



AN EXPLORATORY ANALYSIS OF MOTHER'S BREASTFEEDING PRACTICES IN TRINIDAD AND TOBAGO: IMPLICATIONS FOR CHILDREN'S FUTURE WELL BEING

Godfrey C. St. Bernard*

University of the West Indies, Trinidad and Tobago

Abstract: Breastfeeding is a critical dimension of children's prospective health and eventual wellbeing as adults. According to WHO/UNICEF, recommended standards for breastfeeding require that infants be breastfed exclusively for the first six months with continued breastfeeding for 2 years or more. This is an important concern given women's recent thrusts in labour market pursuits including their initiatives toward advancing their education and training attributes and their careers. The paper examines whether or not, appropriate feeding standards have been practiced among 424 children under 2 years and the extent to which a range of socio-economic factors such as socio-economic status, mother's education, mother's participation in the labour force, mother's age, place of residence and sex of child, impact upon variation in such feeding standards. The data are drawn from the Trinidad and Tobago MICS which was conducted under the auspices of the Ministry of Social Development, The Government of Trinidad and Tobago in 2006. With respect to socio-economic status, labour market experiences and the need to fulfill educational and training requirements, the paper makes recommendations for treating mother's breastfeeding practices in the postpartum period as such practices impact subsequent human development capabilities of the next generation.

Keywords: *Child Nutrition, Child Health, human development, female labour force participation, motherhood, workplace nurseries, breastfeeding*

*Corresponding author: University of the West Indies, Trinidad and Tobago;
Email: gstbiser@gmail.com

INTRODUCTION

rationale for the study

The future well being of nations is largely contingent upon national policy prescriptions and attendant circumstantial, attitudinal and behavioural characteristics that have thrived and in many instances, continue to persist in myriad institutional spheres and especially among individuals who shape outcomes in such institutional spheres and in civil society. To this end, any concern about the future must consider children as principal targets of intervention and as such, embrace a dynamic rather than static model of development. In part, today's problems and development challenges are the outcomes of yester-years' errors and shortcomings. Moreover, the socio-cultural evolution of individuals and their respective primary and secondary groups appear to be at variable levels notwithstanding the systematic frameworks within which they thrive and survive. Whether in the context of individuals or groups, such variable phases of evolution are indicative of discrepancies that are deemed to be either favourable or unfavourable when considered in relation to advances largely associated

with technological progress, the evolution of ideas and knowledge and individuals' states of consciousness which strike a balance between cooperation and competition.

Sustainable development thrusts ought to place children centre-stage, this being adequately reflected by Bellamy (2001). Specifically, she noted:

....It is deeply ironic that despite widespread concern about the lack of sustainable development in numerous countries around the world, government leaders, policy makers, and development agents seem blinded to the one investment opportunity with almost guaranteed returns—ensuring children a good start in life... (Bellamy, 2001, p.4)

Bellamy (2001) reinforces the importance of investing in the early years of children's lives and in particular, the importance of such investment to the personal human development of children. She notes that in the first 36 months of children's lives, they learn to talk, walk, sense and reason, the latter being critical in

their ability to eventually evaluate attitudes and behaviour. Not surprisingly, Bellamy (2001) considers this 3-year period as critical in determining subsequent life experiences and fortunes at later stages of childhood and undoubtedly in adolescent and adult stages of one's life. While recognising gains due to late achievement whether in the context of improved health, educational advancement or overall human development, Bellamy (2001) contends that deprivation in the early years of life has a deleterious effect on children preventing them from attaining their full potential. In essence, such deprivation and the absence of what she has labelled 'the right start' could be deemed an important factor in sustaining inequity and inequality.

Health, education and nutrition are considered to be the most critical domains within which early childhood interventions are likely to have the most profound impact on the human development of children. To this end, a range of interventions such as those reinforcing the importance of good hygiene and sanitation practices, sustained immunisation programmes, the prevention of malnutrition, the observance of proper exposure to

breastfeeding, improved physical growth, the early detection and subsequent treatment of disabilities, and breastfeeding as a psychosocial stimulant, have been hailed as worthy. In the context of Trinidad and Tobago, this study focuses on feeding practices in the first two years of life with a view to gaining insights that could be instrumental in enhancing social policy prescriptions seeking to promote sustainable human development. Women's recent thrust towards advancing their education and training attributes is consistent with observations that reflect their greater participation in the labour force. Notwithstanding the fact that fertility levels have been declining over the past three decades, greater levels of female labour force participation could have negative consequences for feeding practices meted out to infants.

WHO/UNICEF recommends that infants be breastfed exclusively for the first six months with continued breastfeeding for at least 2 years. The establishment of such standards by WHO/UNICEF reinforces the advantage of exclusive breastfeeding over alternative feeding practices. Moreover, several bio-medical studies have identified a host of benefits including

stronger immunity to diseases, reduced prospects of infant and childhood morbidity, superior intellectual and motor skills development, enhanced psychosocial stimulation and in general, greater probabilities of survival into adulthood as principal gains associated with infants' exposure to exclusive breastfeeding. The latter can be attributed to the observed links between exposure to being breastfed and reduced risks of succumbing to chronic diseases.

The World Fit for Children Goal states that children should be exclusively breastfed for 6 months and continue to be breastfed with safe, appropriate and adequately complementary feeding up to 2 year of age and beyond. As such, WHO/UNICEF have advanced four key recommendations to be pursued by countries seeking to attain adequate feeding standards. The recommendations include: (a) exclusive breastfeeding for the first six months of infants' lives; (b) continued breastfeeding for 2 years or more; (c) safe, appropriate and adequate complementary foods beginning at 6 months and (d) complementary feeding at a rate of 2 times per day for 6–8 month olds and 3 times per day for 9–11 month olds. Indicators

such as the proportion of mothers initiating breastfeeding within one hour of birth, the exclusive breastfeeding rate for infants less than 6 months old, the proportion of infants under 1 year that were observed to be adequately fed and the proportion of children under 5 years that continued breastfeeding beyond their first birthday for at least 2 years, all constitute useful measures for gauging exposure to breastfeeding among infants and children.

Based on data from the Trinidad and Tobago MICS 2000, it was estimated that 10% of children aged less than 3 months were exclusively breastfed. However, based on the Trinidad and Tobago MICS 2006, 12.8% of children less than 6 months old were estimated to have been exclusively breastfed and as such, adequately fed. Among infants 6–11 months, a higher proportion amounting to 27.7% was estimated to have been adequately fed. With respect to infants under 1 year, approximately one-fifth (20.5%) were estimated to have been adequately fed.

Insofar as breastfeeding and more specifically exclusive breastfeeding early in children's lives appear to be associated with

maximising potential gains in their lifetime achievements, investment in the promotion of adequate breastfeeding standards is a primary option that is worth investigating. In the event that exercising such an option yields interventions that are mobilised, targeting becomes a critical issue and the demographics of potential beneficiaries, whether at individual or institutional levels, should be systematically determined and evaluated in order to enhance the effectiveness and efficiency of requisite interventions. In particular, the differential effects of characteristics associated with attributes such as mothers' socio-economic status, education, participation in the labour force, age and place of residence emerge as critical correlates in gauging variations in children's exposure to breastfeeding.

These attributes constitute levers through which social policy prescriptions can treat with promoting mechanisms for achieving sustainable human development through enhancing prospects for improving innate characteristics associated with individuals' education, health, longevity of life and overall well being. Notwithstanding that this study is specifically focused on nutritional

practices in early childhood, its findings should set the stage for emergent insights deemed to be critical in reinforcing the virtues of investing in early childhood. Apart from its positive consequences for the later lives of individuals, investing in early childhood years have potentially long term impacts on economic returns due to reductions in real expenditure in areas such as remedial education, health care and rehabilitation. From a social standpoint, there are prospects of a lower likelihood of emergent social and economic disparities and gender inequalities. From an international standpoint, greater prospects of equality and elevated standards of human capability are likely to enhance the competitiveness of populations on a global scale.

The principal purpose of the study is to describe variable patterns of breastfeeding practices that children are exposed to during their first two years of life and hence, to advance strategies that would facilitate breastfeeding practices tantamount to the World Fit for Children Goals. As a result, the study strives to answer four principal questions which are as follows:

- (i) What is the prevalence of breastfeeding and its variability across critical age groups in the context of children during the first 24 months of their lives?
- (ii) For such children, which sub-populations of children exhibit the most favourable and the least favourable breastfeeding bearing in mind international recommendations?
- (iii) Which children's characteristics, if any, emerge as significant in targeting efforts towards more favourable breastfeeding standards?
- (iv) What are some of the main implicarecommendations seem to be most worthwhile?

LITERATURE REVIEW

Butz (1977) examines the costs and benefits of breastfeeding based upon an economic model. Having examined interactions involving a host of factors, namely, the supply and demand for female labour, price of staple foods, the availability of alternative weaning foods, the availability and price of effective contraceptives, and infants' survival chances, he concludes that economic

development and its concomitant transfer of functions away from the home into public domains. In order to offset the costs associated with breastfeeding, he recommends the use of high quality weaning foods and the identification of mechanisms that would enable women to breastfeed despite changing value systems.

In a demographic account, Peterson and Da Vanzo (1992) examine factors that result in differential breastfeeding practices meted out to infants by teenagers on one hand and older women on the other. They associate the lower likelihood of breastfeeding among teenagers to intervening factors such as lower educational attainment, lower income, being single and concern about physical appearance. Huffman (1984) seeks to evaluate the impact of breastfeeding on fertility regulation in developing countries. Accordingly, she recognises a host of sociological and behavioural factors that are associated with women's breastfeeding practices, specifically, prevalence and duration. Such factors include urbanisation, maternal education and socio-economic status, each of which acts through a number of intervening variables such as socio-cultural factors,

health services, women's employment status and the availability of breast milk substitutes to determine fertility outcomes.

Dettwyler (1988) conducted an ethnographic study of infant-feeding among urban women in Mali and found that breast milk was observed to be the primary feedstock for infants, an observation that was inimical to those in urban settings where breastfeeding was not found to be as prevalent. Accordingly, the relatively higher prevalence of breastfeeding was interpreted to be principally due to economic constraints, pro-breastfeeding government policies and beliefs about the value of breast milk, the latter in particular, being linked to cultural nuances associated with conceptions of maternal kinship on the basis of breastfeeding.

Dettwyler and Fishman (1992) bring anthropological insights to bear upon interpreting the relationship between infant feeding practices and growth. They highlight the ethnocentrism as a characteristic feature thwarting explanations of this relationship based on insights derived from other disciplinary perspectives. They emphasise the significance of cultural and individual

beliefs in shaping maternal behavior that manifest itself in the form of feeding practices. Baer (1981) also claims that societal breastfeeding trends are a function of collective choices embraced by individual mothers and that such choices could only be examined through understanding the factors that influence mothers' eventual feeding practices. He notes that mothers' eventual choices depend on their exposure to opportunities for breastfeeding and their motivation towards breastfeeding. These factors are indicative of cultural imperatives that mix and combine to spawn different responses from women in different cultural settings and thus consistent with the views of Dettwyler and Fishman (1992).

With respect to breastfeeding practices in developing countries, a review by Baer (1981) highlighted a declining prevalence and shorter duration-times as characteristic features. His concern for the promotion of breastfeeding arose out of his concern about the widespread use of feeding-bottles and its perceived negative consequences for health and economic well being of households and the national economy as a whole. He noted that illness as a result of children's inability

to resist diseases often results in additional medical costs to families and taxpayers who support the national health care system. Moreover, reliance on artificial feeding incurs further costs to the economy placing strain on scarce foreign reserves in developing nations. Baer (1981) also alludes to the contraceptive effect of breastfeeding and its impact upon lengthening birth intervals, an outcome that has been positively associated with child survival. These concerns are also borne out in the work of Huffman and Lamphere (1984) who note that breastfeeding impacts child survival indirectly through nutrient intake, longer birth intervals due to postpartum anovulation and its anti-infective properties.

Van Langdingham et al. (1991) laud the benefits of promoting breastfeeding in countries characterised by low contraceptive prevalence rates, little supplementation of breast milk, low nutritional status of women and sexual taboos against sexual relationships during periods of breastfeeding. Having reviewed a number of empirical studies, Van Langdingham et al (1991), pp.134-135) conclude that 'frequent and intensive breastfeeding clearly reduces the risk of

pregnancy in many developing countries'. They also note that a decline in breastfeeding, all other factors equal, would increase infant mortality, child mortality and fertility. Knodel (1977) has also associated declining levels of breastfeeding with increases in fertility and infant mortality in developing countries. In fact Bongaarts (1979) provides evidence consistent with increases in fertility when there is a decline in postpartum infecundity, the latter being often due to declining levels of breastfeeding.

DATA AND METHODS

Secondary data analysis is the research methodology used for the purpose of this study. The data were obtained from the Trinidad and Tobago Multiple Indicator Cluster Survey (MICS) 2006. The MICS was a national household survey that permitted the collection of data targeting households, women, children and caregivers in order to gauge the status of children spatially and temporally. More specifically, the MICS is a national household survey that has been administered in a number of developing countries in Asia, Africa and Latin America and the Caribbean since 2000. As such, the survey instrument

has benefitted from the input of teams of experts in subject-matter domains including demography, child health, maternal health, child nutrition and welfare studies. Moreover, later phases of the MICS benefitted substantially from improvements in various aspects of data collection that were implemented to enhance the validity of the data generated through more recent phases of the MICS. In general, rigorous standards were sustained to reinforce the production of high quality data.

This study is based upon a sample of 424 infants less than 2 years. These infants were obtained from a national sample of 5,557 households resulting from a household response rate of 93%. Based on initial listings, there were 1,149 children under 5 years. However, data were gathered for 1,117 from among the 1,149 children accounting for a

response rate of 97.2%. The principal criterion variables were the proportion of infants who were never breastfed, the proportion of infants still breastfeeding and the proportion of infants who were adequately breastfed. Variation in each of the criterion variables are examined in relation to variation in five factors including the age group of the children under review, mother's region of residence, mother's education, socio-economic status, and the child's sex.

Children's age group was determined by age-related criteria that determine feeding options meted out to children. Table 1 is indicative of the age-related criteria and supports the use of three age categories—under 6 months, 6–11 months and 12–23 months. Mother's residence is defined in accordance with five health regions—North-West, Central, Eastern, South-West and Tobago.

Table 1 Adequate feeding standards by age group and type of practice

Complementary feeding	6–11 months	Children receive breast milk and solid or semi-solid food. For children 6–8 months, the frequency of complementary is twice
Complementary feeding	6–11 months	Children receive breast milk and solid or semi-solid food. For children 9–11 months, the frequency of complementary is three times
Continued breastfeeding	12–23 months	Children still breastfeeding

Mother's education is defined according to the following: primary or lower, lower secondary, upper secondary/technical and university. Socio-economic status is determined according to quintile groupings predicated upon access to a specific set of household amenities. The sex of the child is male or female.

Of the 424 children under 2 years, Table 2 shows an even split between the number of children in their first year and their second year of life. The Regional Health Authorities in the most populous western half of Trinidad accounted for larger proportions of the sample of children under 2 years—Central (40.1%), South-West (25.2%), North-East (22.6%), East (7.3%)

Table 2 Sample characteristics: socio-demographics of children under 2 years

Children's Characteristics	Number	Percent
Sample Size	424	100
Age Group of Children		
Under 6 months	103	24.3
6-11 months	109	25.7
12-23 months	212	50.0
Regional Health Authorities		
North-West	96	22.6
East	31	7.3
Central	170	40.1
South-West	107	25.2
Tobago	20	4.7
Mothers' Education		
None/Pre-Primary/Primary	54	12.7
Lower Secondary	275	64.9
Upper Secondary/Technical	48	11.3
University +	46	10.8
Not Stated	1	0.2
Sex of Child		
Male	219	51.7
Female	205	48.3
Socio-Economic Status		
Quintile 1 (Poorest)	88	20.8
Quintile 2	93	21.9
Quintile 3	93	21.9
Quintile 4	83	19.6
Quintile 5 (Wealthiest)	67	15.8

and Tobago (4.7%). A little more than three-quarters the children were born to mothers who had at most an education at the lower secondary level with another 11% having at least a university level education. Table 2 also shows a slightly larger proportion of the children being male (51.8%) and the each of the two wealthiest quintiles had smaller numbers of children when compared to the three poorest quintiles. According to Table 3, the vast majority of children under 2 years (88.4%) would have been breastfed despite having variable exposure. At least 45.8% were estimated to be breastfeeding at the time of the MICS while at least 21.2% were estimated to be adequately breastfed.

Statistical analyses hinge upon the interpretation of descriptive statistics and use of binary logistic regression. The descriptive statistics permit assessments of children's breastfeeding patterns that are manifest in observed variations in proportions of children who were either never breastfed, still breastfeeding or adequately breastfed. The variations were assessed and interpreted according to the sex of children, their place of residence, social status background, mothers' education and age cohort. Similar variations

were also examined in the context of the proportion of adequately fed children among those who were still breastfeeding. Binary logistic regression models are specified to discern significant impacts between the different attribute that could impact variations in breastfeeding patterns.

PRELIMINARY RESULTS

Children never breastfed

For children who had never been breastfed, Table 4 reveals estimated proportions that were greatest in the Central and South-West Regions of Trinidad when compared to the other Regions. In contrast, the most favourable outcome was observed in Tobago. Estimates indicate that children born to mothers with at most a primary-level education were the most likely to have never been breastfed, this being evident among 16.7%. A smaller but noteworthy percentage was also observed among children born to mothers with university-level education. Table 4 also shows that the proportion of children estimated to have never been breastfed was consistently higher in the highest socioeconomic status group than in any of the other socio-economic status groups. In

Table 3 Sample characteristics: nutrition of children under 2 years

Children's Characteristics	Number	Percent
Sample Size	424	100.0
Child ever breastfed		
Yes	375	88.4
No	49	11.6
Child still breastfeeding		
Yes	194	45.8
No	179	42.2
Missing/don't know	51	12.0
Child adequately fed		
Yes	90	21.2
No	297	70.0
Missing/don't know	37	8.7

contrast, the estimated proportion was observed to be consistently lower among children from the poorest socio-economic status group when compared to those from the more affluent groups. Table 4 shows higher estimated proportions of children never being breastfed among males than among females. This was also evident among children in older age cohorts 6–11 months and 12–23 months than among those under 6 months.

Children still breastfeeding

For children who were still breastfeeding, Table 4 reveals estimated proportions that were least favourable in the south-west region of Trinidad when compared to the other regions. There

appeared to be little or no difference across the rest of the Regions in Trinidad while Tobago exhibited the most favourable outcome with about half of the children under 2 years being estimated to have been still breastfeeding. On examining the relationship between children's socio-economic status and the proportion still breastfeeding, preliminary observations in Table 4 are consistent with a negative association. Thus, children in higher socio-economic status groups exhibit less favourable current breastfeeding. While it is estimated that 38% of the children in the highest socio-economic status group had been still breastfeeding, as much as 55.7% of the children in the poorest socio-economic status group exhibited similar current

Table 4 Sample characteristics: nutrition of children under 2 years

Factors	Model #2 Still breastfeeding		Model #3 Adequately breastfed	
	Children never breastfed	Children still breastfed	Children adequately breastfed	Still Breastfed who are adequately breastfed
Sample Size (n = 424)	11.6	45.8	21.2	46.4
Age Group of Children				
Under 6 months	5.8	79.6	13.6	17.1
6-11 months	13.7	48.6	29.4	60.4
12-23 months	13.2	27.8	20.8	74.6
Regional Health Authorities				
North-West	7.3	46.9	23.9	51.1
East	9.7	45.2	9.7	21.4
Central	14.1	47.6	14.1	50.6
South-west	14.1	41.1	15.9	38.6
Tabago	-	50.0	30.0	60.0
Mother's Education				
none/pre-primary/primary	16.7	38.9	14.8	38.1
Lower secondary	10.9	48.4	21.1	43.6
Upper secondary/technical	8.3	37.5	14.6	38.9
University +	13.0	45.7	34.8	76.2
Sex of Child				
Male	13.2	45.7	22.4	49.0
Female	9.8	45.9	20.0	43.6
Socio-economic Status				
Quintile 1 (Poorest)	8.0	55.7	20.5	36.7
Quintile 2	12.9	47.3	19.3	40.9
Quintile 3	10.8	44.1	21.5	48.8
Quintile 4	10.8	41.0	21.7	52.9
Quintile 5 (Wealthiest)	16.4	38.8	23.9	61.5

breastfeeding. Compared to children born to mothers with secondary or university-level education, those born to mothers who attained no more than primary-level education were the least likely to have been still breastfeeding, the estimated proportion being 38.9%. Not surprisingly,

estimated proportions show that older children were less likely to be still breastfeeding than their younger counterparts. While just over a quarter (27.8%) of the children aged 12–23 months were still breastfeeding, the corresponding estimate among those under 6 months was 79.6%. Among

those 12–23 months, however, it is not likely that everyone would continue breastfeeding until their second birthdays. Whether male or female, the preliminary results were not consistent with differences in current breastfeeding.

Children adequately breastfed

For children who were adequately breastfed, Table 4 reveals estimated proportions that were least favourable in the East Region of Trinidad when compared to the other Regions. In contrast, Tobago exhibited the most favourable outcome with about 30% of the children under 2 years being estimated to have been adequately breastfed. There does not appear to be much variation in estimated proportions that were adequately fed in each of the social status groups though the most favourable outcomes were evident among those in the highest group in which just 23.9% of the children under 2 years were adequately fed. It is worth noting that children born to mothers who attained a university-level education were more likely to have been adequately fed when compared to children whose mothers attained lower levels of education. This was the case for as

much as 34.8% of the former set of children. Table 4 shows that children under 6 months were more likely than those aged 6–11 months and 12–23 months to have been adequately breastfed. For children under 6 months, the estimated proportion was 13.6% and is cause for some concern given the delicate life stage of these infants. Whether male or female, the preliminary results do not reflect marked differences in the proportion of children who had been adequately fed.

For children who had been still breastfeeding, it is useful to gauge the extent to which they had been adequately breastfed. This was more likely to be the case among children in older rather than younger age groups and suggest that mothers who continued breastfeeding beyond 6 months and well into their children's second year of life could have had greater knowledge and awareness of the benefits associated with breastfeeding and as such, embraced recommended "best practice" standards. This explanation may also apply in the case of children born to mothers who attained university-level education. Specifically, they exhibited relatively higher estimated proportions when compared to children

who had been born to mothers with lower levels of education.

The results contained in Table 4 are consistent with a positive association between socio-economic status and the proportion of children adequately breastfed among those who were still breastfeeding. Given the negative association that has been consistent with the observed link between socio-economic status and children's lifetime exposure to breastfeeding, the prospect of a positive association might be indicative of a small but committed core of children born to better educated mothers who are fully aware of the benefits to be derived from adhering to recommended standards and as such, have embraced such standards much more so than their counterparts in lower socio-economic status groups.

MULTIVARIATE ANALYSES

Insofar as the preliminary descriptive analyses provided useful insights regarding variations in children's exposure to children's exposure to breastfeeding, multivariate analyses have been pursued using binary logistic regression to assess variations in the likelihood of, still breastfeeding

and being adequately breastfed. These analyses are pursued in the context of the five explanatory factors and provide a basis for discerning the extent to which inferential statistics would corroborate the preliminary findings presented earlier. The impact of each of the factors on the likelihood of children's exposure to breastfeeding is examined controlling for the other four factors. The binary logistic regression results are presented in Table 5 and significant estimates are determined in accordance with a level of significance of 5%. The results reflect outcomes for two models that permit assessments of variations in the likelihood of being still breastfed and being adequately breastfed.

Model #1 examines variations in the probability of being still breastfed according to the five factors. Of the two models, Model #1 is the only one that is significant with R^2 ranging between 22% and 29.4%. The Hosmer and Lemeshow Test is not significant and thus consistent with a good fit between observed and expected probabilities of being still breastfed.

Children's age group is the only factor with a significant impact on the probability of being

Table 5 Odds ratios and model fit diagnostics—probability of children's exposure to breastfeeding (binary logistic regression)

	Model #1	Model #2
Constant	-1.513	0.411
Age Group of Children		
Under 6 months	14.945**	0.558
6-11 months	2.94**	1.508
12-23 months	-	-
Regional Health Authorities		
North-West	1.112	0.783
East	1.570	0.285
Central	1.974	0.949
South-West	1.043	0.541
Tobago	-	-
Mother's Education		
At most primary level	0.901	0.711
Secondary level	1.234	0.977
At least university	-	-
Sex of Children		
Male	1.274	1.196
Female	-	-
Socio-economic Status		
Quintile 1 (Poorest)	1.505	1.026
Quintile 2	1.540	0.865
Quintile 3	0.909	0.960
Quintile 4	0.858	0.872
Quintile 5 (Wealthiest)	-	-
Model Fit Diagnostics		
Omnibus Test Model X ²	92.637**	15.994
-2 Loglikelihood	422.537	400.858
Hosmer and Lemeshow Test	4.579	13.735
	(p = 0.801)	(p = 0.089)
Cox and Snell R ²	0.22	0.041
Nagelkerke R ²	0.294	0.061

Note: Significance level = 0.01**, 0.05*

still breastfed. Relative to children 12-23 months, the probability of still being breastfed among children under 6 months is greater by a factor of 15 and among children 6-11 months by a factor of 3. The

evidence from this sample suggest that none of the other factors has a significant impact on the probability of still being breastfed.

A small sub-sample size

precluded further analyses of variation in the probability of children never being breastfed. Additionally, Table 5 shows that Model #2 does not account for any significant variation in the probability of being adequately breastfed. These outcomes are principally functions of the sample size and in particular, the small proportions of children that actually never breastfed or are being adequately breastfed. While the preliminary findings based on descriptive statistics permit hypotheses about the links between the five factors and variation in children's exposure to the breastfeeding, a study relying upon a larger sample is required to assess the significance of hypothesised linkages gleaned from the descriptive results. Nonetheless, the descriptive statistics and Model #1 do provide useful insights that may reinforce "a priori" instincts and stimulate activities that seek to realise the future well being of children by modifying breastfeeding behaviour towards recommended standards.

DISCUSSION

According to Ministry of Social Development (2008:16), "The World Fit for Children Goal states that children should be

exclusively breastfed for 6 months and continue to be breastfed with safe, appropriate and adequately complementary feeding for up to 2 years of life and beyond". Given estimated exposure to breastfeeding among children, countries such as Trinidad and Tobago should not only strive for greater prevalence rates of breastfeeding that would be manifest in increases in the proportions still breastfeeding and as a consequence adequately breastfed; they should also strive to attain greater equality and equity in these outcomes across sub-populations predicated upon the five factors central to this study.

In the context of the experience of children in each of the five Regions, Tobago exhibits outcomes that approximate standards that the other Regions should approximate. This may require further research hinging upon qualitative research designs that explore substantive differences in breastfeeding behaviour which could be determined on the basis of socio-cultural differences. While the descriptive statistics do not provide much evidence of any differences in children's exposure to breastfeeding based on their sex, their age group appears to have a noteworthy impact on

whether or not they are still being breastfed.

Some important recommendations emerge out of these results. First, there ought to be efforts geared toward increasing children's exposure to breastfeeding closer to recommended standards targeting children in every age group, in particular 6-11 months and 12-23 months. Second, there should be no significant differences between children 6-11 months and 12-23 months with respect to their probabilities of being still breastfed or being adequately fed. Third, line ministries responsible for health and social development on a national scale along with non-government organisations promoting improvements in child nutrition should target young women and prospective mothers and reinforce the virtues of adhering to recommended breastfeeding standards during pre-natal visits and other fora that prepare them for motherhood. Artificial means can be promoted to extract breast milk thereby facilitating the mobility of mothers and eliminating levels of perceived discomfort. Prospects of greater mobility among mothers and levels of perceived discomfort have the effect

of precipitating the termination of breastfeeding prematurely.

Mother's education and the socioeconomic background of the child do exhibit similar associations with respect to the probability of children being exposed to various breastfeeding practices. The descriptive statistics show that the proportion of children never being breastfed and the proportion being adequately breastfed varies favorably in relation to increases in mothers' educational status and higher socio-economic status among children. This reinforces the need for elevating levels of awareness and knowledge of the virtues of sustaining recommended breastfeeding practices among mothers of children in lower socio-economic status groups. The negative association between the proportion of children still breastfeeding relative to mothers' educational status and the socio-economic status of children is likely to be a function of greater gainful participation in the labour force among mothers who were more educated and likely to belong to higher socio-economic status groups. In particular, such activities may impact negatively on the continuation of breastfeeding among children 6-11 months and 12-23 months.

To overcome such a situation, workplaces particularly those in the public and private sectors may wish to consider the establishment of childcare facilities/day nurseries that would sustain the bond between mothers and their infants during their first two years of life. This could be realised if the government considers granting tax concessions to private sector organizations adopting such 'employee-driven' policies with the long term interest of the nation at the forefront. It is also worth noting that having greater ability to access and embrace alternative means of infant nutrition has been a further contributory factor in the negative association between the proportion of children still breastfeeding and their socio-economic background. Nevertheless, the evidence is indicative of greater levels of awareness and knowledge of the virtues that are consistent with the sustenance of adequate breastfeeding patterns in the cases of children from the highest socio-economic status group relative to the rest. An ultimate goal would be to increase the proportions of children who, on one hand, should be still breastfeeding and on the other, proportions of children adequately breastfed; this being the

case for children in lower socio-economic status groups and with mothers having lower levels of education, principally at the primary level or lower.

CONCLUDING REMARKS

Based upon the results contained in this study, there does not appear to be significant knowledge of internationally recommended breastfeeding standards in Trinidad and Tobago. Such lack of knowledge is overwhelmingly manifest and impacts negatively on breastfeeding practices among children under 6 months during a most critical time in their lives. Thus, the vast majority of infants have ceased being breastfed by their first birthday. This means that there is a need to discern opportunistic and motivational factors that impact such an outcome, especially if antecedent cultural nuances exist. This can only be accomplished through further research that embraces qualitative research designs. It is also important that future research initiatives target specific larger samples of young children under 2 years to permit the generation of more reliable estimates which should permit tests of hypotheses borne out by preliminary observations emerging from this study.

Sustainable national development hinges upon the attainment of high standards regarding children's education, health, and nutrition. These three domains constitute central pillars that ought to be the focus of investment in early childhood (Bellamy, 2001). This study has focused primarily on breastfeeding as a manifestation of child nutrition. It has recognised WHO/UNICEF recommendations which suggest that infants should be breastfed exclusively for the first six months with continued breastfeeding for at least 2 years. Five key attributes were examined to discern their impact on the probability of adopting specific sets of breastfeeding practices. Though limited in number, the five key attributes throw light on prospective levers through which social policy prescriptions can treat with the thrust towards outcomes deemed to be consistent with achieving sustainable human development. This study is exploratory insofar as it has established a platform for a more comprehensive interrogation of emergent linkages whether in the context of different spatial settings or in the same spatial settings in different time periods.

BIOGRAPHY

Dr. Godfrey St. Bernard is a Research Fellow at The University of the West Indies, St. Augustine, Trinidad and Tobago. He obtained his Ph. D in Social Demography from the University of Western Ontario in 1993. His current academic interests include problems related to population and development, applied statistical analysis, research methodology, evaluation research and social policy. His current research interests focus upon return migration, mortality due to external causes, Caribbean population policy and the measurement of social phenomena. His publications cover a range of issues including population and development, Caribbean family structures, adult literacy, social measurement ethnicity and youth. He is also the co-author of a book entitled: *Behind the Bridge - Politics, Power and Patronage in Laventille, Trinidad*. In addition to his academic work, Dr. St. Bernard has served a number of public interests either as a Technical Advisor or as a Chairperson. He has also worked as a consultant for a number of international organizations.

REFERENCES

- Baer, E.C. (1981) 'Promoting breastfeeding: a national responsibility', *Studies in Family Planning*, Vol. 12, No. 4, pp.198-206.
- Bellamy, Carol (2001) "Summary" *The State of the World's Children - Early Childhood*, UNICEF
- Bongaarts, J. (1979) 'Breastfeeding performance and child survival: strategies for research', *Population and Development Review*, Vol. 10, No. 4, pp.93-116.
- Butz, W.T. (1977) *Economic Aspects of Breastfeeding*, Rand Paper Series, No. P-5801, p. 25, Santa Monica, The Rand Corporation, California.
- Dettwyler, K.A (1988) 'More than nutrition: breastfeeding in urban mali', *Medical Anthropology Quarterly*, Vol. 2, No. 2, pp.172-183.
- Dettwyler, K.A. and Fishman, C. (1992) 'Infant feeding practices and growth', *Annual Review of Anthropology*, Vol. 21, pp.171-204.
- Huffman, S.L. (1984) 'Determinants of breastfeeding in developing countries: overview and policy implications', *Studies in Family Planning*, Vol. 15, No. 4, pp.170-183.
- Huffman, S.L. and Lamphere, B. (1984) 'Breastfeeding performance and child survival: strategies for research', *Population and Development Review*, Vol. 10, pp.93-116.
- Knodel, J. (1977) 'Breastfeeding and population growth', *Science*, Vol. 198, pp.1111.
- Ministry of Social Development (2008) *Multiple Indicator Cluster Survey 2008*, UNICEF, Trinidad and Tobago.
- Peterson, C.E. and Da Vanzo, J. (1992) 'Why are teenagers in the United States less likely to breastfeed than older women?', *Demography*, Vol. 29, No. 3, pp.431-450.
- Van Langdingham, M; Trussell, J. and Grummer-Strawn, L. (1991) 'Contraceptive and health benefits of breastfeeding: a review of the recent

evidence', *International Family Planning Perspectives*, Vol. 17, No. 4, pp.131-136.