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DOES EARLY CHILDHOOD EDUCA-TION AND CARE PROVISIONS IN INDIA PROVIDE ANY DIVIDEND TO CHILDREN?

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Does Early Childhood Education and Care Provisions in India Provide Any Dividend to Children?

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Abstract

One-fourth of the world's preschool-aged children belongs to India and India has one of the world's largest early childhood education and care provision named the Integrated Child Development Scheme, in operation since 1975. However, studies on the impact of existing early childhood education and care provisions on children's later development are non-existence in the Indian context, and, thus, the impact of such provisions on children's later development is sparsely known till date. Based on the primary data of 1369 children from West Bengal, India, this study investigates if attending preschool associates with greater accumulation of cognitive and social skills at a later stage.

Albeit the existing evidence, available mainly from the developed countries, that attending preschool would provide children with greater skill accumulation, the results clearly showed that children ascertained skills only partially in the Indian context. The study shows that children who attended preschool acquired greater social skills, but not necessarily cognitive skills. Also, the type of preschool attended was not a significant determinant of children's skill development. It is, thus, essential to make the existing early childhood education and care provisions more effective, so that children from all tiers of society can have a wholesome foundation.

Keywords

early childhood education and care, child development, cognitive skills, social skills, India.

1. Introduction

Childhood is the most important phase of human life and it forms the basis of intelligence, personality, and social behavior (UNICEF, 2017; Benton, 2010; Evans et al., 2000). It has already been witnessed that early childhood education and care (ECEC) contribute substantially to children's development and well-being. Children attending early education program is associated with cognitive gains and improved performance in school around the world (Weiland & Yoshikawa, 2013; Yoshikawa et al., 2013; Decicca & Smith, 2011; Dumas & Lefranc, 2012, Gormley et al., 2008). Also, children who received early education may have a greater accumulation of human capital, which results in higher employment and earnings (UNICEF 2016, 2017; Becker 1964; Heckman 2000).

Early intervention is considered more decisive for children from disadvantaged backgrounds and the developing world (Linda et al., 2017; Waldfogel, 2015; Dumas & Lefreac, 2012; Patrice et al., 2011). The strong foundation made by ECEC programs can lead to improvements in children's survival, health, growth, and cognitive and social development. That, in turn, also help in improving school enrollment and retention rate and reduce school dropouts (World Education Forum, 2000; UNICEF, 2001). Also, ECEC can be an effective tool to narrow the gap between children from different socio-economic classes and 'leveling the playing field' (UNICEF, 2016: 41). The inequality in the development of human capabilities can and should be prevented with investments in early childhood education (Heckman, 2011).

However, the impacts of childcare facilities on children's development outcomes are not always clear. Considering the findings that high-quality childcare and duration of stay in such care facility is associated with better cognitive and social development (NICHHD ECCRN and Duncan, 2003; Peisner-Feinberg et al., 2003; Lamb and Sternberg, 1990; Zaslow, 1991; Helburn and Culkin, 1995; Phillips et al., 1987; Campbell and Ramey, 1994), it at the same time has also witnessed that early, extensive, and continuous nonmaternal care may have some development risks for young children and the larger society (Belsky, 2002, 2001). Another research found that the pre-schooling not only increases reading and mathematics skills at school entry but also witnessed increases in behavioral problems and weakens self-control (Magnuson et al., 2004). Therefore, there are conflicting debates regarding the effects of ECE provisions on children's later development.

1.1. Indian Context

India is home to approximately twenty percent of the world's child population in the age group of 0-6 years. The institutional ECEC is provided through two main channels: public and private. India has one of the world's largest child development program named Integrated Child Development Scheme (ICDS), in operation since 1975. The public preschools administered by ICDS called 'Anganwadi' (village courtyard) is the main platform where all the services converge. ICDS scheme focuses on two major dimensions: First; health and nutritional development of children, and second, preschool education. Attending an Anganwadi depends on parent's decision and is free of any financial burden to the parents. In Anganwadi, children in the age group of 0-6 years receive a daily cooked meal and periodic health checkups; and children in the age group of 3-6 years receive preschool education to lay the foundation for proper psychological, physical and social development. According to the recent estimate (MWCD, 2018), there are about 32 million children in the age group of 3-6 years currently enrolled for the preschool education component of ICDS.

Despite the increasing number of children attend Anganwadi in India, its impact on children's development and well-being is not well documented. Although the performances of the ICDS programme was evaluated in the past, the primary focus was more on the nutritional development of children rather than cognitive and socio-emotional development (Government of India, 2011). There was evidence claiming the positive impacts of the ICDS program on children's nutrition and health (Dutta and Ghosh, 2017; NIPCCD, 1992). Findings also show that attending Anganwadi was associated with higher enrollment, lower dropouts, and better performance at a later stage (NIPCCD 1992, 2006; UNESCO 2006). Besides, a recent study validated only a modest impact of the ICDS program on children's socio-emotional development (World Bank, 2018).

Furthermore, there are also unregulated private preschools operated by either entrepreneur as separate enterprises or preschools attached to private primary schools. Private preschools of different scales and designs are steadily expanding across the country, not only in urban areas but also in rural and tribal areas in many states (Kaul et al. 2015). Private preschools are mainly targeted towards children of socioeconomically well-off families where children are usually enrolled as early as two and half years of age. Though the exact number is unknown, it is estimated that about 10 million children receive early education from private providers. Although the targeted subscribers are usually the economically well-off families, recent studies have found that there is a growing trend of parents across different socioeconomic classes of favouring private preschools over public preschools for their children. More and more parents are opting for private preschools preferring an education-centered curriculum, which they think may better prepare their children for primary school (Rana & Sen, 2008; Ghosh, 2020). However, there is no concrete evidence showing any relative advantages or differences of private preschools over public preschools in stimulating children's development. On the contrary, the curriculum and functioning of these private preschools are highly criticized due to their over-emphasis on education (Kaul & Sankar, 2009; Kaul, 1998; Swaminathan, 1998; Kaul 1992). As a result, the impact measurement on both the public and private ECEC provisions on children's cognitive and social development is debatable due to the lack of substantial evidence.

1.2. The current study

This study proposes to critically look at the intrinsic worth of existing ECEC provisions in providing the foundation for a better future for the children in India. It explores two interrelated questions: First, do the children who attended preschool perform better at a later stage compared to their peers who did not attend preschool? Second, does attending private preschool provide any relative advantage to children compared to those who attended public preschool?

If existing ECEC provisions mainly the public one, do not provide any benefit to children then policy intervention is needed to make the program more effective. Otherwise, children may be deprived of having a strong foundation to develop to their fullest potential. Besides, if the notion that private preschools are better in preparing children for primary school is not true then parents' incorrect choice may have adverse consequences on their children and the family. This poses a serious issue for low-income families where parents spend their hard-earned money on children's education as a long-term investment. On one hand, there is the possibility that children are inadequately catered with a non-scientific curriculum which might

cause long-term damage to their development potential. On the other hand, increasing household expenditure on private preschool could otherwise be used for other child-related expenditures such as improving their health and nutrition.

2. Methodology

2.1 Sampling and Data

This study is based on primary data of 1369 children, collected from West Bengal, the eastern state of India. The sampling instrument used for this research was based on a multi-stage sampling procedure. The choice of the study area was for pragmatic reasons such as the language spoken in the region, easier accessibility for administrative approval from the local authorities to conduct surveys, funding requirements, etc. In comparison to macro characteristics such as percentage of the child population, representation of the marginal groups in the population, adult literacy rates, rate of urbanization, work-participation, etc., West Bengal matches the national average (Census of India, 2011) which makes the sample representative of the country to a certain extent.

The sampling process is divided into four stages: (1) selection of districts, (2) selection of sub-districts, (3) selection of primary schools, and (4) selection of children and their households. Firstly, all districts in West Bengal were ranked according to the adult literacy rate and per-capita income, and thereafter two of the districts named: Howrah and Murshidabad were randomly chosen, one from the top tier and another from the bottom tier of the list. Secondly, sub-districts with the highest population were selected from these two districts to have a representative sample. The sampling area consisted of 169 number of villages and 75 number of Wards (an electoral sub-district of a corporation/municipal council or town board) and represents a population size of about two million. Thirdly, all primary schools (N=1390) in the sample region were identified consisting of about 86 percent publicly sponsored and about 14 percent privately sponsored schools. And fourthly, it was designed to randomly select 70 schools and sample 20 first graders from each of these selected schools to have a sample of 1400 children. However, several schools had less than 20 children in Grade-I so the final sample consists of 84 schools to select 1400 children and their households. Given the available information, only 1373 out of 1400 households were physically identified during the fieldwork. Among them, 1369 households agreed to participate in the survey and were included in the final sample. In the next stage, the household survey was conducted through a personal visit to each household and filling in a paper-based questionnaire. The questionnaire was available in two languages: English and Bengali. Amongst the respondents, 11% were fathers, 84% were mothers and rest 5% were grandparents or other relatives of the target child.

Since the objective of the research was to explore whether attending preschool had any effect on children's later performance, children in the first grade in primary schools were selected, as this group of children comprises of children with and without preschool experience. Besides, studying first graders also reduces the problem of having school-fixed effects and the difficulty of disentangling how much of the current performance is due to preschool attendance and how much is primary school-related. The final sample consists of 1369 children and their households from 84 primary schools. The sample shows a considerable variation concerning preschool attendance, indicating that about 66 percent of the sample children attended preschool. Amongst the sample children who attended preschool, about 71

percent of children attended public preschool i.e. Anganwadi Centers, and the rest attended private preschool.

2.2 Instruments for Child Development

Children's current development was measured using twelve indicators, capturing their cognitive and social skills as described in table 1. All sample children were evaluated based on these twelve indicators, by respective class teachers by way of using a Likert scale of 1 to 5 (see appendix 1 for summary statistics). An exploratory factor analysis was then conducted using Principal Component Analysis (henceforth PCA) for dimensionality reduction and in generating indexes for children's recent overall, cognitive, and social performances respectively. For the overall performance, all twelve indicators were used together. For cognitive and social performance only the indicators in these respective categories were used (six for each category).

Table 1: Indicators for child development

Cognitive skills	Attention	Attention towards class activities
	Spontaneous	Ability to answer spontaneously if asked questions
	Assignments	Ability to deliver if given any assignment in class
	Memory	Ability to recall previous lessons
	Own ideas	Ability to apply their own ideas
	Assessment	How the child performed in last class assessment
Social skills	Friendliness	Ability to make friends
	Share	Share food and other items with peers
	Group activities	Participate in group activities with other peers
	Help peers	Volunteer to help peers if needed
	Control temper	Control temper in conflicting situations
	Compromise	Agree to compromise in conflicting situations

The analysis consists of a linear transformation of these indicators that produce new uncorrelated variables (i.e., components) from the original variables since frequently just a few of these components are sufficient to represent the original data adequately. During the PCA, two common criteria of component selection viz. were used. The first criterion is based on the choice of one component of the eigenvalues which is greater than one. The second criteria is the amount of explained variance, based on which, the chosen factors should explain 70 to 80% of the variance of the variables selected (King and Jackson, 1999; Jolliffe, 2002). Findings from the PCA (refer to appendices 2 and 3) show that only two of the components were having an eigenvalue greater than one. Additionally, these two components also explain over 80% of the variation in all of the child development indicators. Therefore, these two components were finally included in predicting the value of the latent variable named overall performance in this study. Furthermore, the same methodology was used separately for the

indicators of cognitive skills and social skills in generating the cognitive performance and social performance indexes.

2.3 Identification Strategy

The empirical analysis of this cross-sectional study is conducted in two stages following the two research questions. The first stage aims to examine whether attending preschool is associated with variation in child performance i.e. overall, cognitive, and social performances. The main explanatory variable in the study i.e. attending preschool is endogenous as several factors such as parents' socioeconomic status may have affected children's performance as well as their chances of attending any kindergarten/preschool. Therefore, there is a probability of unobserved heterogeneity, where one or more of the observed and unobserved control variables in the model may influence both the dependent and the independent variables. Hence, the Lewbel method, a heteroskedastic based instrumental variable regression method was used (Lewbel, 2012). Through this method, instruments may be constructed as simple functions of the model's data (Lewbel, 2012; Baum and Schaffer, 2012). Using the same methodology, the impact of preschool attendance was investigated separately on cognitive performance and social performance, in exploring whether attending preschool associates with any particular skill development.

Econometrically, the equation can be written as follows considering 'x_{1i}' as endogenous.

$$x_{1i} = \alpha_1 z_i + \alpha X + u_{1i} \dots \dots \dots \dots \dots \dots \dots . (1)$$

$$y_i^{performance} = \beta_1 \hat{x}_{1i} + \beta x + u_{2i} \dots \dots \dots . (2)$$

Where $u_{1i} \sim N(0,1)$; $u_{2i} \sim N(0,1)$; and $Cov(z, (u_{21} u_{22})) = 0, i = 1, 2$. Here, the instrumental variable z in equation 1 is a subset of regressors that is as a specific function of regressors in equation 2, like z=$(x_i - \bar{x}) * u_{3i}$. Finally $\hat{x}_{1i}$ is the estimated value of endogenous x_{1i} from equation 1.

In equation 1, x_{1i} is a binary variable denoting whether the ith child attended preschool (1=yes, 0=no). In equation 2, $y_i^{development}$ represents the performance of the ith child. X is the vector of independent variables in both the equation and β is their coefficients respectively. Finally $\hat{x}_{1i}$ is the estimated value of endogenous x_{1i} from equation 1. Eventually, in equation 2, we used this $\hat{x}_{1i}$ instead of x_{1i} to see the impact of different entry age in preschool on the developmental outcome of the child at the primary level. Here z is the heteroscedasticity-based instrumental variable that is constructed under the following conditions. First, $Cov(x_1, u_{2i}^2) \neq 0, i = 1, 2$ and second, $Cov(z, (u_{21} u_{22})) = 0, i = 1,2$. Here the instrumental variable z in equation 1 is a subset of regressors or can be assumed as a specific function of regressors in equation 2, like z=$(x_i - \bar{x}) * u_{1i}$ (Lewbel, 2012).

Considering the Indian context and taking into account different household characteristics that might have an impact on child development, several controls were introduced in the regression analysis. First, monthly household income was included as an indicator of the economic status of the household. Second, the highest educational attainment of either parent, occupational status, and the family size was included as an indicator of their social status. Third, to identify the households by social group and religion, dummies for caste and religion were used. Fourth, child characteristics such as the sex of the child, their health status were used. The fifth, geographical location (rural-urban), and district areas fixed effects were

also included in the models. Lastly, the type of primary school children presently attended was factored in.

In the *second stage*, the econometric analysis takes into consideration only children who attended preschool. This would be a classic case of observing the heterogeneity of treatment-effect on treated where we only see the relative performance of children who attended a different type of preschool. Taking into account that the selected sample only looks at children who attended preschool (904 out of 1369 children), the study may be implying a classic case of "sample selection bias" here (Heckman, 1979). For this reason, we first, estimate the selection equation, and second, the outcome equation through a sample selection correction using the Heckman methods (Van de Ven and Van Pragg, 1981). The selection equation estimates the factors affecting the probability of attending preschool and the outcome equation estimates the impact of the type of preschool attended on children's development. As the main explanatory variable in the outcome equation *preschool type* is possibly also endogenous in this sample, therefore, the study used the same approach as to analyze the outcome of the equation as carried out in stage 1. Hence, the Heckman-IV model (Wooldridge, 2010) can be written as follows:

$$y_i^{attended\_preschool} = \gamma q_i + u_{3i} \ldots \ldots \ldots \ldots \ldots (3)$$

$$y_i^{performance} = \beta_1 x_{1i} + \beta x + u_{4i} \ldots \ldots \ldots \ldots \ (4)$$

Where $u_{3i} \sim N(0,1)$; $u_{4i} \sim N(0,1)$; $u_{4i} \sim N(0,1)$; $corr(u_3 u_4) = \rho$; $Cov(x_3, u_4^2) \neq 0, i = 1, 2$. We observe only the outcome $y_i^{development}$ if $y_i^{attended\_preschool} = 1$ or $\gamma q_i + u_{3i} > 0$ (Wooldrige, 2006, page 618-620). In the selection equation, q_i is the vector of independent variables affecting the probability of sending children to preschool of the ith household, γ is the vector of coefficients of independent variables and u_{1i} are the error terms. N (0, 1) represents the standard normal distribution of the error terms. When p=0, the standard probit estimations using only the outcome equation by factoring in the children who attended preschool, could yield would be biased and would be based on inconsistent estimates. Therefore, the probit regression with sample selection is applied here, following the two steps of Heckit method.

In the first stage, we estimate a probit model of $y_i^{attended\_preschool}$ on q_i and obtain the estimate $\hat{\gamma}$. Then, the Inverse Mills Ratio (IMR) is computed, $\widehat{\alpha}i = \alpha(q_i \hat{\gamma}) = \varphi(q_i \hat{\gamma})/\emptyset(q_i \hat{\gamma})$ [it is the ratio between the standard normal pdf and the standard normal cdf] for those with $y_i^{attended\_preschool} = 1$. In the second stage, using the selected sample, i.e. observations with sample $y_i^{attended\_preschool} = 1$, $y_i^{development}$ is regressed on x_1, x_i, $\widehat{\alpha}I$ is calculated. These steps will give an estimator of $\hat{\beta}_1$, which is consistent and more or less normally distributed. The usual t-test was applied, to test the selection bias on the coefficient on 'imr' i.e. coefficient on $\widehat{\alpha}$ as a test of $H_0 = \rho = 0$. However, the $\hat{\beta}_1$ would be unbiased only if x_1, that is, the entry age in preschool is exogenous. Furthermore, to deal with the endogeneity issues in the analysis, the outcome equation was further decomposed as follows considering 'x_{1i}' as endogenous.

$$x_{1i} = \alpha_1 z_i + \alpha x + u_{5i} \ldots \ldots \ldots \ldots \ldots \ldots \ldots. (5)$$

$$y_i^{performance} = \beta_1 \hat{x}_{1i} + \beta x + u_{6i} \ldots \ldots \ldots. \ (6)$$

Here, our z that is IV, is the heteroscedasticity-based instrumental variable which was constructed under the following conditions. The same methodology described at the first stage was then applied for the estimation.

3. Results

The descriptive statistics presented in tables 2 and 3 show a great deal of variation in child performance based on preschool attendance and type of preschool attendance respectively. The independent sample t-tests show that children who attended preschool scored higher compared to children who did not attend preschool. A similar pattern was noticed concerning preschool type where children who attended private preschool had higher scores compared to children who attended public preschool. This association is further examined using econometric analysis as already described.

Table 2: Variation in skills based on preschool attendance

Skill Type	Indicators	Attended Preschool-Yes		Attended Preschool-No		t-test p-value
		Mean	S.D.	Mean	S.D.	
Cognitive skills	Attention	3.85	0.79	3.57	0.94	0.001
	Spontaneous	2.59	0.60	2.32	0.74	0.001
	Assignment	3.69	0.87	3.38	1.01	0.001
	Memory	3.60	0.89	3.35	0.98	0.001
	Own idea	3.57	0.88	3.30	1.00	0.001
	Assessment	2.62	0.60	2.41	0.71	0.001
Social Skills	Friendliness	3.96	0.70	3.83	0.81	0.003
	Share	3.87	0.72	3.74	0.87	0.007
	Group Activity	3.84	0.75	3.76	0.91	0.09
	Help peers	2.69	0.49	2.55	0.63	0.001
	Control temper	3.81	0.72	3.72	0.87	0.05
	Compromise	3.85	0.72	3.72	0.86	0.006

Source: Author's computation from primary data.

Table 3: Variation in skills based on the type of preschool attendance

Skill Type	Indicators	Public Preschool		Private Preschool		t-test
		Mean	S.D.	Mean	S.D.	p-value
Cognitive skills	Attention	3.78	0.81	4.03	0.70	0.001
	Spontaneous	2.53	0.64	2.73	0.49	0.001
	Assignment	3.57	0.91	3.98	0.69	0.001
	Memory	3.47	0.92	3.93	0.70	0.001
	Own idea	3.44	0.90	3.89	0.72	0.001
	Assessment	2.54	0.63	2.81	0.43	0.001
Social Skills	Friendliness	3.93	0.72	4.03	0.64	0.03
	Share	3.82	0.75	4.00	0.65	0.001
	Group Activity	3.79	0.78	3.97	0.68	0.001
	Help peers	2.64	0.51	2.79	0.42	0.001
	Control temper	3.76	0.73	3.94	0.67	0.001
	Compromise	3.81	0.74	3.95	0.64	0.006

Source: Author's computation from primary data.

Table 4 portrays the association between preschool attendance and a child's later performance. It shows that after controlling for household characteristics, attending preschool predicts better performance at a later stage, and children who attended preschool had performed better at Grade-I compared to children without preschool experience. Besides, amongst control variables, parental education explained a great deal of variance in children's development. Children from relatively higher educated families were in general, found to perform significantly better compared to children from relatively low-educated parents (refer to appendix 4).

Table 4: Effect of preschool attendance on child performance

	Coefficients
Preschool attended (Ref. No)	
Yes	0.964*
	(0.480)
Observations	1,348
R-squared	0.165

Robust standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05

Refer to appendix 3 for the complete specification.

Furthermore, children's performance was divided into cognitive and social performances to examine if the association between preschool attendance and performance varied depending on skill types. Table 5 shows that preschool attendance predicted a significant increase in children's social performance but not on cognitive performance. Further, the table also shows that parent's education had a statistically significant positive effect on both cognitive and social performances and children from highly educated parents were found to acquire greater skills (refer to appendix 5).

Table 5: Effect of preschool attendance on cognitive and social skills

	Cognitive skill	Social skill
Preschool attended (Ref. No)		
Yes	0.643	0.731*
	(0.366)	(0.361)
Observations	1,35	1,349
R-squared	0.204	0.094

Robust standard errors in parenthesis. ***p<0.001, **p<0.01, *p<0.05

Refer to appendix 4 for the complete specification.

Table 6: Type of preschool and child performance

	Coefficients
Preschool Type (Ref. public preschool)	
Private preschool	0.329
	(0.331)
Observations	892
R-squared	0.195
Robust standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05	
Refer to appendix 5 for the complete specification.	

Likewise, the association between preschool type and child development is presented in Table 6. There was no statistically significant association between the type of preschool attended and child development. Besides, parent's education also had a similar positive effect as witnessed also in Table 5 (refer to appendix 6). Furthermore, children from general caste backgrounds were generally found to perform better than children from lower caste backgrounds (i.e. Scheduled Caste, Scheduled Tribe, and Other Backward Castes) (refer to appendix 6).

4. Discussion

There is a considerable number of children attending different types of preschool in India. According to the World Bank, gross enrollment in pre-primary schools is standing at the rate of 13.55% of the overall child population (0-6 age group) in 2017. That hereby confirms that there is immense potential for a significant number of children in building a strong foundation for them if the existing ECEC provisions would deliver any form of cognitive and socioemotional stimulus. It is evident that an intensive early childhood education programme has long-lasting effects on the cognitive and academic development of a child (Campbell et al., 2001), hence, the question asked in this study: does the existing ECEC provisions in India provide any cognitive and socioemotional benefit to children?

Given the established background, the study confirms that even though attending preschool is associated with overall better performance of children in Grade-I, the positive association was only limited to social skills. Whilst attending preschool seems to help children in improving their social skills, there was no significant influence on building their cognitive skills, which is also pivotal for children's later development (Welsh et al., 2010). Furthermore, there was no discrepancy in children's performance for the type of preschool they attended. The parental preference in choosing private preschools is therefore not justified.

The question further arises on why attending preschool does not provide additional cognitive benefits to children can only be explained by the fact that not only preschool attendance matters but also the quality of the preschool plays an important role (Sharon et al. 2019; Yoshikawa et al. 2015; Krzewina 2012). Thus, one can summarize that the quality of education

and care provided in the existing preschools in India are not responsible enough in being able to provide any cognitive incentive to children. Preceding investigations in India have indicated the fact that public preschools (Anganwadi) were less focused on the early educational component and more on the nutritional component of the ICSD programme. As pointed out in earlier studies, the focus of Anganwadi's is more on feeding aspects rather than on promoting behavioral change in childcare practices in the community. Correspondingly, Anganwadi workers are often not very well educated, hence they do not have the required skills to take on these early educational responsibilities (NIPCCD 2006, p. 30). As a result, the preschool education component of the ICDS is not functioning properly due to these reasons. Besides, the curriculum followed in the private preschools was also criticized for its quality and suitability for children (Kaul & Sankar 2009, Kaul 1998, Swaminathan 1998). Therefore, both types of preschools seem to be lacking in quality towards contributing to children's cognitive development.

Even though the quality of care and education provided in Indian preschools are questionable, the role of these preschools in developing children's social skills is well evident and documented. Regardless of the quality of care and curriculum in preschools, attending preschool allows children to interact and communicate with others in integrating themselves accordingly. Desirably, the first friendships are established during the preschool years (Howes, Hamilton, & Philipsen, 1998). As such, the acquisition of social skills such as helping and sharing, etc., during preschool benefits children in school engagements and academic successes (Howes et al., 1998; Ladd, Price, & Hart, l988). For example, prosocial behaviour may foster positive relationships with teachers and peers thereby stimulating bonding at school, which in turn enhances learning (Coolahan et al., 2000; Konold & Pianta, 2005).

Another important aspect that is evident from the study, is the role of parents' education in child development. Result points to the fact that children from educated parents perform better at a later stage. Studies have shown that parents' education influence parents' values and knowledge of the educational system, which in turn, influence their educational practices at home and the skills children have to portray. Parents' level of education allows them to offer their children more qualified help with the learning of cognitive and another type of skill that improves the performance of the child. Parents with higher education ensure that their children are exposed to plenty of educational opportunities. Educated parents often engage themselves in everyday interaction with children and actively help children with their daily education and non-education related activities (Jonsson & Erikson, 2000).

5. Conclusion

Visibly, the ECE provisions in India contribute to child development only partially in the form of social skill development. Therefore, it raises the question concerning the curriculum followed in the existing preschools and their quality of care. The study advocates for policy interventions in ECEC provisions so that children can benefit more by attending preschool. This could be in the form of restructuring the preschool education component of the ICDS programme and giving it greater importance.

By providing an improved and more scientific curriculum to the children, Anganwadis can help children in building greater skill accumulation. As side from taking into account that parents mainly send their children to preschool for early education and school readiness (Ghosh & Dey, 2020), public bodies should seriously look into improving the preschool education component of the ICDS programme that could result in attracting more and more parents

towards the Anganwadi Centres. Given the fact that, ICDS is mainly targetted towards the marginalized section of the society, expanding its coverage and improving the quality of service provisions would certainly help children from deprived backgrounds in building a strong foundation.

6. Limitation and further scope

First and foremost, given the socioeconomic and political diversities, the functioning of the ICDS programme as well as other ECEC provisions differs considerably across India. As a result, the scope and coverage of such provisions vary from region to region. Additionally, the existing cultural diversities across regions and social classes also allow child-rearing practices and parental beliefs to varying considerably. This makes it difficult to generalize the findings of the study in the national context.

Secondly, the regional variation in the supply of preschools also leaves parents with diverse options. Whereas parents from a region where both types of preschools are available can have the liberty to choose between public and private preschools, parents from other regions may have to compromise their choice due to the unavailability of enough options. As a result, it is difficult for the study to disentangle/analyze in-depth whether the choice of a preschool was deliberate or compelled by the unavailability of other options.

Lastly, the findings raise a further question on whether primary schools were able to make up for the ECEC. This requires further research on whether the effects of attending preschools remain in the long run or it threatens to dissolve as attending primary school could eventually allow children to equally develop their skills. At the moment, this study only focuses on first graders and is not yet able to delve into the long-term impacts of attending preschool.

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8. Appendices

Appendix 1: Descriptive statistics of the Skills

Variable	Obs.	Mean	Std. Dev.	Min	Max
Friendliness	1369	3.915	0.746	1	5
Share	1369	3.831	0.784	1	5
Help Peers	1369	3.815	0.814	1	5
Group Activities	1368	3.839	0.801	1	5
Control Temper	1369	3.783	0.779	1	5
Compromise	1368	3.812	0.776	1	5
Attention	1369	3.763	0.855	1	5
Spontaneous	1369	3.661	0.907	1	5
Assignments	1369	3.587	0.937	1	5
Memory	1369	3.520	0.933	1	5
Own Ideas	1368	3.483	0.932	1	5
Assessment	1369	3.740	0.927	1	5

Source: author's computation from primary data

Appendix 2: Principal Components and Eigenvalues

Component	Development		Cognitive		Social	
	Eigenvalue	Cumulative	Eigenvalue	Cumulative	Eigenvalue	Cumulative
Comp1	8.266	0.6889	5.024	0.8374	4.759	0.7933
Comp2	1.535	0.8168	0.288	0.8855	0.482	0.8737
Comp3	0.486	0.8574	0.274	0.9314	0.303	0.9243
Comp4	0.320	0.8841	0.168	0.9594	0.194	0.9568
Comp5	0.280	0.9075	0.126	0.9805	0.134	0.9792
Comp6	0.257	0.9289	0.116	1.0000	0.124	1.0000
Comp7	0.190	0.9448	---	---	---	---
Comp8	0.168	0.9588	---	---	---	---
Comp9	0.135	0.9700	---	---	---	---
Comp10	0.125	0.9805	---	---	---	---
Comp11	0.122	0.9907	---	---	---	---
Comp12	0.111	1.0000	---	---	---	---

Source: Author's computation from primary data

Appendix 3: Loading matrix from the PCA

	Development			Cognitive		Social	
Variable	**Comp1**	**Comp2**	**Unexplained**	**Comp1**	**Unexplained**	**Comp1**	**Unexplained**
Friendliness	0.2642	0.2308	.3411	---	---	0.3739	.3347
Share	0.2852	0.3138	.1765	---	---	0.4157	.1774
Help peers	0.2907	0.3013	.1622	---	---	0.4200	.1606
Group activities	0.2992	0.2687	.1489	---	---	0.4233	.1473
Control temper	0.2753	0.3279	.2085	---	---	0.4055	.2172
Compromise	0.2816	0.3093	.1974	---	---	0.4092	.2031
Attention	0.2978	-0.2453	.1746	0.4058	.1727	---	---
Spontaneous	0.3048	-0.2428	.1414	0.4139	.1394	---	---
Assignments	0.2992	-0.2761	.143	0.4135	.1408	---	---
Memory	0.2981	-0.3024	.1249	0.4170	.1264	---	---
Own ideas	0.2911	-0.2963	.1648	0.4071	.1675	---	---
Assessment	0.2739	-0.3278	.2148	0.3918	.2287	---	---

Source: Author's calculation from survey data

Appendix 4: Estimating the effect of preschool attendance on child development

	Coefficients
Preschool attended (Ref. No)	
Yes	0.964*
	(0.480)
Child Age	-0.00409
	(0.0120)
Sex of the child (Ref. Male)	
Female	-0.118
	(0.144)
Child illness (Ref. No)	
Yes	-0.228
Caste (Ref. Lower Caste)	(0.290)
General Caste	0.292
	(0.175)
Religious Origin (Ref. Minority)	
Hinduism	0.462*
	(0.215)
Father's Age	0.0279
	(0.0228)
Mother's Age	-0.00914
	(0.0263)
Highest education of Parents (Ref. up to primary)	
Secondary	1.558***
	(0.228)
Higher Secondary or Above	3.271***
	(0.489)
Mother Occupation (Ref. No emp.)	
Regular Emp.	-0.379
	(0.359)
Casual Emp.	-0.592
	(0.358)

Father Occupation (Ref. No emp.)	
Regular Emp.	-0.435
	-1.015
Casual Emp.	-0.526
	-1.018
Residing district (Ref. Murshidabad)	
Howrah District	0.0882
	(0.225)
Residing Location (Ref. Rural)	
Urban	0.239
	(0.194)
Household Income	8.79e-06
	(2.01e-05)
Number of children	-0.240*
	(0.123)
Family Size	-0.0795
	(0.0598)
Current school type (Ref. Public)	
Private Primary School	-0.152
	(0.224)
Attendance*Parent Education	-0.571*
	(0.275)
Constant	-0.877
	(-1.591)
Observations	1,348R
R-Squared	0.165
Robust standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05	

Appendix 5: Estimating the effect of preschool attendance on different skill types

	Cognitive Skill	Social Skill
Preschool attended (Ref. No)		
Yes	0.643	0.731*
	(0.366)	(0.361)
Age of the child	-0.00660	0.000750
	(0.00985)	(0.0104)
Sex of the child (Ref. Male)		
Female	-0.0413	-0.126
	(0.111)	(0.115)
Child has illness (Ref. No)		
Yes	-0.428	0.114
	(0.276)	(0.285)
Caste (Ref. Lower Caste)		
General Caste	0.226	0.189
	(0.135)	(0.145)
Religious Origin (Ref. Minority)		
Hindu	0.376*	0.268
	(0.179)	(0.177)
Father age	0.0408*	-0.00193
	(0.0179)	(0.0193)
Mother age	-0.0287	0.0167
	(0.0201)	(0.0214)
Highest education of Parents (Ref. up to primary)		
Secondary	1.336***	0.860***
	(0.187)	(0.194)
Higher secondary or above	2.430***	2.201***
	(0.362)	(0.368)
Mother Occupation (Ref. No emp.)		
Regular Emp.	-0.229	-0.316
	(0.303)	(0.309)
Casual Emp.	-0.386	-0.455
	(0.291)	(0.289)

Father Occupation (Ref. No emp.)		
Regular Emp.	-0.566	-0.0393
	(0.746)	(0.726)
Casual Emp.	-0.573	-0.169
	(0.746)	(0.727)
Residing district (Ref. Murshidabad)		
Howrah	0.0875	0.0360
	(0.192)	(0.189)
Residing Location (Ref. Rural)		
Urban	0.312*	0.0189
	(0.155)	(0.164)
Attendance*Parent Education	-0.340*	-0.475**
	(0.206)	(0.206)
Household Income	2.19e-05	-1.01e-05
	(1.24e-05)	(1.35e-05)
Number of children	-0.251**	-0.0857
	(0.0977)	(0.100)
Family size	-0.0109	-0.104*
	(0.0444)	(0.0469)
Current school type (Ref. Public)		
Private	-0.0468	-0.169
	(0.168)	(0.182)
Constant	-0.632	-0.591
	-1.209	-1.214
Observations	1,35	1,349
R-squared	0.204	0.094

Robust standard errors in parenthesis. ***p<0.001, **p<0.01, *p<0.05

Appendix 6: Estimating the effect of the type of preschool on child development

	Coefficients
Preschool attended (Ref. public)	
Private preschool	0.329
	(0.331)
Age of the child	0.0244
	(0.0151)
Sex of the child (Ref. Male)	
Female	-0.229
	(0.165)
Child has illness (Ref. No)	
Yes	0.470
	(0.394)
Caste (Ref. Lower Caste)	
General Caste	0.486**
	(0.212)
Religious Origin (Ref. Minority)	
Hindu	0.384
	(0.323)
Father age	0.0298
	(0.0282)
Mother age	-0.0282
	(0.0303)
Highest education of Parents (Ref. up to primary)	
Secondary	0.921***
	(0.240)
Higher secondary or above	1.860***
	(0.354)
Mother Occupation (Ref. No emp.)	
Regular Emp.	-0.710*
	(0.384)
Casual Emp.	-0.0701
	(0.386)

Father Occupation (Ref. No emp.)	
Regular Emp.	-0.0793
	-1.388
Casual Emp.	-0.579
	-1.395
Residing district (Ref. Murshidabad)	
Howrah	0.163
	(0.390)
Residing Location (Ref. Rural)	
Urban	0.405*
	(0.209)
Household Income	-6.08e-06
	(2.47e-05)
Number of children	-0.269*
	(0.145)
Family size	-0.0779
	(0.0654)
Current school type (Ref. Public)	
Private	-0.194
	(0.298)
Inverse Mills Ratio	0.181
	(0.653)
Constant	-2.745
	-2.119
Observations	892
R-squared	0.195

Robust standard errors in parenthesis. ***$p<0.001$, **$p<0.01$, *$p<0.05$