

**EARLY CHILDHOOD EDUCATION AND HUMAN
DEVELOPMENT PROSPECTS: ARE SOME CHILDREN
DISADVANTAGED**

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EARLY CHILDHOOD EDUCATION AND HUMAN DEVELOPMENT PROSPECTS: ARE SOME CHILDREN DISADVANTAGED

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Introduction

The Government of the Republic of Trinidad and Tobago has expressed its commitment to pursuing and attaining the underlying objectives and goals associated with Education for All (EFA), a global initiative proposed by the United Nations Educational, Scientific and Cultural Organization (UNESCO) and its partners. The twin island Republic was one of 164 countries that endorsed the EFA Declaration in Jomtien, Thailand in 1990 and subsequently the Dakar Goals for EFA in April 2000. By so doing, the government has committed itself to improving the lot of marginalized, disadvantaged sub-populations and facilitating greater equality with respect to accessing and acquiring quality education. Based on the Dakar Framework of Action, six major goals were adopted to impact education positively. One of these goals was “Expanding and Improving Comprehensive Early Childhood Care and Education, especially for the most vulnerable and disadvantaged children”. In keeping with EFA prescriptions to attain excellence in education by 2015, countries endorsing EFA have been encouraged to develop their respective Plans of Action.

The Plan of Action adopted by the Government of the Republic of Trinidad and Tobago was informed by the Dakar Framework of Action as well as earlier local initiatives such as the White Paper which charted a philosophical framework for the country’s education system between 1993 and 2003 and a Strategic Plan which drove educational planning between 2002 and 2006. The EFA Action Plan identified eight action areas, one of which is early childhood care and education. This action area has established a mandate that is consistent with two of the six EFA Goals and has spawned a number of sub-goals, one of which being “...to strengthen partnerships and increase efficiency in order to improve access and quality especially for at risk populations”. The government has therefore identified greater access to early childhood care and education and improvements in the quality of such services as

central to meaningfully impacting the initial stages of children's human development prospects. According to the United Nations Children's Fund (UNICEF), exposure to a programme of organized learning that assumes the form of early childhood care and education is a critical criterion in children's readiness to attend primary school.

In the Report of the Multiple Indicator Cluster Survey (MICS) 2000 for Trinidad and Tobago, education was deemed to be a critical pre-requisite in order to combat poverty, empower women, protect children from hazardous situations whether in the labour market or in sexual relations, preserve the environment, and facilitate the promotion of human rights and democracy. To the extent that exposure to early childhood care and education bolster the potential gains in children's educational experience, the overall benefits to the nation's sustainable development thrust cannot be over-emphasized. In the context of social systems, quantitative and qualitative changes in attributes having outcomes that can be interpreted as positive, yield favourable ratings from the standpoint of empowerment and augur well for prospect of human development. Thus, any attempt to treat with early childhood care and education as an attribute of interest in the context of the education system in Trinidad and Tobago, has to focus on three dimensions, specifically, the proportion of children accessing early childhood care and education, disparities in such access and the quality of service delivery.

While assessments of the quality of exposure are important in the quest to maximize outcomes associated with children's participation in early childhood care and education programmes, participation is not possible without accessing such programmes. Moreover, having access is not likely to be a sufficient criterion for attaining large-scale national objectives if differential levels of access are characteristic of disparate sub-populations. By virtue of its prescriptions geared towards improving the quality of early childhood care and education, the Government of the Republic of Trinidad and Tobago has been embarking on a number of strategies geared towards improving the preparation of caregivers and teachers. Such strategies include the preparation of a national standards document, accreditation for caregivers and teachers and sponsored training for selected teachers from disadvantaged communities and centres that are either government-assisted or privately-managed. In fact, the Ministry of Education has indicated that it strives to empower existing early childhood care and education centres rather than terminate their operations.

This paper is specifically concerned with exploring the dynamics of exposure to early childhood care and education programmes among children 3-4 years in Trinidad and Tobago based on data from the 2006 MICS. It describes exposure dependent on children's socio-demographic characteristics and seeks to evaluate differential levels of exposure that might be indicative of inequalities regarding different sub-populations capacity to access early childhood care and education. These differentials are discussed insofar as they may be symptomatic of constraints whether financial, spatial, cultural or symbolic. In closing, the paper recognizes the persistence of unanswered questions and the emergence of new questions which collectively contribute to further research initiatives to grasp the dynamics associated with early childhood care and education.

The Status of Pre-Primary Education in Trinidad and Tobago

The Government of the Republic of Trinidad and Tobago is pursuing the notion of a seamless education system. In order to facilitate decision-making towards such an end and situate activities associated with early childhood care and education in relation to the wider education system, baseline survey data indicative of activities associated with public and private early childhood care and education centres are necessary. In the 2002-2003 academic year, Ministry of Education (2005) states that there were 963 pre-primary centres with a total enrolment of 27,655 children of which, a small number amounting to 5,137 children were enrolled in government-sponsored centres managed by SERVOL. A baseline survey was actually conducted in the 2004-2005 academic year and produced results indicating that the number of pre-primary centres had increased in relation to 2002-2003 (Ministry of Education, 2007). Specifically, the number of pre-primary centres increased to 975 with a total enrolment of 29,685 children of which, a small number amounting to 6,179 were enrolled in the government-sponsored centres. In 2004-2005, the net enrolment rate was observed to be 68.9%.

Based on these observations, the Ministry of Education acknowledges the fact that the vast majority of pre-primary centres are privately managed and that overwhelmingly large numbers are unregistered and outside of its oversight. Moreover, the Ministry of Education has admitted that there is a great likelihood that services delivered are not in accordance with prescribed standards which have to be brought to the attention of centre-owners particularly

in the private-sector which been the dominant supplier of pre-primary centres. In principle, the Ministry of Education has embarked upon a plan of action to upgrade the quality of service delivery among privately-managed establishments providing pre-primary education services. Notwithstanding the government's thrust in treating with such shortcomings, it is just as important for steps to be embraced towards reducing and eliminating all sources of inequality with regard to accessing pre-primary schooling.

Literature Review

Notwithstanding the thrust toward centre-based care and education that have been concomitant with the establishment of early childhood care and education programmes within public and private domains in Trinidad and Tobago, home-based care for pre-school age children has traditionally been the principal model. Traditionally, the prominence of the extended family, women's non-participation in the labour force and reliance on domestic services that included baby-sitting reinforced the prevalence of home-based care. Within recent times, there have been overwhelming changes in the social landscape of Trinidad and Tobago. Such changes are manifest in the declining significance of the extended family as a support system for working parents and single mothers, the establishment of minimum wage legislation, the unionization of domestic employees and increased female labour force participation. Together, these changes have contributed to the emergence of alternative models that have emphasized a greater orientation towards centre-based care and education.

The changing character of the extended family has reduced prospects of pursuing home-based child care despite evidence of declining fertility in Trinidad and Tobago. Moreover, the unionization of domestic workers and the minimum wage legislation have placed constraints on parents' and single mothers' ability to afford baby-sitters, availing them of two options, either to remain home and provide home-based care to their young children or access centre-based care and participate actively in the labour market. In fact, the increasing level of female labour force participation suggests that the latter option has become the primary model. The Government of Trinidad and Tobago has embarked upon a strategy to establish early childhood care and education centres in the public domain and upgrade the quality of services rendered by a much larger number of privately managed centres that have exhibited variable standards nationwide. Such initiatives have been consistent with notions that have associated high quality early childhood care and education with child development (Bradbard

and Endsley, 1978; Phillips, 1987; Ruopp et al, 1979). Nonetheless, feminist scholars have warned that wholesale adoption of early childhood care and education models that have beneficial impact in developed countries, may not be so beneficial in the context of developing societies and instead impact negatively women and children (Rosemberg and Puntch, 2003).

In Caribbean countries including Trinidad and Tobago, there are virtually no known studies that have sought to evaluate children's exposure to various forms of childcare. Such a situation is largely due to the dearth of sample surveys and other data collection exercises that permit assessments of attributes that impact exposure to early childhood care and education directly and indirectly. In this regard, Johansen et al, (1996) note that parents' attributes operate as indirect factors that impact the mode of child care until allowances are made for controlling direct factors. To this end, they seek to test whether parents' education had a direct impact on the child care model adopted or rather, had an indirect impact through the importance placed on the characteristics and outcomes of care geared towards child development. In explaining variation in the type of child care, attributes such as mothers' education, occupation and hours of work have been central in some studies (Lehrer and Kawasaki, 1985; Leibowitz et al, 1988).

King and MacKinnon (1988) posit that family variables impact children's day care environment and thus, are very important in child development. Among family variables, King and MacKinnon (1988) make reference to parents' emotional well being, parenting skills, familial socio-economic status, and family structure. In contrast, children's day care environment are deemed to include timing of entry into day care, extent of care, stability of care, setting of care and quality of care. In general, King and MacKinnon (1988) suggest that family variables impact child development, this being the case because the impact of family variables on parental choices about child care. This framework is worthwhile insofar as it is useful in informing strategies for operationalizing exposure to early childhood care and education in Trinidad and Tobago.

Wadsworth (1981) provides a historical account of interest in matters pertaining to pre-school education in the United Kingdom dating back to 1946. He notes that despite the fact that the relevance of education for all at the nursery level was acknowledged in 1943, the Plowden

Report noted that in 1967, unacceptably large numbers of numbers of children had not been taking advantage of universal nursery level exposure. Interestingly, this scenario persisted in an environment where parents' recognition of the importance and need for pre-school education was consistent with that of administrators and teachers though their conception of a rationale for the importance was different. In the case of the parents, the principal focus was upon the future cognitive and intellectual well being of their children. From the standpoint of administrators and teachers, the focus was on the attainment of equity as a means of favouring children who otherwise would have been disadvantaged.

In the United States, Head Start Programme constitutes a pre-school initiative that strives to positively impact the skill set of disadvantaged children so that they can begin school on a similar cognitive and intellectual platform as their more advantaged counterparts. Currie (2001) provides a systematic account of different dimensions of early childhood care and education programmes including Head Start, all of which seek to ensure that pre-schoolers become school ready. The general conclusion is that the programmes have been associated with short-term and medium term gains which have had greater impact on more disadvantaged children. Currie (2001) notes that some of the gains from a social perspective include improvements in educational attainment and income earning on one hand, and reductions in welfare dependence and crime on the other. In the context of compensatory pre-school education, Barnett (1992) describes commissioned systematic evaluations as means of gauging the efficiency of public investment in the human capital of children who otherwise would yield low returns to human capital stock if they had relied solely in their familial capacity to invest in their human potential.

Methodology

Research Design

The paper is based on an analysis of secondary data emanating from the 2006 Trinidad and Tobago MICS which provides estimates pertaining to the status of children and women nationwide and across different regions of Trinidad and Tobago. The unit of analysis constitutes children aged 3-4 years and the principal dependent variable is their exposure to early childhood care and education. Specifically, the study is concerned with assessing variations in the likelihood of such children not being exposed to early childhood care and education to facilitate recommendations to achieve greater levels of equality on a national

scale. In several countries and across time, previous research has identified variables such as sex, age, socio-economic status, mother's education and region as critical control variables in elaborating explanations of variations in children's exposure to early childhood care and education. Insofar as there is no evidence of such research in Caribbean societies, this paper constitutes a first attempt and as such, has an exploratory dimension. To this end, the paper seeks to evaluate previously observed patterns in the context of Trinidad and Tobago. This paper examines variation in exposure to early childhood care and education controlling for explanatory variables such as children's sex, age, region of residence, socio-economic status and mother's education.

Measurement

These explanatory attributes have been observed in the context of the 2006 Trinidad and Tobago MICS and been operationalized in accordance with measurement standards embraced by UNICEF in executing the MICS globally. For the purposes of the dependent variable which focused on exposure to early childhood care and education, the principal outcome of interest was no exposure to early childhood care and education. Thus, in response to the question that sought to determine if a child was currently attending an early childhood care and education programme, one (1) is assigned to the "no" response and zero (0) to a "yes" response, the latter being the reference. Sex is dichotomized as male or female, the latter being the reference. Children's age is classified as 36-47 months or 48-59 months, the latter being the reference. Three characteristics permitted the classification of mother's education and were as follows – at most primary level education, lower secondary education and upper secondary education or higher, the latter being the reference category. Region of residence is classified in accordance with the Regional Health Authorities and is as follows: North–West, North-Central, South-West, Eastern and Tobago with North-West being the reference. Finally, socio-economic status is measured in accordance with quintile groups designed in accordance with DHS standards. There were five quintile groups in which Quintile #1 is considered to be the poorest and Quintile #5, the wealthiest, Quintile #5 being the reference.

Sampling Design and Response Rates

A two stage sampling design was used to select households within each of the 15 major geographic regions¹ that constituted major sampling domains. The sample was stratified by region and self-weighted. A total of 5,979 households were selected in the sample but successful interviews were obtained from 5,557 households resulting in a household response rate of 93%. Of the 1,149 children under 5 years in selected households, successful interviews were obtained from 1,117 resulting in a response rate of 97.2% although the overall response rate was 90.4% after considering children in all households that were selected in the sample.

Data Collection

Three questionnaires permitted data collection in the context of the 2006 Trinidad and Tobago MICS. These included a household questionnaire enumerating all household members on a “de jure” basis, a women’s questionnaire targeting all women 15-49 years, and an under 5 years questionnaire targeting mother and caregivers of all children under 5 years in selected households. For the purposes of this paper, the latter questionnaire permitted the collection of data on children under 5 years and informed the findings in this paper.

Data Quality

Data quality was reinforced by rigid standards upheld by UNICEF, a primary stakeholder that has been responsible for providing financial and technical support to the global MICS initiative. Additionally, rigorous training initiatives and fieldwork activities contributed substantially to reducing the magnitude of systematic errors. Training was scheduled over a four-day period that included sessions on interviewing techniques, questionnaire content, numerous mock interviews and trouble-shooting scenarios. Fieldwork was executed by approximately 75 interviewers, 15 editors and 15 supervisors indicating that there were approximately 5 interviewers per supervisor. Data preparation also contributed to improved data quality based on the activities of the 24 data entry operators and the 4 data entry supervisors who had been trained and hired to perform a range of data-capture tasks. Specifically, a host of checks for internal consistency and verification standards were embraced to reduce further the prospect of systematic errors.

¹ The fifteen geographic regions included the Cities of Port of Spain and San Fernando, the Boroughs of Arima, Chaguanas and Point Fortin, the Island of Tobago, and the Regional Corporations of Diego Martin, San Juan/Laventille, Tunapuna Piarco, Couva/Tabaquite/Talparo, Mayaro/Rio claro, Sangre Grande, Princes town, Penal/Debe and Siparia Siparia

Data Analysis

The data are analyzed using the SPSS. The main criterion variable is children's exposure to early childhood care and education and summary measures in the form of frequency distributions are provided to summarize the distribution of outcomes associated with the dependent variable and key explanatory variables. Chi-square tests are used to assess the significance of observed bivariate relationships between children's exposure to early childhood care and education and each of the explanatory variables. Binomial logistic regression is then used to discern attributes that continue to have a significant impact on variation in children's exposure to early childhood care and education controlling for the remaining explanatory attributes. As such, the nature and magnitude of such an impact is important in the context of policy prescriptions to effect change in accordance with the World Fit for Children Goals and other similar global initiatives.

Results

Sample Characteristics

Table 1 is indicative of selected characteristic of the sample under study. The sample consists of 452 children aged 36-59 months of which 22.7% had not been attending an early childhood care and education programme. There are a slightly greater number of males than females in the sample, the respective proportions being 51.3% and 48.7%. Table 1 also shows that the number of four year olds exceeds the number of three year olds, the respective proportions being 52.6% and 47.8%. More than half of the children (57.8%) are the offspring of mothers who had attained a maximum of a lower secondary school education while similar proportions are the offspring of mothers who had either attained a maximum of a primary school education (22.3%) or attained education equivalent to upper secondary school or higher. Most of the children, approximately a quarter of them, belong to the poorest quintile group and except for the third quintile group, the remaining quintile groups consist of similar proportions of the children in the sample. Larger numbers of children reside in Regional Health Districts such as North-Central (38.5%), North-West (27.7%) and South-West (22.3%). In contrast, Regional Health Districts, namely the East and Tobago account for smaller proportions (7.4% and 4.1%).

Exposure to Early Childhood Care and Education Programmes – Bivariate Analyses

From the perspective of the World Fit for Children Goals, a desirable outcome is the achievement of gains in the proportion of children having exposure to early childhood care and education, such an achievement being enhanced more completely if exposure embraces standards that are consistent with a higher quality of service delivery in accordance with best practice pursuits. To this end, the results presented in this section are specifically concerned with variations in the likelihood of children having no exposure to an early childhood care and education programme and are evaluated dependent upon the children's demographic and social characteristics. Thus, the greater the likelihood for children with any given set of demographic or social characteristics, the greater should be the resolve to improve their lot. Cross-tabular analyses and statistical tests of significance are presented to facilitate inferences pertaining to the significance of variations in patterns of exposure relative to selected demographic and social characteristics of children 36-59 months.

Table 2 shows that children's sex appears to have no statistically significant effect on the likelihood of children having no exposure to an early childhood care and education programme. Whether male or female, it is estimated that just under a quarter of the children had no exposure

Table 1. Selected Sample Characteristics

Characteristics	Number	Percent
Sample Size	462	100.0
Exposed to ECCE		
Yes	344	74.5
No	105	22.7
Not Stated	13	2.8
Sex of Child		
Male	237	51.3
Female	225	48.7
Age of Child		
36-47 months	219	47.4
48-59 months	243	52.6
Mother's Education		
Primary or Less	103	22.3
Lower Secondary	267	57.8

Upper Secondary or Higher	89	19.3
Not Stated	3	0.6
Child's Residence		
North-West	128	27.7
East	34	7.4
North-Central	178	38.5
South-West	103	22.3
Tobago	19	4.1
Socio-Economic Status		
Poorest	116	25.1
Second	83	18.0
Middle	95	20.6
Fourth	82	17.7
Richest	86	18.6

to early childhood care and education. These results are also supported by the results of the binomial logistic regression results presented in Table 3. Consistent with expectations, Table 4 shows that three year olds are much more likely to have had no exposure to early childhood care and education programmes when compared to four year olds. These differentials are statistically significant and the impact of age on exposure to an early childhood care and education programme is estimated to be moderate as opposed to being weak. These results are further endorsed by binomial logistic regression estimates shown in Table 5.

Table 2. Percentage Distribution of Children 36-59 months by Exposure to ECCE programmes and Sex

Attending Early Childhood Education and Care Programme	Male n = 228	Female n = 221	Total n = 449
Yes	76.3%	76.9%	76.6%
No	23.7%	23.1%	23.4%
Total	100%	100%	100%

Tests of Significance:

Pearson Chi-Square = 0.023 Significance Level = 0.879

Phi = 0.007 Significance Level = 0.879

Table 3: Binomial Logistic Regression Model: Probability of not attending ECCE Programme

Variables	b	exp(b)	p-values
Constant	- 1.204	0.300	0.000
Sex of Child			
Male	0.034	1.034	0.879
Female	...	...	...

Model Fit Diagnostics

-2Log Likelihood = 488.390

Cox and Snell $R^2 = 0.000$

Nagelkerke $R^2 = 0.000$

Table 4. Percentage Distribution of Children 36-59 months by Exposure to ECCE programmes and Age Group

Attending Early Childhood Education and Care Programme	36-47 months n = 207	48-59 months n = 242	Total n = 449
Yes	60.4%	90.5%	76.6%
No	39.6%	9.5%	23.4%
Total	100%	100%	100%

Tests of Significance:

Pearson Chi-Square = 56.453 Significance Level = 0.000

Somers'd = 0.301 Significance Level = 0.000

Table 5: Binomial Logistic Regression Model: Probability of not attending ECCE Programme

Variables	b	exp(b)	p-values
Constant	- 2.254	0.105	0.000
Age Group of Children			
36-47 months	1.832	6.246	0.000
48-59 months	...	...	...

Model Fit Diagnostics

-2Log Likelihood = 429.965

Cox and Snell R² = 0.122

Nagelkerke R² = 0.185

Table 6 presents a cross-tabular analysis of variation in children's exposure to early childhood care and education dependent upon their mothers' level of education. Unlike children's sex, their mothers' education is estimated to impact significantly on their exposure to early childhood care and education programmes. In fact, the results conform to the notion that a lower level of education among mothers is consistent with a greater likelihood of having no exposure to an early childhood care and education programme. This is especially borne out in the results of the binomial logistic regression model presented in Table 7 showing that children borne to mothers

Table 6. Percentage Distribution of Children 36-59 months by Exposure to ECCE programmes and Mothers' Education

Attending Early Childhood Education and Care Programme	Primary or Less n = 100	Lower Secondary n = 258	Upper Secondary or Higher n = 88	Total n = 446
Yes	65%	77.5%	86.4%	76.5%
No	35%	22.5%	13.6%	23.5%
Total	100%	100%	100%	100%

Tests of Significance:

Pearson Chi-Square = 12.252 Significance Level = 0.002
Somers'd = 0.124 Significance Level = 0.000

Table 7: Binomial Logistic Regression Model: Probability of not attending ECCE Programme

Variables	b	exp(b)	p-values
Constant	- 1.846	0.158	0.000
Mothers' Education			
Primary or Less	1.227	3.410	0.001
Lower Secondary	0.608	1.837	0.078
Upper Secondary or Higher	...	...	...

Model Fit Diagnostics

-2Log Likelihood = 474.580

Cox and Snell R² = 0.027

Nagelkerke R² = 0.041

with primary or lower education are more likely than those borne to mothers with upper secondary or higher levels of education to have been exposed to an early childhood care and education programme. While the latter result is observed to be statistically significant, the logistic regression model does not support any significant difference between the likelihoods of exposure between the set of children borne to mothers with lower secondary education and those borne to mothers with upper secondary school or higher education.

According to Table 8, children's socio-economic status is also estimated to impact significantly on their exposure to early childhood care and education programmes. In accordance with chi-square tests of statistical significance, there appear to be some difference in the likelihood of children having no exposure to such programmes dependent upon their socio-economic status. However, tests of statistical significance associated with binomial logistic regression estimates, as shown in Table 9, provide a more elaborate interpretation of variations. They reveal that children from the each of the two poorest quintile groups are estimated to have greater likelihoods of exposure to no programmes providing early childhood care and education when compared to children from the wealthiest quintile.

Otherwise, there is insufficient evidence to support the view that children from quintile 3 and quintile 4 have significantly different likelihoods of exposure to programmes geared toward early childhood care and education when compared to those from the wealthiest quintile group.

Table 10 permits an examination of patterns of variation in exposure to early childhood care and education contingent upon children's place of residence which has been classified in accordance with the Regional Health Districts in Trinidad and Tobago. While a cursory examination of the results suggests that there is some variability, the chi-square tests suggest that there is insufficient evidence based upon the MICS sample to support statistically significant differences between the likelihoods of exposure of children from the different districts, the results of the binomial logistic regression presented in Table 11 are indicative of a significant difference. Specifically, the results indicate that children living in the South-West District are almost twice as likely not to have been exposed to early childhood care and education programmes when compared to children who lived in the North-Central District which was considered to be the reference.

Taking into account each of a number of children's attributes such as their sex, age, mothers' education, socio-economic status and place of residence, these results reflect variations in children's exposure to early childhood care and education programmes. Based on the 2006 Trinidad and Tobago MICS sample, the evidence show that children's age, mothers' education, their socio-economic status, and their place of residence are likely to impact their exposure to early childhood care and education programmes. Not surprisingly, the results reveal that three year olds are much more likely than four year olds to have had no exposure to a programme geared towards early childhood care and education. The results also suggest that children from the two poorest quintile groups, those borne to mothers with primary or lower levels of education and those residing in the South-West District appear to be the most disadvantaged when

Table 8. Percentage Distribution of Children 36-59 months by Exposure to ECCE programmes and Socio-Economic Status

Attending Early Childhood Education and Care Programme	Poorest	Second	Third	Fourth	Richest	Total

	n = 115	n = 80	n = 93	n = 77	n = 84	n = 449
Yes	65.2%	71.3%	79.6%	81.8%	89.3%	76.6%
No	34.8%	28.7%	20.4%	18.2%	10.7%	23.4%
Total	100%	100%	100%	100%	100%	100%

Tests of Significance:

Pearson Chi-Square = 18.767 Significance Level = 0.001
Somers' d = 0.122 Significance Level = 0.000

Table 9: Binomial Logistic Regression Model: Probability of not attending ECCE Programme

Variables	b	exp(b)	p-values
Constant	- 2.120	0.120	0.000
Socio-Economic Status			
Quintile 1 (Poorest)	1.492	4.444	0.000
Quintile 2	1.213	3.363	0.005
Quintile 3	0.761	2.140	0.081
Quintile 4	0.616	1.852	0.181
Quintile 5 (Wealthiest)	...	...	...

Model Fit Diagnostics

-2Log Likelihood = 468.979

Cox and Snell R² = 0.042

Nagelkerke R² = 0.064

Table 10. Percentage Distribution of Children 36-59 months by Exposure to ECCE programmes and Place of Residence

Attending Early Childhood Education and Care Programme	North West	East	North Central	South West	Tobago	Total
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	n = 128	n = 34	n = 170	n = 100	n = 17	n = 449
Yes	78.1%	79.4%	80.6%	68.0%	70.6%	76.6%
No	21.9%	20.6%	19.4%	32.0%	29.4%	23.4%
Total	100%	100%	100%	100%	100%	100%

Tests of Significance:

Pearson Chi-Square = 6.296 Significance Level = 0.178

Fisher's Exact Test = 6.204 Significance Level = 0.181

Contingency C = 0.118 Significance Level = 0.178

Table 11: Binomial Logistic Regression Model: Probability of not attending ECCE Programme

Variables	b	exp(b)	p-values
Constant	- 1.423	0.241	0.000
Children's Place of Residence			
North-West	0.151	1.162	0.602
East	0.074	1.076	0.875
Tobago	0.548	1.730	0.333
South-West	0.670	1.954	0.021
North-Central	...	...	...

Model Fit Diagnostics

-2Log Likelihood = 482.355

Cox and Snell $R^2 = 0.013$

Nagelkerke $R^2 = 0.02$

compared to their counterparts from the respective reference groups which are considered to be exposed to the most favourable conditions. Insofar as these results hinge upon bivariate analyses, the next section strives to conduct multivariate statistical tests of hypotheses to explore variation in exposure to early childhood care and education. This should permit test the extent to which the various attributes continue to impact significantly despite controlling for the remaining attributes that have been observed too have had some impact on children's likelihood of exposure.

Exposure to Early Childhood Care and Education Programmes – Multivariate Analyses

Table 12 highlights the binomial logistic regression results based upon a model that examines variation in the likelihood of not being exposed to early childhood care and education programmes dependent upon each of a host of factors with the other four factors being held constant. On taking into account children's sex, their age, their place of residence and their mothers' education, there no longer appears to be any statistically significant difference between the likelihoods of exposure to early childhood care and education of children from quintile 2 and those from the wealthiest quintile. However, the higher likelihood of having no exposure for those children from the poorest quintile persists and thus, is consistent with observations in other countries. It is also noteworthy that children borne to mothers with primary or lower levels of education continue to be less likely than those borne to mothers having upper secondary or higher levels of education despite controlling for variation in other attributes such as children's sex, their age, their place of residence and their socio-economic status. The logistic regression results contained in Table 12, reinforce earlier findings indicating that children in the South West District are less likely than those from North Central District to have not been exposed to early child hood care and education programmes.

Discussion

The MICS conducted in a number of Caribbean countries including Guyana, Jamaica, Suriname and Trinidad and Tobago constitute a principal intervention that can permit research undertakings targeting descriptive and explanatory accounts of variation in the likelihood of exposure to early childhood care and education programmes. Notwithstanding evidence of such research in other geographic domains across the globe, there is virtually no knowledge of such research being done or replicated in the context of Caribbean countries. This study is novel and may very well be the first to pursue such an issue using quantitative techniques based upon the principles of survey research. To this extent, the use of logistic regression techniques provides a basis for adequately evaluating the statistical significance of observed patterns and as such, reinforcing the reliability of such patterns especially those that have emerged in the context of research in other geographic domains.

Table 5: Binomial Logistic Regression Model: Probability of not attending ECCE Programme

Variables	b	exp(b)	p-values
Constant	- 3.645	0.026	0.000
Age Group of Children			
36-47 months	1.958	7.086	0.000
48-59 months	...	...	...
Children's Place of Residence			
North-West	0.051	1.053	0.874
East	-0.423	0.655	0.428
Tobago	0.441	1.554	0.475
South-West	-0.687	1.987	0.035
North-Central	...	...	...
Mothers' Education			
Primary or Less	1.100	3.005	0.021
Lower Secondary	0.449	1.567	0.265
Upper Secondary or Higher	...	...	...
Sex of Child			
Male	0.082	1.085	0.744
Female	...	...	...
Socio-Economic Status			
Quintile 1 (Poorest)	1.011	2.749	0.040
Quintile 2	0.659	1.933	0.184
Quintile 3	0.396	1.486	0.418
Quintile 4	0.323	1.382	0.524
Quintile 5 (Wealthiest)	...	...	...

Model Fit Diagnostics

-2Log Likelihood = 398.733

Hosmer and Lemeshow Test: Chi- Square = 4.938 p-value = 0.764

Cox and Snell R² = 0.179

Nagelkerke R² = 0.27

In Trinidad and Tobago, early childhood care and education has been a service delivered primarily by the private sector and for many years, have persisted without any regulatory intervention by the government. However, with the evolution of social policy prescriptions emerging out of global goals such as the World Fit for Children Goals, governments of a number of countries including Trinidad and Tobago have pledged their commitment, not only towards increasing access to high quality early childhood care and education but also facilitating more equity in children's participation in such programmes. Quite apart from

increasing access, the ideal outcome should be the attainment of such equity to the extent that there is no patterned relationship between any of the social and demographic attributes of the children and their exposure to early childhood care and education. From a technical standpoint, such an outcome is best reflected in results suggesting that there is no statistically significant relationship between each of the attributes and exposure to early childhood care and education programmes.

Nonetheless, statistically significant relationships have been observed between attributes such as children's age, their mothers' education, their socio-economic status and their place of residence on one hand, and exposure to early childhood care and education programmes on the other. Such outcomes reflect departures from the ideal typical patterns deemed to be indicative of thrusts to attain equity and thus, render specific sub-populations as disadvantaged. In the context of Trinidad and Tobago, data from the 2006 MICS reinforce views that have identified children born to mothers who had attained primary or lower levels of education, children belonging to the poorest quintile, children residing in the South-West District and children aged three years old as being disadvantaged when compared to their counterparts with alternative sub-populations. In analyzing the logistic regression models, the reference category for each attribute represents the sub-population observed to be the most advantaged based upon estimated patterns derived from cross-tabular analyses. Moreover, the estimated patterns of exposure to early childhood care and education programmes characterizing such sub-populations were considered to be more desirable in the context of increased access to such programmes.

Whether three or four years old, there ought to be no significant difference in children's exposure to early childhood care and education programmes in Trinidad and Tobago. Given that age difference is estimated to have had a moderate impact on exposure to early childhood care and education to the extent that three year olds are disadvantaged, the Ministry of Education, in its thrust to improve service delivery in the context of early childhood care and education programmes, must embrace strategies targeting three year olds. Such strategies may be direct as well as indirect and are dependent upon underlying factors which have not been explored in the context of this paper though critical in informing initiatives to address outcomes associated with estimated age differences in exposure to early childhood care and education programmes. This hinges upon the need for further research addressing qualitative

nuances akin to children's participation in early childhood education relative to living conditions within children's households, parental perceptions regarding options and alternatives in the context of early childhood care and education and parental knowledge about and motives associated with their children's participation in such programmes.

While physical access is hardly likely to be the source of the disadvantageous experience of three year olds relative to four year olds, other factors such as familial strain due to scarce financial resources may prevent parents from availing their pre-school age children to early childhood care and education at an earlier age, say three years as opposed to four years. Such strain is likely to become manifest in cases where household earnings place constraints on the prospect of young children participating in early childhood care and education programmes especially if mothers or caregivers are available to provide home care. This is likely to be evident in the case of children from the poorest quintile group and those borne to mothers who had primary or lower levels of education. Providing that subsequent research can endorse the merit of a family strain hypothesis, some possible objectives should be set and the necessary measures implemented to facilitate change. While there will always be a poorest quintile, a principal objective should strive to attain further reductions in the national rate of poverty and the poverty gap. Such objectives should have the greatest impact in communities where poverty rates and the depth of poverty are greatest.

There ought to be some concern about parents' and in particular, mothers' and caregivers' perceptions about early childhood care and education options relative to alternative approaches such as home-based care. However, there does not appear to be much research, if any, addressing these concerns in the context of Caribbean societies. As such, research initiatives should be geared towards the pursuit of knowledge relating to the range of motives that have spawned diverse responses among parents, mothers and caregivers to avail or not avail young children to early childhood care and education programmes. In the 2004-2005 academic year, the Government of Trinidad and Tobago conducted a national survey of early childhood care and education programmes and obtained a profile of key characteristics shaping the evolution of the sector. However, a similar survey has not been commissioned among prospective clients to gain some appreciation of their engagement and interest in early childhood care and education programmes. The latter is critical that has to be corrected. Such research ought to be entertained if the government is to attain its target of increasing

access, elevating quality and facilitating equity in exposure. Altogether, parents', mothers' and caregivers' attitudes and prospective responses to the range of options available to meet the needs of young children for care and education must be interrogated focusing specifically on their links to social, demographic and other circumstantial attributes through a host of mediating factors such as their awareness and knowledge of programmes, their perceptions of and willingness to use the specific sets of programmes, their physical and financial accessibility to programmes.

Concluding Remarks

This paper has been premised on the notion that exposure to early childhood care and education programmes contributes to progress in later stages of children's school lives due to their acquisition of cognitive abilities at younger ages as three and four year olds. Notwithstanding different studies that have proffered alternative evidence, this premise has been the key focus of initiatives by the UNICEF in operationalizing the World Fit for Children Goals. As such, the 2006 MICS has been a worthwhile sample survey that has thrown light on some critical patterns of variation in exposure to early childhood care and education in Trinidad and Tobago. It has provided a platform for statistically testing the importance of critical attributes in determining the likelihood of young children participating in early childhood care and education programmes and reveals outcomes that are similar to those that have emerged in previous studies in other spatial and temporal contexts. Having examined the implications of its findings in the context of the World Fit for Children Goals, the paper offers suggestions including the proliferation of research undertakings as means towards ameliorating the plight of young children who may have been disadvantaged as a result of not participating in early childhood care and education programmes.

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