Early childhood education and Indigenous children

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CAEPR Seminar Series
April 8th, 2015
Overview of seminar

• The policy context
  • Productivity Commission enquiry
  • Heckman, early childhood investment and non-cognitive ability
  • Closing the Gap targets, National Partnership Agreements and the broader Indigenous policy context

• The preschool decision – What factors are associated with the decision for Indigenous (and non-Indigenous) children?

• The outcomes of ECEC – What is the relationship with short- and long-term outcomes?

• Concluding comments and policy implications
The Policy Context
<table>
<thead>
<tr>
<th>State/Territory</th>
<th>Year before full-time schooling</th>
<th>Age of entry</th>
<th>First year of full-time schooling</th>
<th>Age of entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>New South Wales</td>
<td>Preschool</td>
<td>3 and 4 year olds</td>
<td>Kindergarten</td>
<td>5 (by 31 July)</td>
</tr>
<tr>
<td>Victoria</td>
<td>Kindergarten</td>
<td>4 (by 30 April)</td>
<td>Preparatory</td>
<td>5 (by 30 April)</td>
</tr>
<tr>
<td>Queensland</td>
<td>Kindergarten/Pre-Preparatory (Pre-Prep)</td>
<td>4 (by 30 June)</td>
<td>Preparatory</td>
<td>5 (by 30 June)</td>
</tr>
<tr>
<td>South Australia</td>
<td>Preschool/Kindergarten</td>
<td>Continuous entry after 4(^{th}) birthday</td>
<td>Reception</td>
<td>Continuous entry after 5(^{th}) birthday</td>
</tr>
<tr>
<td>Western Australia</td>
<td>Kindergarten</td>
<td>4 (by 30 June)</td>
<td>Pre-Primary</td>
<td>5 (by 30 June)</td>
</tr>
<tr>
<td>Tasmania</td>
<td>Kindergarten</td>
<td>4 (by 1 January)</td>
<td>Preparatory</td>
<td>5 (by 1 January)</td>
</tr>
<tr>
<td>Northern Territory</td>
<td>Preschool</td>
<td>4 by 30 June</td>
<td>Transition</td>
<td>5 (by 30 June)</td>
</tr>
<tr>
<td>ACT</td>
<td>Preschool</td>
<td>4 (by 30 April)</td>
<td>Kindergarten</td>
<td>5 (by 30 April)</td>
</tr>
</tbody>
</table>
Key recommendation 1 – ‘Early Care and Learning Subsidy’ (ECLS):
- Paid directly to the ECEC provider(s)
- Contingent on each parent meeting, or satisfying an exemption from, an appropriate activity test (minimum of 24 hours per fortnight of work/study/training)
- Cover a means-tested portion of the Government-determined benchmark price (85%-20%) for up to 100 hours per fortnight

Key recommendation 2 – Preschool funding:
- Funding should be provided in a similar per-child manner to funding for schools.
- State and territory governments should fund preschool for every child, regardless of whether it is delivered in a dedicated preschool or in a LDC
- With a per-child subsidy provided by the Australian Government.

Other recommendations
- Payment of a portion of the Family Tax Benefit Part A to the parent or carer of a preschool aged child should be linked to attendance in a preschool program, where one is available
Heckman and non-cognitive ability

• Productivity Commission (2014 p.2) – ‘The benefits from participation in preschool for children’s development and transition to school are largely undisputed. There also appear to be benefits from early identification of, and intervention for, children with development vulnerabilities’

• Heckman (2013 p. 4-5) – ‘Three large lessons for social policy
  • First, life success depends on more than cognitive skills. Non-cognitive characteristics are also essential
  • …Second, both cognitive and socio-emotional skills develop in early childhood and their development depends on the family environment
  • …Third, public policy focused on early intervention can improve these troubling results…they have much greater economic and social impact than the later interventions that are the focus of conventional public policy debate.’
<table>
<thead>
<tr>
<th>Target</th>
<th>Target year</th>
<th>Progress</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close the gap in life expectancy within a generation</td>
<td>2031</td>
<td>Not on track</td>
<td>Limited progress.</td>
</tr>
<tr>
<td>within a decade</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ensure access for all Indigenous four-year-olds in remote communities</td>
<td>2013</td>
<td>Not met</td>
<td>In 2013, 85 per cent of Indigenous four year olds were enrolled compared to the target of 95 per cent.</td>
</tr>
<tr>
<td>to early childhood education</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>within five years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Halve the gap in reading, writing and numeracy achievements for</td>
<td>2018</td>
<td>Not on track</td>
<td>There has been no overall improvement in Indigenous reading and numeracy since 2008.</td>
</tr>
<tr>
<td>Indigenous students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Halve the gap for Indigenous Australians aged 20-24 in Year 12</td>
<td>2020</td>
<td>On track</td>
<td>The gap is narrowing in Year 12 or equivalent attainment</td>
</tr>
<tr>
<td>attainment or equivalent attainment rates</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Halve the gap in employment outcomes between</td>
<td>2018</td>
<td>Not on track</td>
<td>There was a decline in employment outcomes since the 2008 baseline</td>
</tr>
<tr>
<td>Indigenous and non-Indigenous Australians</td>
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</table>
National Partnership Agreement and broader Indigenous context

• National Partnership Agreement on Universal Access to Early Childhood Education
  • Signed on April 19th 2013, extended to 2015
  • $660.1mil over 18 months to December 31st 2014

• Forrest Review – Focus on education, and advocacy of ‘Healthy Welfare Card’

• School Enrolment and Attendance Measure (SEAM) – Focuses on attendance of students of compulsory school age

• Cape York Partnership – ‘Erect building blocks around literacy and numeracy in early childhood, so children’s reading and language skills start to develop from a young age’

• Narragunnawali: Reconciliation in Schools and Early Learning – ‘Participating schools will be assisted to find meaningful ways to increase respect; reduce prejudice; and strengthen relationships between the wider Australian community and Aboriginal and Torres Strait Islander peoples.’
Preschool participation – Indigenous/non-Indigenous comparisons and Indigenous specific factors
According to the 2011 Census

- 62.9 per cent of Indigenous children aged 4 to 5 years (who were not attending Infants/Primary) were attending preschool
- … compared to 72.0 per cent of the non-Indigenous population
- … and 62.7 per cent of the Indigenous population in 2006

If the 2006 Indigenous population had the same geographic distribution as the 2011 non-Indigenous population, then 66.3 per cent would be attending preschool

If the 2011 Indigenous population had the same geographic distribution, 65.0 per cent would be attending

Controlling for geography, Indigenous children have become slightly less likely to attend over the last intercensal period

They are also substantially less likely to be attending preschool relative to non-Indigenous children
Data – 2011 Census Sample File
- Individual-level data on 5% of Indigenous children collected in Census with non-Indigenous comparison

Outcome - Probability of a child aged 4 or 5 years old attending preschool.
- Excluded are those that have already started full-time schooling

Six models estimated
1. Indigenous status of the child
2. Variables from model 1, plus sex, State/Territory, child speaks a language other than English at home; changed usual residence; number of children in the household (by age); number of adults in the household; and overcrowding.
3. Variables from model 2, plus low education or high education household.
4. Variables from model 3, plus household equivalised income; tenure and household employment.
5. Variables from model 4, estimated for Indigenous children only.
6. Variables from model 4, estimated for non-Indigenous children only.
Marginal effect or difference in predicted probability of attending preschool

- Indigenous status
- Low education household
- High education household

Model 1
Model 2
Model 3
Model 4
Model 5 (Indigenous only)
Model 6 (Non-Indigenous only)
Relationship between ECEC and Indigenous child outcomes
• Data – Longitudinal Study of Indigenous Children
  • Kid cohort – Up to 425 kids

• Participation in preschool measured in Wave 1 in 2008 (Children aged 3 ½ to 5)
• Outcomes measured in Wave 3 in 2010 (Children aged 5 ½ to 7)

• Four types of outcomes (scaled to mean = 0 s.d. = 1)
  • Parent report (SDQ total difficulties, pro-social scale)
  • Interview administered (Renfrew Vocabulary test)
  • Teacher report (Maths and Language/Literacy understanding – low sample size)
  • Child report (Whether always happy to go to school – binary)

• Model 1 – Preschool only
• Model 2 - Preschool and gender, age, carer characteristics (objective and subjective), carer use of Indigenous/English language, remoteness, financial position, mobility.
Short-term association with ECE – Data and methods

- SDQ total difficulties
- Prosocial scale
- Vocabulary test
- Teacher reported maths
- Teacher reported language and literacy
- Always happy at school

Model 1 vs Model 2
Long term association with ECE – Data and methods

• Data – Australian sample of 2012 Programme for International Student Assessment (PISA)
  • 1,991 Indigenous/12,490 non-Indigenous 15 year olds who were still at school
  • Enumerated in urban, regional and remote schools, with weights used in the analysis

• Outcomes – Measures of academic ability, non-cognitive ability, truancy and expected number of years of education
  • Apart from years of education, scaled to have a mean of zero and standard deviation of one.

• Model
  • Estimate factors associated with outcomes separately for Indigenous and non-Indigenous Australians
  • Preschool participation defined retrospectively, by child.
  • Extensive contemporaneous controls – sex; school sector; school location; current school grade; age of school commencement; whether or not they speak a language other than English at home; whether or not they missed at least two months of school in a previous year; education characteristics of the student’s mother and father; index of the wealth level of the family; employment of student’s mother and father.
Long-term association with ECE – Results

Difference in index value/expected years of schooling for those who did attend preschool

- Indigenous association
- Non-Indigenous association

Index of test scores
Index of sense of belonging
Index of self perceived control
Index of perserverance
Index of school attendance
Expected number of years of education
Concluding comments and implications
Summary of main empirical points

• Participation
  • In the only data with consistent numerator/denominator (2006 and 2011 Censuses), Indigenous preschool participation is not increasing
  • Geographic distribution explains a small percentage of the difference between Indigenous and non-Indigenous children
  • Difference explained by education levels of the household
  • Some Indigenous-specific determinants of participation

• Outcomes – Short-term
  • Large degree of uncertainty around estimates
  • Preschool association tends to be in the right direction, and large for vocabulary

• Outcomes – Long-term
  • Large differences by preschool participation in measures of cognitive and non-cognitive ability for 15 year olds
  • Tend to be larger for Indigenous children, and particularly for measure of attendance
  • Some evidence that gaps by preschool for Indigenous kids widen rather than attenuate. School system exacerbates rather than narrows Indigenous/non-Indigenous gaps
Heckman in the antipodes...

• Heckman’s policy conclusions are largely based on two small-scale, randomised trials – Perry Preschool and Abecedarian
  • High internal validity, uncertain external validity

• Neil McCluskey (p. 86) in response to Heckman (2013) ‘Head Start is the federal government’s primary early childhood program…According to its most recent assessment…it has almost no lasting, positive cognitive effects, and its few, persisting socio-emotional impacts are mixed positive and negative’

• Biddle and Seth-Purdie (2013)
  • ‘Without controlling for risk factors, there was a strong positive relationship between participation in preschool and better outcomes. However, this relationship all but disappeared after controlling for the number of risk factors present.’ – p. 1
  • ‘without controlling for other factors, Indigenous children are more likely … to have low achievement and low literacy … [and] to have a poor SDQ ranking. Controlling for preschool or LDC attendance does not appear to influence this association. However, the association appears to disappear once other risk factors are controlled for.’ – p. 66
Better data and the quest for causality

- Harrison, Goldfeld, Metcalfe and Moore (2012) – Closing the Gap Clearinghouse
  - ‘There have been no rigorous trials or evaluations of early childhood programs in Australia, particularly programs for Indigenous and at-risk children’
  - Child Protection Society’s ‘Early Years Education Research Project (EYERP)’ an exception (though no results yet available)

- Observational data (even from longitudinal surveys) and insights from overseas limited in guiding policy
  - Too many selection issues with early childhood education, with biases for Indigenous children unclear

- Randomised Controlled Trials – Recovering causality without removing community
  - Real limitations of RCTs – withdrawing treatment not always feasible; scalability, spill-over effects and general equilibrium issues; long lead times

- But, ethical inclusive trials with community support needed to find out (i) what works to get kids to preschool and (ii) what works to close the gap in school readiness and life chances
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Indigenous specific determinants of preschool attendance – Data and method

• Data – Longitudinal Survey of Indigenous Children (LSIC)
  • Child cohort (aged 3-5 years) in Wave 1 (2008-09), excluding those attending full-time schooling
  • 343 observations with useable information

• Outcome – Participating in preschool

• Explanatory variables
  • Demographics, Indigenous specific participation in (arts and cultural events), carer characteristics, financial characteristics, geographic characteristics, experience of discrimination
Indigenous specific determinants of preschool attendance - Results

Predicted marginal effects

- Low income household
- High income household
- Lives in moderately advantaged area
- Lives in disadvantaged area
- Lives in low relative isolation area
- Lives in moderate relative isolation area
- Lives in high/极端 relative isolation area
- Main carer discriminated against in last 12 months
Data – Longitudinal Study of Australian Children (LSAC) B cohort
- ECEC participation measured in Wave 3 (Aged 4-5 years in 2008)
- Child outcomes measured in Wave 4 (Aged 6-7 years in 2010)

Method – Control for Indigenous status, sex, age and 24 risk factors
- Poverty; Housing instability; Housing stress; Competition for parenting time; Neighbourhood disadvantage; Low accessibility; Difficult temperament; Biomedical risk factors; Early childhood risk factors; High TV watching; Sole parent; Low P2 employment; Low P1 employment; High P1 employment; Teenage mother; Low P1 education; Potential language difficulties; Parental psychological distress; P1 or P2 poor health; Poor parenting skills; Low reading; Parental conflict; Parental substance use; Parental instability

Five outcome variables
- Low achievement – Teacher report
- Low maths – Cognitive testing
- Low literacy – Cognitive testing
- Poor SDQ – Parental report
- Poor school adjustment – Child report
Risk factors or ECEC? Distribution of risk factors

The bar chart shows the distribution of risk factors among the population. The x-axis represents the number of risk factors, ranging from 0 to 10 or more. The y-axis represents the percentage of the population. The chart compares the distribution of risk factors for Non-Indigenous and Indigenous populations. The chart indicates that a larger percentage of Indigenous individuals have a higher number of risk factors compared to Non-Indigenous individuals.
Risk factors or ECEC? Association with outcomes

Difference in predicted probability between Indigenous and non-Indigenous children

Low achievement
Low maths
Low literacy
Poor SDQ ranking
Poor school adjustment

No controls
Controlling for preschool hours
Controlling for preschool hours and risk factors