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Preschool education: Who is attending and does attendance influence early school performance?

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Background

- **Value of preschool education**
- **Existing evidence**
- **Aims of paper**
- **Data and methods**
- **Results**
- **Conclusion**

Value of preschool education

- **Investment in early years yield long term benefits**
 - **Economic benefits**
 - **Non-economic benefits**
- **Short term – does it affect early school performance after controlling for other variables?**

Existing evidence

- **International evidence**
 - **High/Scope (US)**
 - **Abecedarian (US)**
 - **Effective provision of preschool education (EPPE) (UK)**

- **Australian evidence**
 - **Longitudinal Survey of Australian Children (LSAC)**

Value of preschool education

- **Participation in preschool education is not consistent across all groups (Biddle, 2007)**
- **Lower participation amongst vulnerable groups**
- **State differences in provision of early childhood education**
- **43% non-Indigenous, 37 % Indigenous (2006 Census)**
- **68 % all children, 71 % Indigenous children, 63 % children whose parents are born overseas (LSAC)**



Aim of paper

- **First – who is attending preschool**
- **Second – does attendance influence Year 1 literacy and numeracy performance**

Factors considered

- **Individual (age, ethnicity, health status etc)**
- **Family (parental education status, employment status etc)**
- **Home (access to computer, number of books)**
- **School (student to teacher ratio, teacher qualifications)**
- **Community (accessibility, % completed yr 12 etc)**
- **Wider settings (culture)**

- **Data drawn from Wave 1 and 2 of LSAC**
- **Wave 1 – 4 – 5 year olds who attended preschool 2004 (n=2571)**
- **Wave 2 – 6 – 7 year olds enrolled in Year 1 in 2006 (n=3096)**
- **Measure of performance given in LSAC**
 - **Dtlit – mean literacy score**
 - **Dtmath – mean numeracy score**

- Estimate 4 sets of equation

$$y_1 = f(x_1, x_2) \quad (1)$$

$$y_2 = f(x_1, x_2) \quad (2)$$

$$y_3 = f(x_1, x_3, \hat{y}_1) \quad (3)$$

$$y_3 = f(x_1, x_3, \hat{y}_1, \hat{y}_1 \cdot x_4) \quad (4)$$

Where x_1 are time invariant variables, x_2 and x_3 are time variant and x_4 are subgroups of the population of interest

Summary Statistics

Variables	Indigenous	Parents born overseas	All
Mean Literacy	2.84 (1.06)	3.74 (0.98)	3.65 (1.00)
Mean Numeracy	2.82 (1.00)	3.59 (0.99)	3.53 (0.98)
Preschool Attendance	71 %	63 %	68 %
Preschool hours	13.46 (3.82)	13.12(4.63)	12.93 (4.47)

(Standard deviation in brackets)



Factors associated with preschool

Variables	Model 1 – Attendance	Model 2 Hours
Male	-0.15	-0.60
Indigenous	0.01	0.68
Age 5	0.12	0.97
Low birth weight	0.01	0.16
Father overseas	-0.18	-0.46
Mother overseas	-0.30**	-0.71
Father completed Yr 12	0.16	1.36**
Mother completed Yr 12	0.34**	1.46**
Father working part time	0.23	0.41
Mother working part time	0.94**	4.75**
Father not employed	-0.39	-1.04
Mother not employed	1.30**	5.40**
Parent in low income	-0.09	-1.41
Parent in medium income	0.00	-0.53
Father has degree qualifications	-0.03	0.13
Mother has degree qualifications	0.10**	0.60
Moderate access	0.52**	2.03**
Remote	0.77**	3.40**

Relationship between preschool attendance and performance - Literacy

Variables	
Predicted preschool attendance	0.52**
Preschool Hours	0.007*

Variables	
Predicted preschool attendance	1.09
Preschool Hours	0.004
Male	-0.22**
Indigenous	0.16
At least one parent from overseas	0.08
Both parents did not complete Yr 12	-0.16
At least one parent as degree qualifications	0.23**
Father working part time	0.11
Mother working part time	-0.09
Father not employed	0.19
Mother not employed	-0.11
Parent in medium income	0.06
Parent in high income	0.13
Absent	-0.13
Has more than 10 books at home	0.30*
Access to computer	0.17
Tenure – mortgage	-0.004
Tenure type - rented	0.02

Variables	
Teacher has degree qualifications	0.09
Student to teacher ratio	0.06**
Number of siblings	-0.84**
% of ATSI in postcode	-0.04**
% completed Yr 12 in postcode	-0.003
% employed in postcode	-0.009
% of people in families earning \$1000 and more a week	-0.006
% of people who speak English only in postcode	-0.000
Adjusted R-Squared	0.07

Relationship between preschool attendance and performance - Numeracy

Variables	
Predicted preschool attendance	0.44**
Preschool Hours	0.01**

Variables	
Predicted preschool attendance	1.75**
Preschool Hours	0.004
Male	0.07
Indigenous	-0.03
At least one parent born overseas	0.04
Both parents did not complete Yr 12	-0.04
At least one parent as degree qualifications	0.27**
Father working part time	0.11
Mother working part time	-0.29
Father not employed	0.19
Mother not employed	-0.31
Parent in medium income	0.02
Parent in high income	0.00
Absent	-0.28
Has more than 10 books at home	0.39**
Access to computer	0.05
Tenure – mortgage	-0.04
Tenure – rented	-0.25

Variables	
Teacher has degree qualifications	-0.05
Student to teacher ratio	0.06*
Number of siblings	-0.05
% of ATSI in postcode	-0.04**
% completed Yr 12 in postcode	-0.007
% employed in postcode	-0.18**
% of people in families earning \$1000 and more a week	-0.013**
% of people who speak English only in postcode	-0.004
Adjusted R-Squared	0.07

Subgroups

- **Interaction terms were added for**
 - **Indigenous status**
 - **parent with low income**
 - **parent born overseas**

- **Without controlling for other factors – preschool students with parents with low income tended to benefit less from preschool education**

- **No differential effect of preschool on different population group**

Conclusion

- **Significant variation in preschool attendance**
- **Maternal factors important**
- **Independently, preschool attendance statistically significant**
- **Controlling for other factors, preschool attendance is only significant for numeracy**

Conclusion

- **In terms of literacy and numeracy scores, home environment and parental qualifications are important**
- **There are gender differences in literacy outcomes**
- **Future waves**
- **Quality preschool**