
C The evidence base for early childhood development policy

Australia's early childhood development (ECD) policy aims to support children's development and address the gaps in outcomes between groups of children. Though most children are doing well and benefiting from quality ECD services, some, particularly some Indigenous children, are experiencing significant disadvantage, which affects many aspects of their development and prospects. Targeted policies are aiming to support these children, and research overseas has shown that these policies can improve outcomes for participants and their communities. New ECD policies are introducing universal initiatives, for which the evidence base is less conclusive.

C.1 Evidence-based policy in the ECD sector

Over the past five decades, academics and policy advisers have produced a substantial body of research examining numerous aspects of early childhood development. This research forms the evidence base that informed the recent policy initiatives in the ECD sector (box C.1).

The National Early Childhood Development Strategy surveys a vast array of research, from neuroscience findings on brain development to the efficacy of integrated service delivery (COAG 2009c). The studies are based on different time frames and have been conducted in different countries; they examine a variety of programs, which can be highly intensive, targeted or universal; they employ different statistical approaches and arrive at conclusions that are often conflicting.

Despite these differences, what has been established is the importance of children's experiences in their early years, both within and outside the home, in shaping their life outcomes. High-quality early childhood education and care (ECEC) can support children's development, and in the case of disadvantaged children, it can have substantial positive effects (COAG 2009i).

This appendix surveys some of the key concepts and findings of the ECD research and their application in policy development, with an emphasis on ECEC. For further

discussion on the evidence base for child health and family support policies, see chapters 12 and 13.

Box C.1 What is evidence-based policy?

Evidence-based policy making can be defined as ‘a process that transparently uses rigorous and tested evidence in the design, implementation and refinement of policy to meet designated policy objectives’ (PC 2010b, p. 3). Its aim is to assess whether a policy improves community wellbeing.

The questions that arise in the process of formulating evidence-based policy are: what type of evidence is available; what type of evidence should be used to inform policy development; and what role it should play in the policy development process.

Different policy areas are faced with different types of evidence.

- Relatively stable policy fields rely on strong theoretical foundations and a significant evidence base. Research in this area aims to fill gaps or refine existing conclusions.
- In other cases, there is still debate on the theoretical approach, and the knowledge base is contested.
- Emerging policy fields are faced with a high level of uncertainty and a very limited evidence base.

In all cases, the evidence used should be robust, tested and rigorous, and the policy making process should be transparent and contestable.

The chosen evidence base informs all stages of the policy cycle. When first formulating the policy objective, the question should be whether there is evidence of a problem that needs to be addressed in the interest of community wellbeing. Evidence should support a theory on the nature of the problem, the policy instruments chosen to address it and their expected outcomes. As new policy is being implemented, evidence should be collected on its progress and outcomes. This will then be used in a policy review, assessing effectiveness and efficiency, and refining the policy as required.

Source: PC (2010b).

C.2 Key early childhood development concepts

The recognition of the importance of the early years and the economic rationale for investing in ECEC is often based on recent findings in neuroscience. Research has found that rapid brain development takes place in the first years of life, and it lays the foundation for the development and acquisition of cognitive and socio-emotional skills (box C.2). Children are born ready to learn, and every interaction they have with others is an opportunity to develop their skills (Shonkoff and Phillips 2000).

Box C.2 Understanding multi-dimensional ability

The new emphasis on early childhood development has been driven by the understanding that human ability is multi-dimensional and malleable. Hence, differences in individuals' ability and life outcomes can be attributed to different life experiences, including education.

In the past, researchers believed that human ability could be represented by a single measure, usually intelligence quotient (IQ), which was determined largely by genetics. This view has been replaced by a focus on cognitive and socio-emotional abilities (Dickens 2008). Cognitive abilities are intellectual skills such as numeracy and literacy, while socio-emotional abilities include emotional and relational skills such as persistence, self control, communication and other 'soft' skills, which are difficult to measure (Cunha and Heckman 2007).

Both cognitive and socio-emotional skills are essential to children's development. For example, learning cognitive skills, including maths and reading, is greatly enhanced when children have developed supporting socio-emotional skills such as patience, self control and persistence (Heckman and Krueger 2004).

The interaction of cognitive and socio-emotional skills is particularly important in the early years of life (Kilburn and Karoly 2008). A growing body of research demonstrates that adverse experiences in this period, such as abuse or neglect, impair the development of socio-emotional skills and often lead to negative outcomes in adulthood (Felitti et al. 1998). A similar body of work demonstrates the benefits from early childhood experiences that encourage the mutual development of cognitive and socio-emotional skills (Heckman and Krueger 2004). This approach acknowledges the persistence of ability determined by 'nature', while recognising the role of 'nurture', including early childhood education and care, in child development.

Human capital theories argue that early acquisition of skills allows further skill acquisition later in life. This supports the need to invest in children's early years, as investment during this period can be more cost-effective than in later periods, and generate substantial returns over the children's lifetimes, particularly for those from disadvantaged backgrounds (Cunha and Heckman 2007).

As the number of children and families using ECEC services has increased dramatically, the understanding of the importance of children's experiences in the early years prompted increased interest in the way ECEC affects development, and how to maximise the benefit (or, depending on the study's context, minimise the damage) from ECEC participation.

Quality

ECEC services can contribute to human capital development. Research indicates that high quality ECEC can have positive effects on children; however, quality in this context is difficult to define and measure (box C.3).

Researchers refer to the ‘iron triangle’ of ECEC quality — staff-to-child ratios, the number of children in a group, and staff qualifications. These are three indicators that ‘provide the context in which quality is likely to occur’ (COAG 2009i, p. 22).

However, there is no consensus on the application of these standards, and the optimal balance between them.

- Staff-to-child ratios — a vast body of research has established that higher staff-to-child ratios have positive implications for overall quality and children’s outcomes. However, Huntsman (2008) points out that most research in this area has focused on children aged 3–5 years, and while most studies show a correlation between ratios and positive outcomes, this can be disputed. The results of natural experiments (where quality was measured before and after a change in ratios) and experimental studies have been varied, and in some cases showed that moderate changes in ratios do not affect quality.
- Smaller group sizes have been linked to higher quality in some studies, while others found no effects (Zaslow et al. 2010).
- Staff qualifications have been shown to have the most substantial effect on child outcomes. However, this finding has also been contested in some studies (see below). While the OECD considered that the staff of early childhood centres should be pedagogues or qualified educators (2006), and the research focuses on staff holding teaching degrees, there is no consistent finding regarding the extent and type of training required by other staff members.

The three aspects of the ‘iron triangle’ affect child outcomes in different ways at different stages of their lives. While staff numbers had the most significant effect on outcomes for 2-year-old children, staff qualifications became the most important contributors to outcomes for 3-year-olds (NICHD 1999).

Box C.3 What is ECEC quality?

The concept of quality in early childhood education and care (ECEC) has attracted substantial interest from researchers and policy makers. Though a conclusive definition is yet to be reached, the OECD (2006) identified seven aspects of quality.

- *Orientation quality* refers to the type and level of attention of government towards early childhood policy. It is thought to increase when governments engage stakeholders in a broad consultation on early childhood development policy, with a view to creating an integrated system where the upbringing of children is an important national goal.
- *Structural quality* includes the aspects of ECEC services that can be measured and regulated (such as staff-to-child ratios, qualifications, group sizes, the service's physical environment).
- *Educational concept and practice* informs the development of a curriculum that sets goals for the ECEC system. The curriculum needs to take into account changing concepts of learning and development.
- *Interaction or process quality* is reflected in the daily interactions between children and ECEC staff. Relationships between children and staff are most effective in supporting child development when they combine pedagogy and care.
- *Operational quality* is fostered by the quality of management, staff development and team building.
- *Child outcome quality or performance standards* refer to children's wellbeing and the benefits they derive from ECEC. These can be measured in a number of ways, such as assessing literacy and numeracy skills and socio-emotional development.
- *Community outreach and involvement* is particularly important in disadvantaged areas, where ECEC services can make a substantial contribution to community wellbeing by supporting parents and families.

From a regulatory point of view, it is often the structural quality elements that attract the most attention, as they can be readily measured and standardised. High levels of structural quality can promote other types of quality.

However, ECEC quality cannot be judged in isolation. Overall system quality will be affected by the degree of integration of education and care, and by funding levels and mechanisms (Bretherton 2010). The social and cultural context also plays an important part in understanding ECEC quality.

The debate over ECEC quality continues, and academics suggest that technical measures of quality should be replaced by a more philosophical approach, in which:

... benchmarks of quality in early childhood are not intrinsic, fixed and prescribed by scientific knowledge about development, although science clearly has a crucial role to play in informing quality development. In due course, human societies may come to share beliefs about what is 'normal' and 'natural' and 'appropriate' for all young children. But universal consensus would not make these beliefs, or the arrangements for their implementation, any less cultural. (Woodhead 2006, p. 23)

Researchers have argued that the structural aspects of quality that comprise the ‘iron triangle’ have an indirect effect on children’s outcomes, and it is the process quality (the quality of interactions between children and staff) that determines the effect of ECEC. Structural standards can enhance quality where process quality is high, by allowing educators to have more meaningful interactions with children. Conversely, poor structural quality moderates the effects of high-quality interaction. Researchers have also challenged the notion that higher structural quality will always lead to improved outcomes, suggesting instead that quality must be above a certain threshold for any improvements to be realised (Zaslow et al. 2010).

Despite the extensive research, there is no international benchmark for ECEC quality, and standards vary considerably across countries in the Organisation for Economic Cooperation and Development (OECD). For example, the American Academy of Pediatrics recommends a staff-to-child ratio of 1:3 for babies under 12 months, increasing to 1:8 once the children reach 4 years of age, and group sizes ranging from 6 to 16 children (AAP 2005). However, these standards are rarely met in OECD countries, with ratios ranging from 1:3 to 1:8 for babies, and reaching up to 1:22 for older children in groups of up to 30 (OECD 2006).

Similarly, there is no universal method to measure children’s outcomes. This is reflected in the regulatory approach to ECEC quality, with some countries not regulating ratios or group sizes, focusing instead on staff qualifications and curriculums (OECD 2006). As a result, while the importance of quality ECEC is widely recognised, the evidence base shows this to be a complex concept, based on an interplay between various factors that cannot be easily defined.

C.3 Empirical research

Longitudinal studies

Longitudinal studies gather data about selected children and their families at regular intervals in their lives. They can offer valuable insight into children’s outcomes, and the way they are affected by their ECEC experiences. A number of international longitudinal studies that are often cited in ECD research are surveyed below (Australian studies are discussed in box C.4).

Box C.4 What do Australian studies tell us?

Two major studies of early childhood development are currently being undertaken in Australia: the Australian Early Development Index (AEDI) and the Longitudinal Study of Australian Children (LSAC).

The Australian Early Development Index is a population measure of children's development, based on teachers' assessment of children in their first year of full-time school. In 2009, assessments were gathered on 261 147 children, representing 97.5 per cent of the five-year-old population. These assessments cover five domains: physical health and wellbeing; social competence; emotional maturity; language and cognitive skills; and communication skills and general knowledge. Data collection will continue to be undertaken every three years.

The 2009 AEDI study found that the majority of children are developing well across all domains. However, 23 per cent of children were described as 'developmentally vulnerable' (being in the bottom 10 per cent of national scores) on one or more domains. This rose to 47 per cent among Indigenous children, who had particular difficulties with language and cognitive skills (CCCH and Telethon Institute for Child Health Research 2009).

Growing Up in Australia: The Longitudinal Study of Australian Children began in 2004 with two cohorts — 5000 infants aged 0–1 year, and 5000 children aged 4–5 years. Data has been collected from participants each year and this will continue until 2020. The study also uses extensive administrative data to provide information on the children's progress (AIFS nd).

About 10 per cent of infants and almost all older children in the LSAC study attended an early childhood education and care (ECEC) service. Data was collected both from families and educators. In the case of infants, the study highlighted the importance of the interactions between families and centre-based educators. For older children, the study showed benefits from attending early childhood education programs delivered by staff with higher qualifications and more experience.

ECEC quality measures were not shown to be strong predictors of child outcomes. This has been linked to the fact that the Australian ECEC system achieves a high level of quality overall (Harrison et al. 2009).

Footprints in Time: The Longitudinal Study of Indigenous Children (LSIC) started in 2008. The study includes 1687 Indigenous children from two age groups: 6–18 months and 3½–4½ years. The first wave of data collection was completed in 2009, and findings focused on maternal and child health and wellbeing. Data collection will continue until 2012 (FaHCSIA 2009c).

Earlier studies include the Australian Temperament Project, which has been following over 2000 families in Victoria since 1983 (Prior et al. 2000), and the Child Care Choices study, which followed 600 families in New South Wales over six years and highlighted the importance of stability in children's ECEC arrangements (Bowes et al. 2009).

The National Institute of Child Health and Human Development (NICHD) Study of Early Child Care and Youth Development

The Study of Early Child Care and Youth Development is an American study that follows over 1000 children who were born in 1991. The information collected during the first years of the study included observations of ECEC quality and interactions, as well as child development, family income and wellbeing.

The study has shown that higher quality ECEC services that offer more ‘positive care’ can support children’s cognitive and social development, although overall, family characteristics were much more important predictors of development (NICHD 2006). In the context of ECEC, children from high-income families experienced care that ranked higher on the process quality scale (positive interactions with caregivers) compared with children from low-income families, while the differences in structural quality were less pronounced (Dowsett, Huston and Imes 2008). High quality care was found to have a correlation with improved academic achievements when the children turned 15 years (Vandell et al. 2010).

The Effective Provision of Preschool Education (EPPE)

EPPE is a study from the United Kingdom that followed 3000 children from their third to their seventh birthdays. Beginning in 1997, EPPE has since been extended to collect data about the children and their experiences as they progressed through the school system (IOE nd). The data collected include characteristics of the children and their families, and the preschool setting they attended.

Findings of the EPPE study point to the importance of preschool attendance in enhancing children’s development. Attendance at a higher quality preschool resulted in improved child outcomes. The study found that services in which staff have higher qualifications tend to achieve higher quality scores, on both structural and process quality. While the researchers recommend that preschools should ‘aim at a good proportion of trained teachers on the staff’ (Sylva et al. 2004, p.6), they do not specify a recommended staff-to-child ratio.

In terms of family characteristics, children’s development was more closely linked to the quality of the ‘home learning environment’ than to parental income (Sylva et al. 2004).

Competent Children, Competent Learners

Conducted in New Zealand, this study included 500 children and began in 1993. Children and their families were recruited to the study just before they started school. All children in this study attended an ECEC service.

Similar to the other studies, this study found that high quality ECEC can be linked to improved academic skills later in life. At age 16, young adults who attended ECEC services with high operational quality scores continued to show better outcomes than their peers, regardless of their family background (Wylie et al. 2008).

Cost–benefit analyses

Cost–benefit analyses are useful instruments in designing evidence-based policy. They quantify the results of implementing a specific policy, and can compare the benefits accrued to the community to the costs imposed by the policy.

This type of analysis has tended to focus on early intervention programs, mostly in the United States. These studies indicate that intensive early intervention programs have substantial economic returns, which can be up to 16 times higher than the cost of intervention. The benefits extend throughout life, and include improved education and employment outcomes, and a lower likelihood of being arrested or requiring welfare payments. Key examples are discussed below.

Head Start and Early Head Start

Head Start and Early Head Start are two large scale programs operating in the United States, which provide funding for early childhood education and family support services for low-income families with children aged 0–5 years. Head Start began operating in 1965, and focuses on ECEC services for children aged 3–5 years. Early Head Start was established in 1994, and supports services for pregnant women and families with infants and toddlers.

Since 1965, 27 million children have been enrolled in Head Start and Early Head Start. In 2010, the US Government spent more than \$7 billion on the programs, and expenditure has reached over \$120 billion since they were established (OHS nd).

Early Head Start was found to improve development outcomes for infants and toddlers, and their families' parenting skills (US DHHS 2006). The evidence on Head Start, which includes mostly preschool programs for disadvantaged children, shows a different pattern. While children who participated in Head Start showed

improved pre-academic skills at age 3 and 4 years, by the end of the first year of schooling, most of these benefits were no longer evident (US DHHS 2010). However, longer term studies found that participants in Head Start were substantially more likely to complete high school and attend college, and less likely to be arrested or charged with a crime (Ludwig and Phillips 2007).

From a cost–benefit perspective, research has been inconclusive. Currie suggested that the short- and medium-term benefits of Head Start would pay for 40–60 per cent of the program costs, and when taking into account potential long-term benefits ‘Head Start would pay for itself’ (2001, p. 234). Other research is less clear. For instance, Ludwig and Phillips concluded that:

...the available evidence suggests to us that the Head Start program as it currently operates probably passes a benefit-cost test. Changing the program in various ways that have figured prominently in recent policy discussions [such as requiring teachers to hold 4-year college degrees] may not make the program any better, and could make things worse. (2007, p. 37)

High/Scope Perry Preschool

Conducted from 1962 to 1967 in Michigan in the United States, the High/Scope Perry Preschool Project involved 123 African-American children from highly disadvantaged backgrounds. The children participated in a preschool program for two years, which also included home visits by teachers. By the time the program’s participants reached 40 years of age, they were much more likely to be employed and have significantly higher earnings compared to those who did not participate. They were also less likely to be arrested (Schweinhart 2005).

A range of cost–benefit analyses has been conducted based on the findings of the High/Scope Perry Preschool Project. Results ranged from returns of \$7 to over \$16 in benefits per dollar invested, primarily accruing to the community through the prevention of crime (Schweinhart 2005; Heckman et al. 2009).

Carolina Abecedarian Study

Similar to the High/Scope Perry Preschool Project, the Carolina Abecedarian Study involved a small group of children from disadvantaged backgrounds. In this case, 112 children were selected in 1972 to attend an ECEC program from as early as six weeks of age and until they turned five years of age. The full-time program had high staff-to-child ratios, from 1:3 for infants and toddlers to 1:6 for older children. Data on the participants’ life outcomes was collected until they were 21 years old.

Apart from benefits to the participants themselves, in terms of income and improved health, the program was also reported to generate benefits for their families, who were more likely to be employed. However, this program did not lead to a significant reduction in crime.

The Abecedarian Program was found to generate returns of about \$2.50 for every dollar invested, when taking into account health benefits and higher wages earned by the participants' families presently and for future generations (Barnett and Masse 2007).

Chicago Child-Parent Centers

The Chicago Child-Parent Centers (CPC) began operating in 1967, offering government-funded early childhood education and family support services to disadvantaged families while their children were aged between three and nine years. Since 1986, the Chicago Longitudinal Study followed 1539 children who participated in the program.

Program participants were more likely to complete their high school education and less likely to receive welfare payments or be arrested. Due to the program design, researchers were able to compare outcomes of participants who attended the CPC during their preschool years, after reaching school age, and those who attended the full program. The most substantial improvements, when compared with children who did not participate in the program, accrued to participants who attended the CPCs only during their preschool years. Children who participated in the full program (during preschool and primary school) were slightly more likely to complete high school than those who attended only during their preschool years — however, no differences were found in the groups' rate of arrests and welfare dependency.

This result was mirrored in the cost–benefit analysis conducted for the program. For every dollar invested in the preschool program, the return was estimated at \$10.83. This compares with a return on investment of \$3.97 and \$8.24 for the school-age program and the full program, respectively, which implies that an intervention limited to the preschool period may be the most efficient. Benefits were higher for children from particularly disadvantaged backgrounds. Most benefits accrued to society through lower crime levels and higher tax contributions (Reynolds et al. 2011).

Meta-analyses

Meta-analyses, which combine the results of several studies addressing a set of related hypotheses, have also been used in analysing ECEC data. These studies can be useful to policy makers as they use a larger evidence base, and may allow for more general conclusions to be drawn. However, the specific criteria used to select the studies within each meta-analysis affect the results, and these need to be considered.

Early childhood interventions

- Camilli et al. (2010) undertook a meta-analysis of 123 studies comparing the cognitive, social and school progress of children from disadvantaged backgrounds involved in preschool intervention programs, with children who either had no educational intervention or an alternative intervention. All programs were implemented in the United States after 1960. They conclude that while ‘preschool intervention programs provide a real and enduring benefit to children ... the research is less clear regarding the specific program features that lead to optimal results’ (p. 602). The study supported the assumption that improving staff-to-child ratios and maintaining small group sizes had positive effects on children’s outcomes. However, programs that offer additional services beyond preschool, such as home visits, may ‘dilute the intensity of children’s preschool experience’ (p. 605), and resulted in smaller improvements in cognitive outcomes. The authors suggested that this may be due to the fact that these programs require the teachers to perform a range of duties other than instructing children, limiting their time in the classroom.
- Karoly, Kilburn and Cannon (2005) reviewed 20 early childhood intervention programs, including home visiting, parent education, early childhood education and combined programs, all from the United States. Most programs were shown to have significant positive effects on participants, which persisted long after the preschool years. Staff-to-child ratios and staff qualifications were shown to affect child outcomes. However, these positive effects were not sufficient to eliminate the gap between the participants, who were all from disadvantaged backgrounds, and other groups in the population.
- Wise et al. (2005) is an Australian study that focused on the costs and benefits of early intervention programs. It included 32 programs from the United States, Canada, the United Kingdom, Bolivia, Turkey and Australia, conducted since 1960. Some programs were focused either on enhancing child outcomes, parental skills or improving family welfare; others were targeted at both children and parents or were universally offered. Overall, the programs were found to have small to negligible effects on participants. The authors point out that even

though some short-term effects on children’s development may be small, they may have a substantial influence on their life outcomes.

- Nores and Barnett (2010) considered only early intervention programs from outside the United States. The 30 programs covered in their study were implemented in 23 countries in Europe, Africa, South America, and Asia, with very diverse levels of economic development. Programs offered cash transfers to parents, nutritional support or educational intervention. The study found that all programs had positive effects on children’s cognitive development. Mixed programs, with educational and nutritional components, were shown to have the most substantial effects, although cash transfers were also successful in improving children’s outcomes. Longer programs were less effective, as they were also less intensive. The effects were smaller in countries with lower average incomes and the authors theorise that this may be because ‘intervention effects depend on other supports in the environment that are less likely to be present in less developed economies’ (p. 279).

ECEC quality

- Burchinal, Kainz and Cai (2011) reported the results of two types of analysis — a meta-analysis of 20 research projects that examined the link between ECEC quality and child outcomes, and secondary analysis of data from large scale studies of children’s outcomes such as NICHD. The study concludes that the quality of ECEC can be linked to children’s academic and social skills, but the effects are moderate. The authors suggested that this may be due to a non-linear relationship between quality and child outcomes, or weaknesses in the existing definitions and measurements of quality.
- Kelley and Camilli (2007) investigated the effect of teacher qualifications on children’s outcomes in a centre-based setting, based on 32 studies. They found that slightly better outcomes were correlated with teachers holding bachelor degrees.
- Early et al. (2007) found some positive correlations between outcomes and teachers’ qualifications, but concluded that ‘major studies of classroom-based educational programs for 4-year olds ... , taken together, do not provide convincing evidence of an association between teachers’ education or [course] major and either classroom quality or children’s academic gains’ (p. 573). The authors point to three possible reasons for this finding: inadequate training for teachers; insufficient support in the workplace; or a labour market that draws the most competent teachers away from early childhood settings.
- Fukkink and Lont (2007) focused on educators, examining the effect of training on competency. They presented a model where educators’ competence, which is

an aspect of structural quality, translates into process quality and leads to improved child outcomes. Results indicated that training improves competencies, but the effect on children's outcomes was inconclusive. Large-scale training programs delivered at multiple sites were found to be less effective in improving educator competencies, compared with smaller providers of training.

C.4 Applying research to policy development

Recent ECD policies, summarised in the National Quality Agenda (NQA) and the National Partnership Agreement on Early Childhood Education (NPA ECE), are based on two key arguments raised in the literature: for children attending long day care centres, the quality of the service is important; and for children from disadvantaged backgrounds, preschool attendance can contribute to improved life outcomes. Therefore, the NQA seeks to raise structural quality in ECEC and enhance pedagogical quality, while the NPA ECE aims to provide universal access to preschool (chapter 3).

Given the many conflicting conclusions that can be drawn from the research, care must be taken when designing evidence-based ECD policy. For example, the Ministerial Council for Education, Early Childhood Development and Youth Affairs warned against misusing neuroscience research in policy development.

As with any theory, it is wise to interpret the findings of neuroscience with some caution. Neuroscience is in its infancy and is constantly being reviewed, challenged, modified, strengthened, and complemented. In this iterative process new evidence sometimes proves early hypotheses and assumptions invalid.

However, the understandings can be persistent and difficult to dispel. It is also easy to misuse, simplify or overstate findings and translate them over zealously or make questionable interpretations and hence we see the rise of some 'neuromyths'. (MCEECDYA 2010a, p. 8)

Although research into ECD has been conducted for more than half a century, similar caution needs to apply when interpreting the results. Some of the issues to be considered are the context of the research, including regulatory, social and cultural differences, and the specific programs being examined, which can be offered universally or targeted at specific populations.

The context of research matters ...

Much of the evidence base for ECD policy relies on research undertaken outside Australia. It is important to realise the substantial differences across countries and cultures in interpreting these outcomes.

In Australia, the ECEC system operates within ‘a context in which standards for good-quality care are enforced through government regulatory mechanisms’ (Love et al. 2003, p. 1031). This differs substantially from the United States, where regulation of quality standards has recently become a focus point for policy makers (Zaslow et al. 2010). However, much of the literature on quality standards and their effect on children’s outcomes is based on US data.

There may be limited scope for using US findings as conclusive evidence for Australian policy design. In the Longitudinal Study of Australian Children, quality measures were not found to be strong predictors of developmental outcomes for children aged 4–5 years (Harrison et al. 2009). ECEC was found to have a positive effect on children’s social and emotional wellbeing, although the effects observed were minimal (Harrison 2008). Both of these results differ markedly from US studies, and this can be explained by the current overall high quality of the Australian ECEC system, compared with that of the United States.

... and so does program design

Some of the ECD programs reported in the literature — such as the High/Scope Perry Preschool Project, the Carolina Abecedarian Study and the Chicago Child-Parent Centers — have been highly beneficial to the participants and their communities. These programs were targeted, intensive interventions. Hence, their results have limitations when used in the context of policy development aimed at universal access.

Targeted programs tend to achieve substantial benefits for disadvantaged children. However, when these programs, or some of their components, are offered universally, the benefits are more difficult to quantify.

The level of savings for the use of pre-school provision as a form of intervention with disadvantaged populations may be still to be settled. Nonetheless the consistency of positive cost–benefit results from the available studies does indicate that there are long-term savings to be made with such populations.

However the applicability of these indications of savings to the general population is open to considerable doubt in that so much of the benefit in these studies of disadvantaged populations derives from reductions of negative outcomes e.g. crime, remedial education, unemployment, where the incidence of these negative outcomes is

dramatically less in the general population and therefore the scope for savings is similarly dramatically less.

Hence extrapolation of the results of the cost benefit analyses from intervention studies to the provision of childcare for the general population is clearly inappropriate. (Melhuish 2004, pp. 55–56)

In the case of preschool, universal programs have a number of potential benefits. Offering programs to the entire population of young children may increase participation rates across the board, including for disadvantaged and vulnerable groups. Higher participation from more advantaged groups can support a stronger demand for quality, and it may improve educational outcomes through peer effects (Barnett 2010). In the United Kingdom, the EPPE study showed that disadvantaged children benefited significantly from attending preschool, particularly in settings with a mix of children from various backgrounds (Sylva et al. 2004).

However, universal preschool programs also pose challenges. Research has found that the families who need them most are least likely to attend, and as a result, ‘universal services ... are not universal in practice’ (valentine and Katz 2007, p. 30).

Children from higher income families are already more likely to attend preschool and experience higher quality care (Elliott 2006) and less likely to be developmentally vulnerable (CCCH and Telethon Institute for Child Health Research 2009). Any universal ECD policy will therefore direct scarce resources to groups that may not derive substantial benefits. To a point this can be tolerated (if the amount of resources used is small), but if:

... the decision to adopt a universal approach results in a significant dilution of the resources necessary to adequately support at-risk families, the logic underpinning such a choice would appear to be flawed. (Clark et al. 2006, p.38)

A universal preschool program may also affect the supply of ECEC services to younger children, given the limited resources supporting the sector. Research has found that increasing public funding to preschool services can result in a small reduction in services for younger children (Ackerman and Barnett 2009). In other cases, extending universal preschool programs to toddlers did not result in any additional benefits, compared with entering preschool at an older age (Papon and Martin 2008).

In the Australian context, there is concern that increasing the preschool hours available for children in the year before school will reduce the availability of services for younger children, as providers focus on achieving the NQA and NPA ECE standards (MCEECDYA 2011).

There is limited research on the effects of universal child care programs. Findings vary, based on the country of reference. For example, the introduction of universal childcare in Norway was shown to have had long term benefits (Havnes and Mogstad 2009), while in Canada, children were reported to be worse off as a result of a large increase in childcare availability (Baker, Gruber and Milligan 2005).

C.5 Conclusions

The first question of evidence-based policy is whether there is evidence of a problem. In the case of the Australian ECEC system, the answer is unclear. Some groups, such as Indigenous children and children from low socioeconomic backgrounds, are substantially disadvantaged and are likely to benefit from additional services. Most children, however, are doing well, and ECEC services overall seem to be ranking highly on international measures of quality.

However, the OECD (2006) pointed out a number of issues facing the Australian system, including: a fragmented philosophy that continues to differentiate between education and care; a complex regulatory system; and the low pay and status of ECEC staff and the way these affect quality. COAG's recent ECEC reforms seek to address some of these issues.

Evaluating the evidence base for ECEC policy shows that despite the large volume of literature and research, there is still much that remains unknown. Researchers are still unsure why certain programs work and others fail, what is the optimal policy design, and what is the best way to ensure the benefits accrue to those who need them most (Károly et al. 1998).

The existing evidence supports the theory behind recent ECEC reforms; however, there is limited evidence on the specific policy tools chosen. Most research has found that where similar policies were implemented, their benefits tended to be small. Though targeted programs have been shown to generate substantial benefits, universal policies may be less effective. Monitoring policy implementation and child outcomes in coming years will be important in establishing future policy directions.

