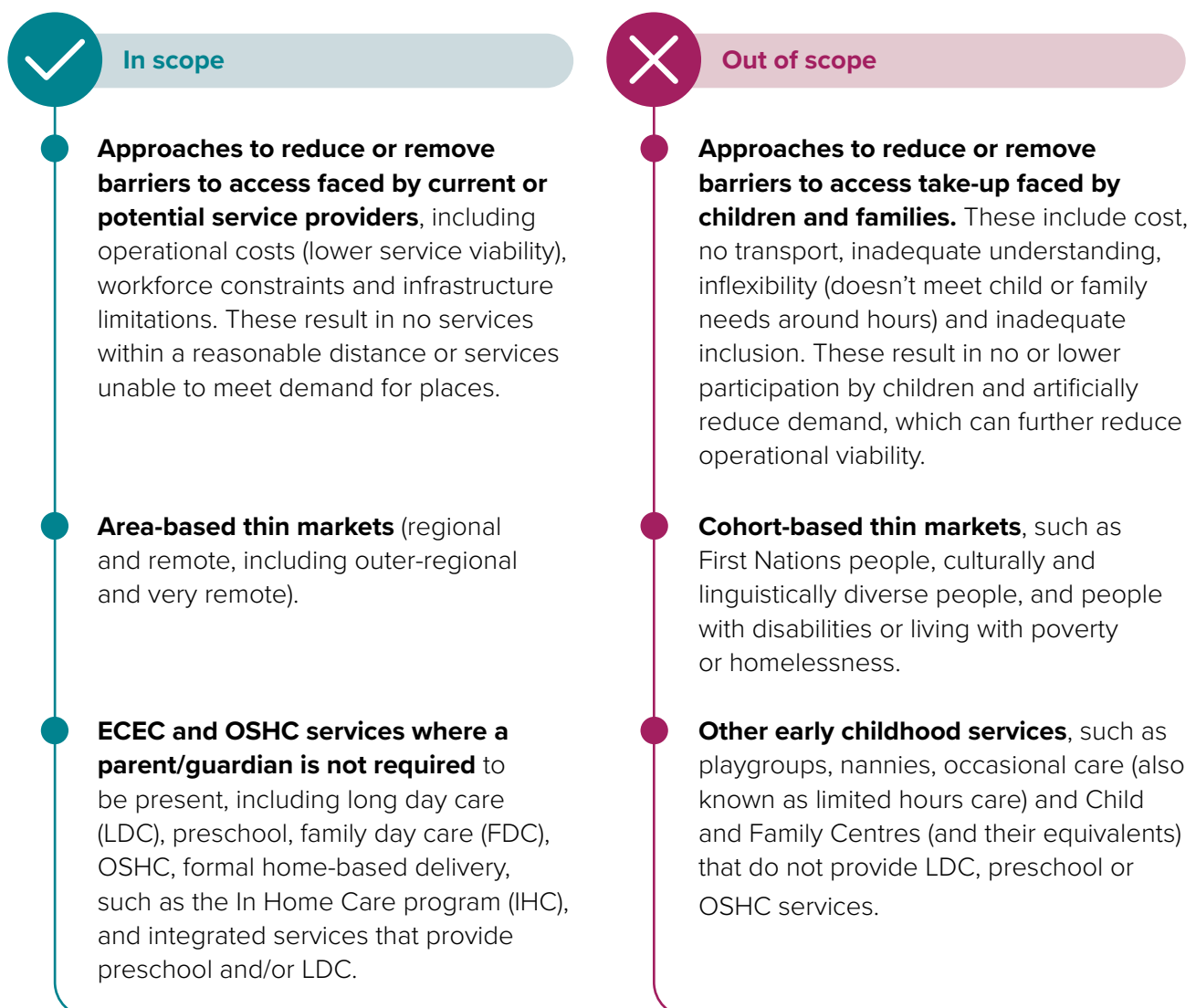
## Summary

An equitable early childhood education and care (ECEC) system in Australia relies on the availability of quality services that meet the needs of all children and families. Despite improvements in access over the past decade, gaps in quality service delivery remain. Availability worsens with distance from regional centres, and in some regional, rural and remote areas, there are few or no services or places available (Australian Competition and Consumer Commission [ACCC], 2023; Hurley et al., 2022; Productivity Commission, 2024a).

This report sets out the findings of a literature review on approaches to improve access to quality children's education and care services, including ECEC and outside school hours care (OSHC) services in thin markets. The scope of this review is shown in Figure 1.

This report focuses on unserved and underserved areas in regional and remote areas. These insights are intended to present governments considering delivery options for regional and remote locations with an overview of the available empirical evidence on increasing access.

**Figure 1:** Scope of this literature review



## Approach

The Australian Education Research Organisation (AERO) began with a systematic review of academic and grey literature to identify approaches that improve access to children's education and care services in regional and remote areas that have been empirically studied or evaluated. The literature was assessed against [AERO's Standards of Evidence](#). The approaches were then assessed against [AERO's Evidence Decision-making Tool for Policymakers](#) to generate a level of confidence based on the robustness of the collective evidence.

**Access** is defined as **the availability of a place** in a children's education and care service, including ECEC and OSHC. (*Approaches to reduce or remove barriers faced by children and families – such as affordability – or to improve the accessibility of the service – such as through transport – were out of scope.*)

**Thin markets** are defined as **'Under-served or unserved markets ... arising from inadequate provision of childcare services to certain cohorts or areas'** (ACCC, 2023, p. 24). For this report, **the focus is on geographically-defined areas – regional and remote Australia**. Inadequate provision covers both no availability and low availability of services.

## Findings

AERO's review found the available evidence on improving access in regional and remote locations was **limited in quantity and variable in quality**. Few studies rigorously investigated the impact of approaches on access, with the research instead typically examining barriers, focusing on educational and developmental outcomes, or exploring the experiences of staff or families.

AERO's review identified **8 approaches to improve access with a promising or emerging research evidence base**. Each of these approaches addresses one or more of the identified core barriers to access in regional and remote locations (operational costs, workforce constraints and infrastructure limitations).

**Promising approaches** are those assessed as providing high confidence or very high confidence in effectiveness for improving access based on [AERO's Standards of Evidence](#) and AERO's [Evidence Decision-making Tool for Policymakers](#). These approaches are outlined in [Table 1](#).

**Emerging approaches** are those that have been assessed as providing low or medium confidence in their effectiveness for improving access, based on [AERO's Standards of Evidence](#) and AERO's [Evidence Decision-making Tool for Policymakers](#). These approaches are set out in [Table 2](#). Consideration of these initiatives for implementation requires assessment of appropriateness and feasibility for the context, evaluation and ongoing monitoring, especially over the medium to long term.



**Table 1:** Approaches to improving access in thin markets with a promising evidence base

Approach	Description and where used	Effectiveness	Confidence level
Government provision interventions	<p>Provision interventions range from direct government operation to the 'lighter touch' interventions of strategic commissioning (where government plays an active role in planning, contracting or partnering with external providers).</p> <p>All forms have been used to varying degrees across Australia and internationally.</p>	The available evidence about direct provision and strategic commissioning is robust for ECEC and suggests that when used in a targeted way, they effectively increase access.	Very high
Government funding interventions	<p>Two types of funding interventions were examined:</p> <ul style="list-style-type: none"> <li>targeted supplementary funding based on need, to cover or subsidise the higher operational costs services face in some contexts</li> <li>establishment grants.</li> </ul> <p>Both interventions are used in Australia and internationally.</p>	<p>Where the funding is adequate and the workforce is available, the evidence shows supplementary operational funding is effective in improving and sustaining access.</p> <p>There is mixed evidence on establishment grants. They have been effective in creating new services but can be undermined by application requirements and if the community or service cannot cover ongoing costs.</p>	Very high
Home-based delivery	<p>Formal home-based models include:</p> <ul style="list-style-type: none"> <li>one educator working with one or more children from the same family or multiple families in the child's home</li> <li>one educator with a small group of children in the educator's home</li> <li>multiple educators working with a small to medium group of children in a child or educator's home or another (non-centre-based) location.</li> </ul>	All 3 models have been found to be effective in providing access, including in regional and remote areas (not including preschool delivery). However, there is less empirical evidence for multiple educators working with a group of children.	Very high (not including preschool)
Delivery through a school	<p>The delivery of preschool and OSHC through a school is well-established in Australia and internationally.</p> <p>Preschool-school integration (where preschool children learn alongside young school-aged children in the same classroom) is less common but is used in some regional and remote locations in Australia.</p>	<p>The delivery of preschool and OSHC at a school has effectively increased access in thin markets. Evidence found on preschool-school integrated delivery models focused on enabling access and understanding the impact on desired outcomes (such as learning and transitions), not on the degree to which access improved.</p> <p>While examples of co-locating ECEC services for children aged birth to 3 years of age at schools were found, there was not research evidence on their impact on access.</p>	Very high (preschool and OSHC only)

**Table 2:** Approaches to improving access in thin markets with an emerging evidence base

Approach	Description and where used	Effectiveness	Confidence level
Online delivery	Used for preschool programs. Delivery can be through a teacher and established distance education school (as in Australia and New Zealand) or by private providers using a software-only model (United States [US]).	The available evidence focused on educational effectiveness, not access. Online preschool, however, was found to be a validated model that can provide access to preschool where no other option exists. Both the teacher-based and software-based models produce better educational outcomes than no preschool.  No evidence was found for online delivery of other ECEC or OSHC services.	Medium (preschool only)
Mobile delivery	Mobile ECEC services – which travel to different locations – have been documented in Australia since the 1940s.  Internationally, examples can be found in New Zealand, Scotland, Turkey, India, China, South Africa, Uzbekistan and Korea.	Mobile preschools have been found to provide access where it was otherwise unavailable, with positive educational and social outcomes. There is little research evidence available on the provision of other mobile services, such as LDC or OSHC.	Medium (preschool only)
Employer-supported	In Australia, the most prevalent instances of employers supporting ECEC access include hospitals, universities, local councils, financial institutions and mining companies (usually onsite). Many countries (including Canada, France, Hungary, the US, and the United Kingdom (UK)) provide tax incentives for companies to provide onsite ECEC.	Despite many concrete and emergent examples of ECEC delivery supported by employers or businesses in Australia and internationally, there is a lack of robust, systematic evidence on whether this approach is effective in increasing access in thin markets. There is no published research evidence on its impact on access to preschool.	Medium (not including preschool)
Delivery in nature	Delivery in nature is a well-established approach in several European countries (including Denmark, Sweden, Germany, Czech Republic and Scotland) and is becoming increasingly prevalent elsewhere, including in Australia. It has been used for preschool, LDC and OSHC services.	There is documented evidence that delivery in nature has enabled the expansion or continuation of preschool program access in Europe and Australia where places were limited due to infrastructure constraints. However, most of the evidence does not focus on access or thin markets, and the studies vary in quality.	Medium to Low (preschool only)

### **Across all approaches reviewed, there were 3 preconditions of success:**

- adequate, sustainable and flexible funding that considers all associated costs
- an available workforce with the required qualifications, capacity and capabilities, so the service can meet demand, regulatory requirements and provide high-quality education and care
- meaningful and ongoing community engagement, to ensure the approaches respond to each community's unique combination of needs and access barriers.

Additional factors that enable effectiveness include:

- a long-term approach
- cohesive, multi-pronged solutions tailored to local contexts to address the combination of barriers and diverse child, family and community needs and contexts
- effective coordination across levels of government and with non-government providers, including information and data sharing, such as workforce and population data
- addressing participation and inclusion barriers, such as affordability and transport, that may prevent children or families from taking up available places.

## **Implications and considerations**

Rural areas are not mini-metropolitan areas where a city solution can be 'helicoptered in' to solve a specific rural problem (no matter how well-intended). Tailored measures are more likely to be accepted and embraced by residents, especially if they are co-designed and inclusive of diversity within the community and when shared ownership can help drive the outcomes.

– Deerain (2023)

This review affirms that **there is no single or short-term solution** to addressing the many barriers to access in regional and remote areas. Rather, a combination of approaches tailored to each community is needed. These tailored, multi-pronged solutions benefit from medium- to long-term commitments to provide certainty to service providers, families and workers. They also allow for effective implementation and sustainability for the services, the children and the communities.

Simply having access to ECEC is not enough; shifting the dial on disadvantage requires high quality – exceeding the National Quality Standard (NQS) (Rankin et al., 2024). Ensuring **access to quality is vitally important**, particularly for children experiencing disadvantage who are at higher risk of developmental vulnerability (Department of Education, Skills and Employment, 2022).

Finally, given the limited rigorous evidence on approaches, any intervention to improve access in regional and remote communities **requires effective coordination, local decision-making and planning, with support from governments to establish, sustain and improve**. Monitoring and researching the implementation of innovative and adapted approaches will expand the evidence base on what works, why, how, for whom and in what contexts.

# 1. Introduction

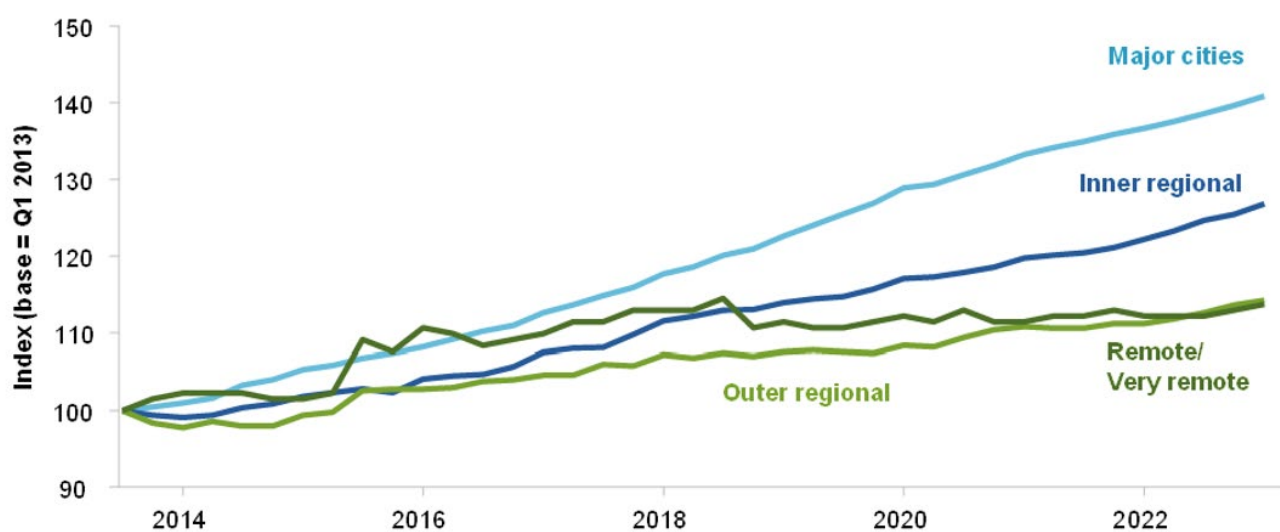
This section of the report provides an overview of the literature review project, including the rationale, scope, definitions, research approach and limitations.

## 1.1. The need to investigate approaches to improve access to early childhood education and care and outside school hours care in regional and remote areas

Many studies have found that access to services is significantly lower in outer-regional, remote and very remote areas, even after accounting for lower population density (ACCC, 2023; Hurley et al., 2022, 2024; Productivity Commission, 2024a). These areas have received only a fraction of the rapid growth in approved places since 2014 (see Figure 2). Furthermore, many services cannot offer all their approved places due to workforce constraints and other operational challenges (Productivity Commission, 2024a).

**Figure 2:** Rapid growth in supply of long day care in urban areas and through for-profit provision

### a) Index for the number of services by remoteness, Q3 2013–Q1 2023



Note: This figure shows Productivity Commission analysis of Australian Children's Education and Care Quality Authority and ABS data.

Source: Figure 3a in [A Path to Universal Early Childhood Education and Care: Draft Report](#) by [Productivity Commission](#), used under a [CC BY 4.0](#) licence.

Not only do regional and especially remote areas have proportionally fewer services, they have a much smaller percentage of LDC services. Importantly, LDC services cater to younger children and provide families with greater flexibility than standalone preschools or school-based preschool services.

These same areas also have a smaller share of OSHC services nationally. For example, in 2021 only 30% of schools in regional Victoria had an onsite OSHC service, compared to 77% of schools in metropolitan Melbourne (Productivity Commission, 2024a).

Quality also varies, with the proportion of services rated as Meeting and Exceeding the NQS decreasing the further one travels from a major city, due in large part to staffing and operational constraints (Productivity Commission, 2024a).

Given the many benefits to children of high-quality ECEC (Baker, 2017; O'Connell et al., 2016; von Suchodoletz et al., 2023; Organisation for Economic Co-operation and Development [OECD], 2018), the lack of availability of quality services (Tang et al., 2024) – and sometimes any service – means that these children are missing out. This matters because children who are attending high-quality ECEC services are less likely to be developmentally vulnerable in their first year of school than peers who attend lower-quality services (Rankin et al., 2024) or no ECEC (Coley et al., 2015).

Parents and families, and their employers and communities, are also negatively affected when there is no access. Parents may be unable to work at all or as much as needed, and the businesses and services they work for are then unable to operate to the desired or necessary extent. For example, teachers and nurses are not able to return to schools and hospitals, with negative flow-on effects for the broader community (Butler, 2024; Productivity Commission, 2024a; TheParentHood, 2023).

**This literature review aims to identify, appraise and synthesise the evidence on existing approaches to improve access to children's education and care services, including OSHC, in regional and remote thin markets.**

### 1.1.1. Scope

This literature review included children's education and care services:

- for children from birth to 12 years of age
- where the parent/guardian is not required to be present (*i.e.*, *preschool, LDC, OSHC, FDC*), and not including informal care options (*i.e.*, *babysitters or nannies*) or playgroups
- in thin markets, geographically defined (*regional and remote locations*)
- in Australia and internationally.

In Australia, most of these services fall under the National Quality Framework (NQF) in some or all jurisdictions. Some services currently sit outside the NQF, such as the Australian Government's In Home Care (IHC) program, preschool (in some jurisdictions) and mobile services, although internationally these services might fall under similar frameworks to the NQF.

## 1.2. Research approach

### 1.2.1. Research question

Our overarching question was: **‘What approaches have been empirically shown to increase access to quality ECEC and OSHC services in regional and remote thin markets?’**

Supplementary questions were:

- How does the approach address access in thin markets?
- How effective is it for improving access in the long term?
- What factors support and constrain effectiveness (and are these preconditions for success)?
- Where is it used and how prevalent is it?

These questions were investigated using a **systematic, structured literature review** employing multi-criteria identification and appraisal techniques to focus on the most relevant and recent academic and grey literature. This was **combined with targeted searches** for the specific approaches identified in the literature. Research publications cited in this report were assessed against [AERO’s Standards of Evidence](#).<sup>1</sup> Following this, all approaches were assessed against [AERO’s Evidence Decision-making Tool for Policymakers](#) to generate a confidence level.<sup>2</sup>

### 1.2.2. Limitations

It is difficult to isolate the impact of an individual model, approach or intervention. This difficulty arises from numerous variables, including multiple approaches being used simultaneously in a single location, with unclear boundaries between them. Similarly, seeking to generalise or extrapolate from these studies, especially overseas studies, introduces additional risks due to the many differences in design, implementation, objectives and operational context (Productivity Commission, 2023).

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1 AERO’s Standards of Evidence establish AERO’s view on what constitutes rigorous and relevant evidence. When evidence is rigorous and relevant, it provides confidence that a particular approach is effective in a particular context.

2 AERO’s Evidence Decision-Making Tool for Policymakers provides a structured way to help consider the rigour and relevance of evidence objectively.



## 2. Findings

This section of the report sets out AERO's findings from the literature review on approaches to improving access. These are grouped by the extent of available evidence on effectiveness into promising and emerging approaches.

**While there is limited research evidence on the impact of different delivery approaches for ECEC and OSHC on access in regional, rural and remote areas, there is enough to identify promising or emerging approaches to improving access.**

Our initial search of academic literature using the key search terms found minimal research evidence documenting the effectiveness of specific approaches for improving access in regional and remote areas. Of the published studies identified, these typically:

- focused on the problems and barriers rather than solutions or delivery approaches
- did not provide evidence of effectiveness
- conflated access with participation, inclusion or related terms, and/or did not define access
- did not always differentiate between geographic areas
- did not include, or only provided minimal detail on, funding and governance arrangements
- did not always specify which service types or age groups were examined
- were small in scale (looking at 5 services or less, or with fewer than 20 individual participants).

While publications typically mentioned whether First Nations people were recipients of a program or service or were participants in qualitative research, the publications generally did not disclose whether the research or writing teams included First Nations people. Furthermore, they did not describe approaches taken to ensure cultural safety and responsiveness.

### 2.1. Findings on approaches that improve access

**Through the literature review, AERO identified and reviewed 8 approaches that have been shown to improve access to ECEC and OSHC in regional and remote thin markets.** These potential solutions have been classified into having either a promising evidence base (high or very high confidence in effectiveness) or emerging evidence base (low or medium confidence in effectiveness) as per [AERO's Standards of Evidence](#).

### 2.1.1. Promising approaches

The promising approaches identified were:

- **Government provision interventions:** These interventions range from direct government provision and operation of services to strategic commissioning approaches, where the government plays an active role in planning, contracting or partnering with other entities that provide and operate the service. Strategic commissioning includes place-based integrated approaches, including those delivered by an Aboriginal Community Controlled Organisation (ACCO).
- **Government funding interventions:** These interventions fall into 2 main models:
  - targeted supplementary operational funding to cover or subsidise the higher costs or greater challenges in delivering the service due to factors such as location, low population or remoteness
  - establishment grants.

It is possible for service providers to receive both types of funding interventions.

- **Home-based delivery:** This is typically delivered in either the child or educator's home and usually involves smaller groups of children and greater flexibility of hours. Providers may be supported by network or coordinator organisations. It is sometimes offered in a non-domestic setting, such as a school or community building.
- **Delivery through a school:** This typically includes delivery of preschool programs and OSHC through a primary school. Integrated preschool-school delivery (where children are in the same classroom with the same teacher) is another model.

### 2.1.2. Emerging approaches

Given the limited evidence base, implementation of these initiatives requires careful consideration, including the collection of evidence and data about the effects on improving access, especially over the medium to longer term. They include:

- **Online delivery:** Also referred to as remote delivery, this consists of an early learning program, typically preschool, delivered to children remotely. This usually occurs via a qualified teacher, or a software program, supplemented by a program delivered by the child's family or caregiver(s).
- **Mobile delivery:** Services where educators or teachers visit multiple locations to provide educational programs and resources.
- **Employer-supported delivery:** Services at or near worksites, with financial, operational, facilities or other support supplied or funded by one or more employers.
- **Delivery in nature:** The service is delivered in nature for some or all the time. In Australia, it is typically called 'bush kinder,' 'beach kinder' or 'river kinder', while internationally, it is usually called 'forest preschool' or 'nature school'.

## 2.2. Approaches with a promising evidence base

### 2.2.1. Government provision interventions – very high confidence

Government provision interventions **range from direct government operation to ‘lighter touch’ interventions of strategic commissioning** (where the government plays an active role in planning, contracting or partnering with external providers) to ensure services are available where the market would not necessarily deliver due to operational viability and profitability issues. In Australia, it includes delivery of government-funded services through an ACCO.

#### **Place-based, integrated service hubs are commonly delivered through strategic commissioning.**

In these integrated, place-based approaches, ECEC services are delivered in the same location as other child and family services, such as maternal and child health nurses, parenting programs, allied health services and social workers. They often have key workers who can support individuals and families to navigate and connect with services that may benefit them. Integrated service hubs sometimes include LDC and/or preschool services (in scope), but not all integrated services provide them.

#### **Evidence on effectiveness**

AERO reviewed 11 published studies that investigated or provided evidence of the impact of government provision interventions on access to children’s education and care services. Only one of these included OSHC. Key findings are summarised as follows:

- A UK Department of Education research report on the role and contribution of maintained nursery schools in England found these services provided access to ECEC where there otherwise was none. It also found these services tended to be of higher quality (in 2016, for example, 63% of these were rated as ‘Outstanding’ by Ofsted compared to 18% of nursery schools delivered by other provider types [Paull & Popov, 2019]).
- The Ontario Institute for Studies in Education’s (2021) review of Toronto’s early learning and childcare centres found these centres, directly operated by government, ensured access to high-quality infant spaces and were available to families and communities that were unserved or underserved by the market.
- Nous Group’s review of the National Partnership on Universal Access to Early Childhood Education found direct provision of preschool through some school systems and strategic commissioning approaches enabled rapid expansion of access to preschool programs across Australia.
- The Productivity Commission’s public inquiry into ECEC (including OSHC) access and availability in Australia (2024a, 2024b) found targeted provisions are effective levers for establishing and maintaining access in some regional and remote areas where there are persistently thin markets. The nature of government support (i.e., whether direct provision, strategic commissioning or other support) should reflect the specific needs of the community. The Productivity Commission further advised that in communities lacking local representatives to manage the development of ECEC capacity, the building and operation of ECEC services could be tendered out by the Australian Government, which should retain ownership of these facilities.

- The ACCC's (2023) childcare inquiry found that government provision or supply-side funding was needed in unserved markets to enable affordable access within a market stewardship approach. It further found that organisations suited to delivering ECEC in regional and remote communities may lack the capacity or capability to develop competitive tenders or administer complex grants.
- A study of 'childcare' deserts in the US, based on extensive quantitative data, found direct provision and strategic commissioning can enable access, but they require accurate and timely data to be effective (Dobbins et al., 2016).
- The Mitchell Institute's investigation of childcare deserts and oases in Australia (Hurley et al., 2022, 2024) found government-provided preschool is the only ECEC available in many regional, rural and remote thin markets, but it is not always available in a way that families can access it. This investigation did not consider FDC availability.
- Malik and Hamm's quantitative study (2017) found that the US federal government's Head Start programs (delivered via strategic commissioning) account for more than one-third of all 'childcare centres' in the US.
- A study of 'childcare' availability in New Jersey, identified a positive effect from Head Start programs (delivered via strategic commissioning), especially in 'remote<sup>3</sup> and rural areas with seriously limited access to private centre-based care' where it was often the only service available (Kim & Wang, 2019, p. 6). It advocated that all levels of government facilitate the establishment of more such programs in those areas to reduce gaps in access (Kim & Wang, 2019).
- Many studies drawing heavily on quantitative analysis (e.g., Amirkhanyan et al., 2012; Congressional Research Service, 2014; Ficano, 2006) that investigated the impact of the US Head Start program and strategic commissioning found the program increased supply but 'crowded out' some non-government providers in some markets. They also found that effectiveness was improved by stronger collaborative contracting relationships, the contractor's internal management capacity and effective processes.

Regular government reports, such as the Productivity Commission's annual Report on Government Services, also provide evidence of the effectiveness and extent of government provision interventions across this spectrum in creating or improving access to ECEC and OSHC in regional and remote places in Australia.

Refer to [section 2.2.4](#) (delivery through schools) for further findings on government-provided preschool. This section also discusses OSHC, which is provided almost entirely through schools using direct provision or strategic commissioning, where the school (or its council or equivalent) either provides or strategically commissions the service.

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<sup>3</sup> Places categorised as 'remote' in New Jersey would not fall under the same classification in Australia.

Many published studies have evaluated the impact of integrated approaches provided by systems either directly or through strategic commissioning approaches. These studies found they improve access to ECEC (and also improve participation and child and family outcomes) where they are established and funded appropriately.<sup>4</sup> However, they can take many years to have this impact and their effectiveness is proportional to the size of the program, staffing, their inclusiveness and cultural safety, and the quality of engagement of the families or communities they serve (Adamson & Skattebol, 2023; Australian Healthcare Associates, 2019; Bate & Foster, 2017; Carneiro et al., 2024; dandolopartners, 2021; Deloitte Access Economics, 2023; Elek et al., 2022; Fraser et al., 2018; Goff et al., 2013; Inside Policy, 2023; Productivity Commission, 2024b; RSM McClure Watters Consulting & Melhuish, 2015; SNAICC, 2022, 2024; Social Ventures Australia, 2023).

For example, the mid-term evaluation of Connected Beginnings, an Australian Government-integrated, place-based program delivered to First Nations children and families through strategic commissioning by ACCOs at 41 sites across Australia (mostly regional and remote) found it was working well at improving access and should be expanded. Key outcomes included an increase in enrolment and attendance in LDC and preschool, as well as an improvement in learning and development among participating children (Inside Policy, 2023).

The greatest challenge across targeted integrated delivery approaches is the length of time (typically years) for the services to become established and show results. This is due to the time it takes for each precondition of success to occur. These preconditions are identifying the appropriate organisation to deliver the services, engaging with the community to co-design or plan services and approaches, and hiring the 'backbone team' (Adamson & Skattebol, 2023; Bate & Foster, 2017; Deloitte Access Economics, 2023; Elek et al., 2022; Inside Policy, 2023; RSM McClure Watters Consulting & Melhuish, 2015; Social Ventures Australia, 2023). Funding provisions for community-controlled integrated delivery models must recognise these preconditions with a funding model that is adequate, flexible and long-term (Productivity Commission, 2024a; SNAICC, 2024).

Integrated services for First Nations people are best delivered by ACCOs known and trusted by the community they serve and who involve the community in the design of the service (Deloitte Access Economics, 2023; Inside Policy, 2023; SNAICC, 2022).

## Use and prevalence

Governments across Australia and internationally in ECEC and adjacent sectors have directly provided and operated services or commissioned the delivery of services in varying forms and to varying degrees. For example, Australia's Productivity Commission's draft report (2023) identified multiple commitments by jurisdictions to directly provide or establish new ECEC services in regional and remote locations. Internationally, the government also directly provides the Toronto Early Learning and Child Care Service to fill a gap in the market. Strategic commissioning examples include Connected Beginnings in Australia and the Head Start programs in the US.

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<sup>4</sup> Integrated models without an approved childcare service or preschool can also indirectly support access to ECEC through the work of their staff, such as key workers and social workers. These staff can develop trust and understanding with the family, help them overcome or navigate take-up barriers and connect them with (or even enrol them in) an external ECEC service.

Integrated service hubs are found in all Australian states and territories, especially in regional and remote areas (Deloitte Access Economics, 2023; Graham, 2023). They are also found internationally, notably in Canada, the US and the UK, where they typically serve disadvantaged communities or specific cohorts (Bate & Foster, 2017; RSM McClure Watters Consulting & Melhuish, 2015).

### 2.2.2. Government funding interventions – very high confidence

This approach provides additional targeted funding to services (on top of base operational funding). There are 2 main types of additional funding, which can exist independently or be combined:

1. **Supplementary operational funding:** This is based on operational context features such as location, individual needs, backgrounds and characteristics and overall enrolment profile.<sup>5</sup>
2. **Establishment grants:** These are typically one-off and for a limited duration.

#### Evidence on effectiveness

Evidence on the effectiveness of targeted funding interventions is drawn from several sources:

- Rao et al. (2019) investigated how China increased equity in access to quality ECEC via targeted grants to rural areas (matched by local governments).
- Fantuzzo et al. (2021) examined targeted supplementary grants to existing high-quality preschool providers to expand access to neighbourhoods with high socio-economic disadvantage and/or with children identified as at risk or vulnerable. This study found that preschool enrolments increased, and then within 5 years, 5 neighbourhoods were no longer classified as preschool deserts.
- The Productivity Commission (2024a, 2024b) conducted an inquiry on Australia's ECEC system, which examined and modelled various financial interventions. It determined that in some thin markets, ECEC services would not be viable without this additional operational funding (even with increases to the Child Care Subsidy, which would increase availability and viability in many places).
- In its own independent analysis, the ACCC (2023) conducted a Childcare Inquiry, which used similar mixed methods to the Productivity Commission, but with some different definitions and formulas. It arrived at the same conclusion – that establishment and supplementary 'supply side' funding are effective in creating and maintaining ECEC services in thin markets.
- The Australian Institute of Family Studies (AIFS) evaluated the Child Care Package. It found that supplementary funding and establishment grants improved or sustained access (Bray et al., 2021).
- SNAICC (2024) provided a final report on funding model options for ACCO-integrated early years services, drawing on its findings from many years of research. It concluded that higher costs of delivery in remote and very remote contexts, and all elements of this model, necessitate fit-for-purpose funding models.

<sup>5</sup> The ACCC comments that, based on its most recent analysis, while location affects provision costs, overall service costs do not greatly vary across locations except in the most remote areas (ACCC, 2023). However, the ACCC's analysis also finds that ECEC labour costs in remote and very remote Australia are higher than in other areas (ACCC, 2023, pp. 73–76). In particular, remote and very remote services are paying substantially more for qualified educators and teachers, as well as employing a disproportionately large number of unqualified educators and receiving above-average staffing-related NQF waivers. This reflects the workforce challenges, which, although present across the sector, are acute in remote and very remote regions. It may mean that service provision costs in these areas are similar overall to those in regional and metropolitan areas even though they refer to services delivered by a far less qualified cohort of educators (ACCC, 2023, pp. 131–144).



- Supplementary operational funding is effective in improving and sustaining access to ECEC in thin markets – especially in remote locations. However, the degree to which the supplementary funding is effective is heavily influenced by multiple factors, including whether the:
  - funding is sufficient
  - workforce is available
  - funding is well targeted by the government to recipients (enhanced by best available data and coordination between governments)
  - funding formula and accountability provisions are well-designed (with a degree of local flexibility and adjustment mechanisms for government)
  - funding is effectively deployed by the recipients. (ACCC, 2023; Bray et al., 2021; Productivity Commission, 2024a, 2024b; Royal Commission into Early Childhood Education and Care, 2023; SNAICC, 2024)

Establishment grants have been effective in creating new services in thin markets. For example, the Victorian Government’s Establishment Grants reportedly ‘created hundreds of new services in rural and other thin markets’ (Outside School Hours Council of Australia [OSHCA], 2023, p. 5). However, there is evidence that establishment grants do not effectively support access if the community or service cannot cover ongoing operational costs. This requires careful consideration of ongoing financial sustainability when designing and allocating these funding interventions, including business case analysis (ACCC, 2023; Productivity Commission, 2024b; SNAICC, 2024).

The effectiveness of establishment grants can be undermined by requirements for applicants to contribute to the start-up funding in cash or kind (Productivity Commission, 2024b). For OSHC services, reluctance of some school principals, councils or Parents and Citizens’ Associations to facilitate the establishment of a service due to real or perceived regulatory requirements can also undermine effectiveness (Productivity Commission, 2023).

Funding interventions are strengthened by:

- current and future service providers being aware of the initiative, their eligibility and their obligations (Bray et al., 2021; Education Review Office, 2013)
- targeted communication campaigns, websites that are user-friendly and up-to-date, and business support services for supplementary funding recipients in thin markets to reinforce operational viability (ACCC, 2023; Productivity Commission, 2024b)
- fit-for-purpose reporting and accountability processes (Productivity Commission, 2024b), including alignment with the Closing the Gap National Agreement for services for First Nations people (SNAICC, 2024).

## Use and prevalence

Most OECD countries with government-funded services have a funding model consisting of base funding (which may be more or less universal) and targeted supplementary funding based on their enrolment profile or operating context to cover or subsidise additional costs (Productivity Commission, 2023). Australian jurisdictions similarly provide supplementary funding via core funding models or special programs to services in regional and remote areas to support or sustain access.

Establishment grants are a commonly used intervention across Australia and internationally.

### 2.2.3. Home-based delivery – very high confidence (not including preschool)

For this approach, ECEC or OSHC is provided in the educator or child's home (and sometimes in other settings). Educators are typically supported by a network or coordination organisation and typically provide greater flexibility in hours of care than an LDC. Examples include:

- one educator working with multiple children in the educator's home (Australia's FDC model)
- one educator working with one or more children in the child's home (in Australia, this model is restricted to the children being from the same family)
- multiple educators collectively working with a small- to medium-sized group of children in a home or another setting (less common).

#### Evidence on effectiveness

Six published studies have investigated the impact of home-based delivery on access to ECEC and OSHC, including as part of broader investigations that included elements such as quality, features, program effectiveness and child outcomes:

- An international meta-review and conceptual analysis of research on home-based delivery of 'child-minding' (encompassing ECEC, OSHC and other care for school-aged children) was published from 1990 to 2013. This review found delivery was effective in enabling access with distinct pedagogical approaches suited for children with additional needs, although quality varied (Ang et al., 2017).
- The AIFS (2022) and the AIFS and Social Policy Research Centre (2020) evaluated (Australian Institute of Family Studies & Social Policy Research Centre, 2020) the Australian Government's In Home Care program. The evaluations found the program provided access to ECEC and OSHC for some rural and remote families, but demand greatly outstripped supply. They found take-up was limited by cost to families (such as board and lodging for educators), eligibility and the condition that the educator could only care for children from one family.
- Another review of the Australian Government's In Home Care program suggested program and funding revisions to enhance access to ECEC and OSHC for some rural, remote and very remote areas (PwC, 2023).
- TheParentHood's (2023) report, *Choiceless*, synthesised narratives from parents struggling to access ECEC and OSHC in regional, rural and remote locations across Australia. It found that in areas where FDC was available, access was better but demand outstripped supply.
- Flemons et al. (2022) analysed ECEC policies and practices in France from 2017 to 2021, based on documentary analysis and stakeholder interviews. The study found all home-based 'child minders' were the most common form of ECEC for children under 3 years of age across the country, but it didn't provide specific breakdowns on change in access over time for rural or remote families. However, this study also found formal childcare was available for only half of all eligible children and that the absolute number of provisioned places (excluding in preschool) was declining. This is partly explained by growth in preschool attendance from age 3 and the fact that in 2019 preschool became compulsory from this age.
- The Productivity Commission's ECEC Inquiry (2024a, 2024b) examined effectiveness and availability of FDC and the In Home Care program via extensive original research, including data analysis, modelling and stakeholder engagement. FDC was found to be 'relatively more important' in ensuring access in regional and remote areas. This is partly due to fewer entry barriers compared to LDC, with lower set-up costs and fewer children required to make the service financially viable.

A further 8 published studies, plus service provider websites and submissions, provided additional insights into access, usage, quality and outcomes of home-based delivery models, including what helps, hinders or influences their effectiveness. AERO's overarching analysis of these 8 studies found that home-based delivery models provided access to ECEC and OSHC in regional, rural and remote areas (and other areas), including for non-standard hours of care. However, the extent to which access can be improved is conditional upon educator availability; and service quality varies (Blaxland et al., 2016; Corr et al., 2014; Davis et al., 2012; Family Day Care Australia, 2023; Ishimine & Tayler, 2012; National Rural Women's Coalition (NRWC) & Isolated Children's Parents' Association of Australia (ICPA), 2024; Rangonese-Barnes et al., 2021; Verite, 2008).

The literature analysed also provided evidence and insights on quality. Structural measures – including educator training, quality assurance frameworks, appropriate and robust regulation, professional support and supervision networks for educators – are critical to ensure quality (Ang et al., 2017; Davis et al., 2012). The advantages of flexibility for home-based educators may also present challenges for system sustainability. Networks such as those provided by FDC services providing governance and operational support are vital to ensure ongoing access to quality services (Rangonese-Barnes et al., 2021).

## Use and prevalence

Formal home-delivered services occur in urban, regional and remote contexts across the world, with varying levels of coordination, support and oversight. In France, for example, 'certified childminders' are employed by families, subsidised through the national childcare entitlement scheme, and supported through a network that provides training, and other resources, reinforced by local government oversight (Verite, 2008).

Similar models to Australia's FDC model exist in Canada, England, Denmark, New Zealand and Japan (among other countries), where educators typically belong to a local network with other educators. They receive professional support through these networks (including a network leader or coordinator), overseen at municipal or state level. For example, New Zealand's model of home-based ECEC may take place in any home setting – the child's home, the educator's home or another nominated home. A licensed service provider either employs educators or brokers employment between an educator and family. The service provider is also responsible for employing a responsible coordinator, an early childhood education-qualified role supporting educators and families. While educators are the main point of contact, coordinators are also in (less frequent) contact with children, monitoring educators, visiting home settings and overseeing the services provided. Coordinators must be on duty during all hours of service. Ratios of educators to children, as well as coordinators to children (1 to 50), are prescribed in NZ regulation (Ministry of Education, 2022).

In England, France, Denmark and Japan, 2 to 4 educators may work at the same location and collectively care for 6 to 10 children. These 'collective' models balance operational flexibility with regulatory oversight and professional support to offer smaller-scale care options, such as micro-creches, and the option of caring for children in non-domestic settings, including in an LDC or community buildings (Flemons et al., 2022).

### 2.2.4. Delivery through a school – very high confidence (preschool and outside school hours care only)

This approach provides delivery and access through a school, typically a primary school. Models include:

1. **Preschool programs delivered at a school as part of, or closely linked to, the school system:** Preschool children are in their own classroom(s) and taught by an early childhood teacher.
2. **Preschool program delivery integrated with school curriculum delivery:** Preschool children and lower primary school students are fully or partly combined in a composite class taught by the same teacher.
3. **OSHC services operating at a school:** These services typically use school infrastructure (such as classrooms, playgrounds and kitchens) and sometimes share staff. The school (or school council) may operate this service or contract it out to a private or not-for-profit provider.

(Preschool and OSHC services directly delivered by a government school have been included in this approach, although they could also be considered a government provision intervention approach, covered in [section 2.2.1.](#))

#### Evidence on effectiveness

Evidence of the impact of model 1 (delivery of preschool at a school) on access was found in 2 focused reviews and regular government reports:

- Nous Group (2020) reviewed the roll-out of the National Partnership on Universal Access to Early Childhood Education. It used quantitative and qualitative data to find that delivery through primary schools enabled rapid scale-up of access to preschool in regional and remote areas in multiple states.
- Nous Group, with Victoria University's Centre for International Research on Education Systems (2023), reviewed preschool access and participation in the Northern Territory. This review found preschool delivered through primary school provided access in regional and remote areas but that effectiveness was constrained due to many barriers to take-up. (See [section 3.2](#) for some discussion of these barriers to take-up, including cost and transport.)
- Recurrent government reports, including the Productivity Commission's Report on Government Services, state department of education annual reports, and implementation updates on the Preschool Reform Agreement, show increasing numbers of enrolments in regional and remote areas where preschool is delivered through a school.

Three published studies evaluated the impacts of the model where the preschool program is integrated with school curriculum delivery (model 2). These did not examine access (which was inherent in children's participation in the program), but instead focused on educational outcomes, experiences and implementation. They are summarised as follows:

- Dockett and Perry conducted dual investigations of integrated delivery in remote Queensland (2021) and South Australia (2014). They found integrated delivery provided access to a quality preschool program where there was no preschool service, albeit with caveats around resourcing, staffing, professional development, age-appropriate pedagogy and effective community engagement.
- A randomised evaluation of integrated preschool delivery was conducted in rural Cambodia. It found it worked to a limited degree, with low take-up and negative effects on children due to a developmentally inappropriate pedagogy (Bouguen et al., 2017).

Evidence on the effectiveness of model 3 (OSHC) on improving access is drawn from 4 main sources:

- quantitative government data on the Child Care Subsidy from OSHC providers (operating from schools) in regional and remote areas
- submissions from the sector (e.g., OSHCA, 2023) describing the nature and extent of its delivery in various contexts
- two systematic literature reviews (Cartmel & Hayes, 2016; Cartmel & Hurst, 2021)
- the Productivity Commission's Inquiry into ECEC (2024), which found that OSHC is less likely to be provided at schools located outside major cities and that state governments should ensure access where there is sustainable demand.

The review of the literature indicated that although provision is increasing, access is limited or non-existent in many regional and remote locations. Quality is also dependent on ensuring preschool doesn't just become another year of school, where 'schoolification' of preschool results in a 'push down' of pedagogical approaches and curriculum from school, which is inappropriate for early childhood and can produce negative outcomes for children (Bouguen et al., 2017; Dockett & Perry, 2014; OECD, 2019).

## Use and prevalence

Delivery of preschool programs at schools and through (or linked to) the schooling system is a dominant mode of delivery in several Australian jurisdictions (Nous Group, 2020; Raising Children Network, 2022) and elsewhere, such as Turkey, where nearly two-thirds of preschool services are in primary schools (OECD, 2019).

Preschool-to-school integration is less common but is used in some rural and remote locations in Australia (Dockett & Perry, 2014, 2021).

The delivery of OSHC at and through a school is well-established in Australia and internationally. Almost all OSHC services in Australia are located at schools and use school facilities (OSHCA, 2023).

## 2.3. Approaches with an emerging evidence base

### 2.3.1. Online delivery – medium confidence (preschool only)

Online delivery (also referred to as remote delivery) consists of an early learning program, typically preschool, delivered to children online. These include:

- **Teacher-based online delivery:** Qualified early childhood teachers deliver preschool programs for 1 to 3 hours per week via videoconferencing and recordings, supplemented by additional activities delivered to the child by their family or other caregivers using resources provided by the distance education provider. They are also sometimes supplemented by in-person visits.
- **Software-based online delivery:** Preschool-aged children receive individualised early learning via a responsive computer program, typically in daily sessions of 15 minutes that cover reading, maths and/or science. Varying levels of program support are provided according to the 'package' purchased by the family or education authority.

## Evidence on effectiveness

Research evidence on access was only found on online-delivered preschool (no research was found on it being used for other service types). No empirical studies were found investigating the impact of teacher-delivered online delivery on access, although several submissions to Australia's Productivity Commission and ACCC reviews provided qualitative and quantitative evidence of this delivery approach enabling access to children in regional and remote settings, e.g., from the NRWC and ICPA (2024).

Forty-nine studies – including multiple randomised controlled trials (RCTs) and several longitudinal studies in regional, rural and remote contexts – investigated the impact of online preschool delivery on educational outcomes. While their impact findings are not specific about access, they remain highly relevant, as they found online delivery was a validated and quality delivery model for preschool, which inherently provided access to preschool in regional and remote areas for the children who completed these online programs. The most relevant studies are Brown et al.'s (2023) research on the efficacy of Queensland's play-based, teacher-delivered eKindy program,<sup>6</sup> which found that eKindy participants had higher social, language and literacy skills, and transitioned better to school than children who hadn't participated in any preschool. From this, they concluded that eKindy could enhance access and equity to preschool in rural, remote and very remote areas where preschools were not available. Plotka and Guirguis's (2023) study of online preschool during COVID in the US similarly found that online preschool filled a gap in access but it was less effective at engaging children than in-person delivery. For software-based preschool programs, the evidence is drawn from 47 separate research studies and evaluations of the Waterford Foundation's software-based preschool programs, which are used by multiple US state governments to deliver preschool to children in rural and remote areas. These found that the Waterford programs were validated early learning programs with demonstrated positive effects on various educational measures – most often literacy and numeracy – and were better than no preschool (Shamir, 2023).

While online delivery can be responsive to children's individual needs, it does not provide the same opportunities for children to develop across social and physical domains as in-person programs due to the absence of comparable peer interactions, physical exploration and support by teachers (Korean Institute of Child Care and Education, 2022; Plotka & Guirguis, 2023).

The effectiveness of online preschool relies on access to reliable internet. Households in rural and remote areas have lower digital inclusion than metropolitan and regional areas, and this digital gap is particularly pronounced between First Nations people and non-First Nations people living in remote and very remote locations (Australian Digital Inclusion Index, 2024).

## Prevalence

Online delivery of preschool is used in Australia and internationally, including [New Zealand](#) (a teacher delivery model funded by government and delivered through distance education providers) and the [United States](#) (mostly private providers using the software delivery model).

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<sup>6</sup> Queensland's eKindy program is a free, distance education program delivered by parents and carers in the home, supported by a qualified early childhood teacher



### 2.3.2. Mobile delivery – medium confidence (preschool only)

Mobile delivery provides ECEC services by transporting staff and educational resources to multiple venues to deliver the service in more than one location. There are 2 main models in scope, and for each model delivery can be through or by local government, state governments or third-party not-for-profit providers. Mobile delivery includes:

- **Mobile preschool:** This is delivered by a qualified teacher.
- **Other services that move between locations:** These include OSHC, before and after preschool hours care, LDC, and home-based delivery of education and care by a qualified professional.

#### Evidence on effectiveness

Six published studies examined the impact of mobile-delivered ECEC on access and other outcomes, such as educational effectiveness:

- A review of New Zealand's mobile preschool based on documentary and policy analysis found it was effective in providing access to quality early learning for children in rural areas where no other early education services existed (Davison & Stevens, 1996).
- A 3-year evaluation and PhD study examining a mobile preschool program operating in remote parts of the Northern Territory serving 480 First Nations children found it provided access and contributed to regular attendance, which improved children's outcomes. This was the first systematic data on the efficacy of these programs for very remote First Nations children in the Northern Territory. It quantified the effects of program availability, attendance and preschool program quality on follow-up measures of development and school readiness using the Australian Early Development Census (Nutton, 2013; Nutton et al., 2013).
- A study of the effects of mobile preschool in Turkey found children who accessed mobile preschool (in lieu of other services being available) gained access to early learning and performed higher in various classroom social activities and academic tests than their peers who did not attend preschool. They also performed similarly to children attending standard preschool (Gezgin, 2009).
- A descriptive analysis of the role and outcomes of mobile preschool in Turkey indicated the service provided access to tens of thousands of children who could not attend a standard preschool institute in deprived areas across many provinces (Basit & Ömeroğlu, 2016).
- A mixed-methods evaluation of a 10-week pilot of a mobile childcare initiative at Western Sydney University's Liverpool Campus (a childcare desert) found it provided valuable access to childcare where no other service was available (Nagaddya et al., 2023).

Further evidence of the effectiveness and extent to which mobile services provide access to ECEC in regional and remote areas of Australia and internationally is quantified in submissions to the ACCC and Productivity Commission inquiries, which emphasise these mobile services are sometimes the only options available (NRWC & ICPA, 2024). This evidence is also available on service provider websites and government websites. For example, Turkey's Ministry of National Education (2019) advises that its mobile models of preschool have provided access to preschool to tens of thousands of children.

Inspections of mobile childcare services by Scotland's Care Inspectorate (n.d.) and a mobile preschool by New Zealand's Education Review Office (2017) found that they can provide high-quality ECEC aligned with national standards.

There were 5 factors identified as supporting effectiveness in mobile preschool delivery:

1. adequate and sustained funding via a fit-for-purpose funding instrument (Davison & Stevens, 1996; NRWC & ICPA, 2024)
2. delivery by qualified staff (with early childhood degrees for preschool classes) working with low ratios (Davison & Stevens, 1996; Nutton, 2013)
3. regular/consistent delivery (Nutton et al., 2013; Williams et al., 2015)
4. an appropriate policy framework (Davison & Stevens, 1996)
5. continuous quality monitoring (Nutton et al., 2013).

Distance can limit the scale and extent of some mobile ECEC services. Depending on the distances covered by the educators and the number of children they teach, some mobile preschools cannot get to families more than once a week. This means children are not accessing 15 hours per week of preschool (Wong et al., 2023, p. 22).

### Use and prevalence

Mobile ECEC has been used in Australia since 1949 and has existed in all states and territories since 1987 (Contact Incorporated, n.d.), although the availability of services has diminished in recent years (ICPA, 2023). Internationally, examples of mobile preschool and childcare can be found in New Zealand, Scotland, Turkey, India, China, South Africa, Uzbekistan and Korea.

### 2.3.3. Employer-supported access – medium confidence (not including preschool)

Employer-supported ECEC and OSHC is a delivery model that provides services at or near worksites, with financial, operational, facilities or other support supplied by one or more employers, sometimes with support or incentives from government. There are 2 main models in scope:

1. **Direct provision by an employer:** A company or organisation directly operates or outsources a service to an approved provider, which may operate onsite or nearby. Places in these services are typically prioritised for employees of the company and may also be subsidised in whole or in part.
2. **Facilitated by an employer:** An employer or group of employers, sometimes with other organisations such as a local chamber of commerce, develop an arrangement with an external service provider to hold, prioritise or subsidise places for their staff.

### Evidence on effectiveness

Despite many concrete examples of delivery through employers in regional, rural and remote parts of Australia and the world described online and in the media, there is a lack of published empirical evidence on whether delivery through workplaces increases access in thin markets and how effective these approaches are. Furthermore, the published evidence typically does not include discussion of preschool or quality. The best available evidence is summarised:

- The International Labour Organization's (Hein & Cassirer, 2010) large mixed-methods study documented international approaches to workplace provision of childcare and included case studies on the US, UK, Kenya, India, Thailand, Brazil, Hungary, France, South Africa and Chile. It found that childcare services provided through workplaces can provide highly valued care, which was often not otherwise available or suitable. It further found that government incentives (such as through the tax system) can help, but that making the provision of childcare a legal requirement can be counterproductive.

- A mixed-methods study that focused on quality, operations and outcomes found when small and medium employers connected with each other and/or local chambers of commerce, they could create economies of scale to create access to ECEC for their employees (Noh et al., 2011).
- A mixed-methods analysis drawing on quantitative data from 26 cantons in Switzerland found employer provision of onsite childcare for employees was effective in creating access, but that in some places it crowded out public provision, creating a net neutral effect on access (Feierabend & Staffelbach, 2016).
- An RCT in Burkino Faso, in which 18 (of 26) urban worksites were randomly selected to receive community-based childcare centres (as opposed to private childcare centres), found 1 in 4 women took up this newly provided access and their children's developmental scores improved (Ajayi et al., 2022).
- An action research project using case studies from Trento, Italy, found and documented that companies successfully created and provided after-school and school holiday care for their employees' children (Schiavo et al., 2020).

Community leadership, ownership or involvement, along with strategic industry and government engagement is described as critical to the successful establishment of this approach (Oates, 2023), as is conducive government policy and funding frameworks – including incentives for employers (Hein & Cassirer, 2010). This model could, for example, be enabled through strategic commissioning or establishment grants by government.

## Use and prevalence

Large employees in metropolitan areas more commonly provide workplace children's education and care. In Australia, the most prevalent instances of employers providing onsite services include hospitals, universities, local councils, financial institutions and mining companies. Internationally, services delivered by workplaces are common in both metropolitan and rural locations, and have been documented across Europe, North America, Africa and Asia.

### 2.3.4. Delivery in nature – low to medium confidence (preschool only)

This approach is where the service is delivered in nature for some or all of the program session time. In Australia, it is typically called 'bush kinder', 'beach kinder' or 'river kinder', while internationally it is usually called 'forest preschool' or 'nature school'. In Sweden, it is sometimes called 'mobile preschool' reflecting the class's movement between sites each session. There are 2 main models:

1. **Fully/predominantly in nature:** The education and care are provided outdoors each session, regardless of weather.
2. **Sometimes in nature:** A service leaves their licensed premises for part of each day, or nominated times each week, at nearby nature locations.

In both models, children typically arrive and depart from the same place each time, though they may visit different sites during the day. The teachers and educators remain with the children and take the necessary food, water, hygiene materials, first aid and medications with them.

## Evidence on effectiveness

Most of the published studies on delivery-in-nature models relate to preschool education and focus on benefits to children and staff, including inclusion, health and development (Dabaja, 2021; Ernst et al., 2021; Jackson-Barrett & Lee-Hammond, 2018; Sella et al., 2023).

AERO found 4 studies that documented how delivery-in-nature models created access to ECEC, including in response to infrastructure constraints. Of these, however, the first 3 of the studies refer to the same case study in Melbourne and examine the same model (sometimes in nature). The studies are summarised as follows:

- Elliott and Chancellor (2012) detailed the development and outcomes of the first documented bush kinder program in Australia. It was introduced by a standalone preschool with just one classroom to enable it to continue to deliver both a 3-year-old preschool program and 4-year-old preschool program following the increase in hours of the 4-year-old program. By having the 4-year-olds spend 3 hours each week at a nearby nature reserve, they were able to overcome infrastructure constraints.
- Christiansen et al. (2018) investigated forest preschool in 3 settings using 3 case studies:
  - the Melbourne standalone preschool described above ‘to mitigate the loss of provision for 3-year-olds’
  - a not-for-profit early learning centre attached to a nongovernment school in outer Melbourne
  - a standalone preschool in regional Victoria.

The study used pedagogical and documentary analysis to position these cases within the national and international models, noting there were 100 to 150 bush kinders in Australia at the time of writing but minimal studies on them.

- A review of the evolution of bush kinder in Australia described how this has enabled greater access. The review focused on benefits and enabling elements, including local policies (Campbell & Speldewinde, 2019).
- The North American Association for Environment Education (2022) provided a report based on a survey of 300 (of 800) nature preschools and LDCs across 45 US states. The report found that nearly 70% of those studied had waitlists, suggesting high demand for this model of ECEC from families. It further found that most nature preschools and LDCs offer year-round outdoor learning (even in hot summers, snow and rain) and that full-day programs (always in nature) are growing faster than half-day (sometimes in nature) programs. The report concluded that delivery in nature has the potential to grow the capacity (access to places) of the US ECEC sector but that this would require changes to licensing and regulatory arrangements.

Delivery-in-nature models sometimes have smaller educator-to-child ratios than traditional settings (Gutvirthová, 2020), and in some international jurisdictions the educators require additional training or a qualification in outdoor education (Adamczewski & Nagae, 2022).

## Use and prevalence

Delivery in nature is a well-established approach for delivering preschool and school in several European countries (including Denmark, Sweden, Germany, Czech Republic and Scotland) and in the US and Canada. It is becoming increasingly prevalent elsewhere including in Australia for preschool, OSHC and LDC services, with some state governments funding an expansion of this approach.

## 3. Implications

This section synthesises the findings across all approaches to present factors that help and hinder effectiveness in overcoming barriers to access to early childhood and OSHC services.

### 3.1. Factors that support the effectiveness of approaches to improving access

AERO identified 3 preconditions of success and 4 additional factors associated with greater effectiveness in improving access, and often also greater service effectiveness and quality. These preconditions and factors were associated with all 8 approaches examined in this literature review.

#### 3.1.1. Preconditions of success

##### **Adequate, sustainable and flexible funding that considers all associated costs**

Funding must cover all aspects of service provision – this includes funding for planning, recruitment, any upskilling of staff, contracting, transportation (including vehicle maintenance) and inflation. These costs – especially staffing – can be higher in regional and remote areas, especially in very remote areas (ACCC, 2023).

Funding over multiple years provides greater certainty to those delivering the services, including the ability to recruit staff with the confidence their positions will continue into the medium term. Adequate funding over a reasonable period also provides families with confidence that services will be available so they can plan for their futures.

##### **An available workforce with the required qualifications, capacity and capabilities**

Teachers and educators are central to delivering ECEC at the quality threshold required to shift the dial on disadvantage (AERO, 2024). Reducing developmental vulnerability through ECEC is more likely in settings Exceeding NQS overall, and especially in educational program and practice (Quality Area 1), relationships with children (Quality Area 5) and physical environment (Quality Area 3) (Rankin et al., 2024). This requires skilled and experienced teachers and educators who are also well-supported. It is also vital that staff supporting service operations – such as centre managers or service directors – have the time and financial literacy, backed up by system support, to effectively manage their responsibilities (Bray et al., 2021; Education Review Office, 2013).

Workforce attraction and retention are crucial components when designing solutions in regional, remote and very remote areas. Initiatives to attract already qualified workers to the area (e.g., financial incentives and information campaigns) and support locals to achieve qualifications as educators or teachers (such as through community pathway programs, ‘Grow Your Own’ programs, apprenticeship models, and accelerated degree and diplomas) must be considered alongside retention initiatives. This includes promising and responsive On Country teacher and educator programs for First Nations people to become qualified early childhood staff in a way that supports and grows cultural safety for them, as well as the children and families they would work with.

Australia's **National Children's Education and Care Workforce Strategy 'Shaping our Future'** responds to this imperative. It is a 10-year strategy, running from 2022 to 2031, that seeks to ensure a 'sustainable, high quality children's education and care workforce' through supporting workforce recruitment, retention, sustainability and quality.

## Meaningful and ongoing community engagement

Engagement with families, educators, local government and community leaders, and First Nations Elders is critical to all approaches (see, for example, Brown et al., 2023; Campbell & Speldewinde, 2019; Deerain, 2023; Dockett & Perry, 2014; Dockett & Perry, 2021; Hein & Cassirer, 2010; Jackson-Barrett & Lee-Hammond, 2018; Nous Group, 2023; Productivity Commission, 2024a and 2024b; SNAICC, 2024; and Wong et al., 2023) to:

- define and prioritise the barriers and their relative impact on access
- collaboratively determine the preferred approaches to be used in response to what they see as the most critical barriers to access and community needs
- co-develop or co-design the program, service or approach (if appropriate)
- build understanding and buy-in to support awareness, uptake and participation
- identify any take-up barriers, pain points or opportunities for improvement.

### 3.1.2. Additional factors that support effectiveness

The literature provided evidence for other factors that support effectiveness. These can be grouped into 4 categories:

#### 1. Addressing quality, participation and inclusion

The scope of this review focused on improving access in regional and remote thin markets. However, as noted by the Productivity Commission (2024b), to achieve universal access in ECEC in Australia, which delivers benefits for all children, families and communities, governments should also strive for high quality in every service and full inclusion of all children. This is because:

- children who attend high-quality services are less likely to be developmentally vulnerable (Rankin et al., 2024)
- higher levels of ECEC quality have been found to be significantly related to improved children's outcomes, including higher academic performance in school (von Suchodoletz et al., 2023).

#### 2. Taking a long-term approach

Families require predictability and reliability in service availability (including any out-of-pocket costs) to make employment, (re)location and enrolment decisions. Similarly, service providers need predictability to effectively manage their services and workforce (SNAICC, 2024; The Front Project, 2022). This links back to the precondition for adequate and sustained financial support.

### 3. Multi-pronged solutions tailored to local contexts

There isn't a single design that will meet all needs (i.e., it is likely that some combination of a demand-driven market approach, supply-side funding and direct government provision will be required). For example, home-based delivery could be combined with online preschool or mobile preschool, and employer-supported approaches could be enabled through strategic partnerships and establishment grants.

The number, nature and priority of different barriers and approaches differ from place to place. What works in one regional or remote context or community does not necessarily work (or is not necessarily required) in another. This links back to the precondition for meaningful and ongoing consultation with communities.

### 4. Effective coordination within a multi-level systems approach

Effective coordination needs to occur between levels of government, as well as with non-government service providers. This needs to occur across the whole system because reforming one part of the system affects other parts of the system (ACCC, 2023; Australian Government Department of Social Services, 2024; Centre for Policy Development, 2024; Productivity Commission, 2024b; TheParentHood, 2023).

## 3.2. Barriers to access

This literature review revealed multiple barriers to service providers establishing, expanding and improving access to quality services for all children in regional and remote areas in Australia. These barriers – operational costs, workforce constraints and infrastructure limitations – vary in prevalence and severity, and typically co-occur with other barriers. This may result in no or low availability, either because there are no services at all, or there are no services with available places. Table 3 shows how the approaches examined in this report map against the identified barriers.

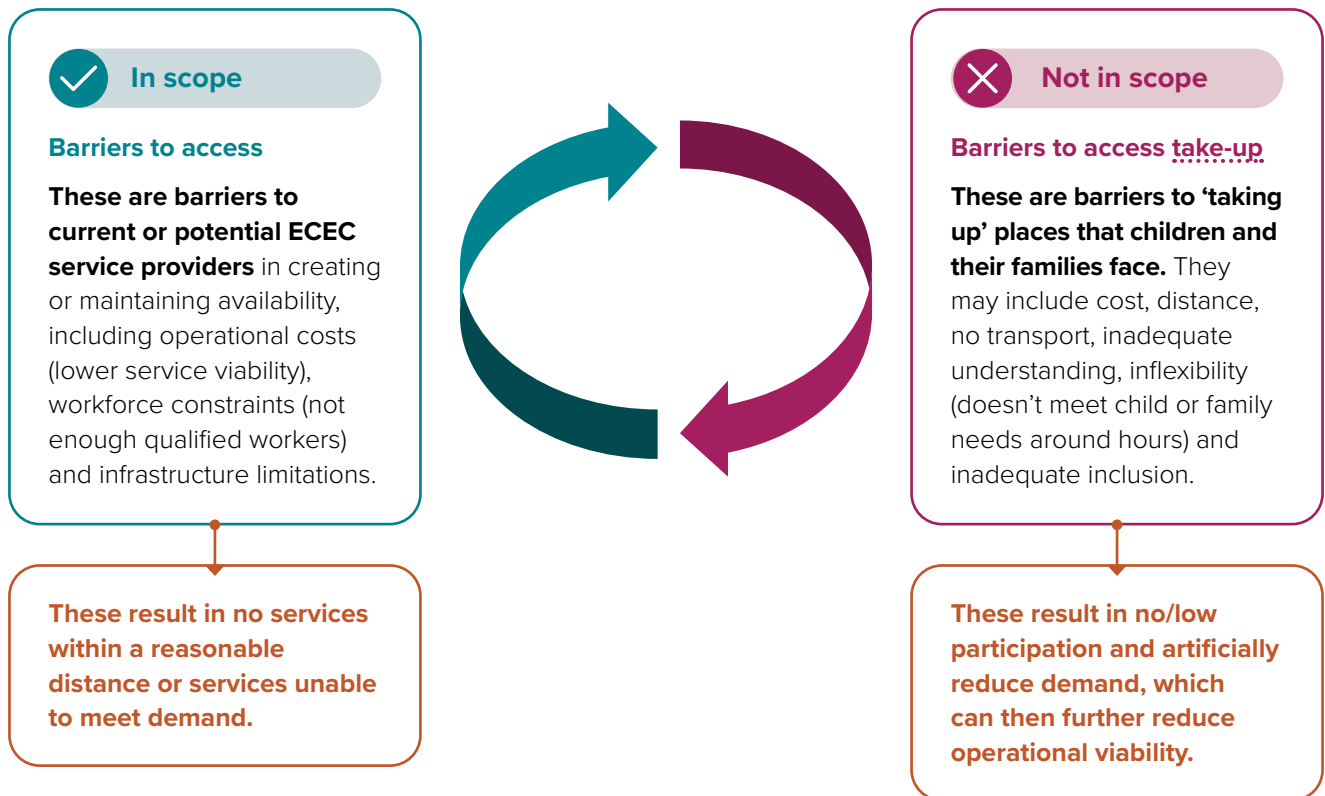
**Table 3:** Approaches to improve access to early childhood education and care and the barriers they address

Approaches to improve access	Barriers to access that could be addressed		
	Operational costs	Workforce constraints	Infrastructure limitations
<b>Promising evidence base</b>			
Government provision interventions	✓		✓
Government funding interventions	✓	✓	✓
Home-based delivery	✓		✓
Delivery through a school	✓	✓	✓
<b>Emerging evidence base</b>			
Online delivery	✓	✓	✓
Mobile delivery	✓	✓	✓
Employer-supported access	✓		
Delivery in nature			✓



Children and families can also face barriers to taking up an available place, including cost, lack of transport, inadequate understanding, inflexibility and inadequate inclusion. While these barriers are not exclusive to regional and remote areas, evidence suggests they are more severe, which can result in lower enrolments and reduced or no attendance. This, in turn, artificially lowers demand and weakens service viability, which can further reduce availability and access (see Figure 3).

**Figure 3:** Barriers to access and take-up worsen availability



Therefore, when identifying and designing approaches to improving the provision of access, consideration also needs to be given to the barriers that may prevent families and children from taking up available places and the accessibility of the service to children and families.

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