



Female labour force participation: the case of Trinidad and Tobago

Female
labour force
participation

Karen Anne Roopnarine and Dindial Ramrattan

*Research Department, Central Bank of Trinidad and Tobago, Port of Spain,
Trinidad and Tobago, West Indies*

183

Abstract

Purpose – The purpose of this paper is to investigate empirically some of the factors which influence the ability and/or desire of women to join the labour force in Trinidad and Tobago.

Design/methodology/approach – The methodology used is based on a probit model employing variables such as education, age and earnings to estimate the probability of participation. Additionally, the influence of country-specific qualitative factors, such as ethnicity and religion, were also considered.

Findings – The results of the model revealed that the level of schooling, age, household headship, and being single have positive influences on female participation in Trinidad and Tobago. Conversely, the presence of children in the household, accessing social security programmes, and chronic illness had negative effects on participation.

Social implications – National surveys such as the Survey of Living Conditions (SLC) and the Household Budget Survey (HBS) have revealed a higher incidence of poverty among women compared to men in Trinidad and Tobago. One possible reason for this is the corresponding lower labour force participation rate of women when compared to men.

Originality/value – This research is particularly unique since it included both economic and non-economic variables (religion and ethnicity) specific to the Trinidad and Tobago economy to investigate female participation in the labour market. Furthermore, the results of this research can serve as a useful tool for more gender-sensitive policy formulation in Trinidad and Tobago, and possibly the wider Caribbean region.

Keywords Trinidad and Tobago, Women, Labour, Poverty, National economy, Labour force participation rate, Female labour force, Household Budget Survey

Paper type Research paper

1. Introduction

Statistics based on the Trinidad and Tobago economy, such as those derived from the Survey of Living Conditions and the Household Budget Survey (HBS), reveal that women have had a higher incidence of poverty than men in all years[1] these surveys were conducted. In 2005 (which is the most recent year national poverty statistics were published), 38 per cent of the poorest households in Trinidad and Tobago were headed

The authors are Economists in the Research and Policy Department of the Central Bank of Trinidad and Tobago. The views expressed are those of the authors and not necessarily those of the Central Bank.

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by females. One of the major factors affecting poverty among females is their relatively low labour force participation. As in most countries, female labour force participation rates (FLFPR) in Trinidad and Tobago are substantially lower than male participation rates. During the period 2000-2009, the FLFPR averaged 51.5 per cent compared to 77.1 per cent for males. More noteworthy however, is that Trinidad and Tobago's FLFPR over the ten-year period (2000-2009) was lower than some of its neighbouring countries; Barbados and Jamaica's FLFPRs averaged 65.1 and 57.4 per cent, respectively, over the same ten-year period[2].

This research is quite topical and important for several reasons. First, as mentioned earlier, Trinidad and Tobago has a lower FLFPR compared to male participation rates, despite the vast improvements in educational achievements of women in Trinidad and Tobago in the last decade. Furthermore, at lower income levels, increases in female participation can help to alleviate poverty, which can have positive inter-generational effects (see Morrison *et al.*, 2007 for further details on a conceptual framework linking women's earnings to poverty reduction and economic growth). This research is an empirical investigation into some of the factors that influence a woman's decision and/or ability to join the labour force. A probit model was employed, and data was sourced from the latest CSO (2010b).

The rest of the paper is as follows: Section 2 outlines a brief literature review, followed by Section 3, which describes the Trinidad and Tobago labour market and the data used. Section 4 presents the methodology and model used, while Section 5 discusses the results of the model and Section 6 concludes the paper.

2. Literature review

A broad indicator of women's labour market activity is the FLFPR. The labour force participation rate is defined as the ratio of the economically active population (persons who are aged 15 to 65, employed and unemployed) to the working age population. Hence, the FLFPR is the percentage of working age women who are either working or looking for work. A woman's decision to participate (or not) in the labour force will have a direct effect on the supply of labour. The neoclassical theory of the allocation of time describes labour supply decisions (to participate or not to participate in the work force) of individuals. Based on this theory, individuals are assumed to value their time according to his/her preferences that maximise utility, and then he/she decides whether to participate in the labour market. The individual compares the value of his/her time in the labour market with the value of time spent on non-market (household) activities. If the value of time spent on market activities exceeds the value of non-market activities, all other things remaining constant, the individual would decide to participate in the labour market (Güven-Lisaniler and Bhatti, 2005).

The value of market activities will depend on the prevailing market wage rate, whilst the value of non-market activities is determined by the individual's tastes and preferences plus his/her time demands for non-market activities such as, child rearing and the number of dependents living at home, including sick and elderly persons. Traditionally women have been homemakers and caregivers, and as such their reservation wage (the minimum wage rate at which a woman will accept employment) tends to be high given the (high) value women tend to place on their non-market activities at home. Consequently, in general, this prevents several women from participating in the labour market. For example, based on a national household survey in the Kyrgyz Republic, some 25 per cent of inactive women (compared to a negligible 1.5 per cent of inactive men) cited household duties/responsibilities prevented them

from participating in the labour market (World Bank Poverty Reduction and Economic Management Unit, 2007).

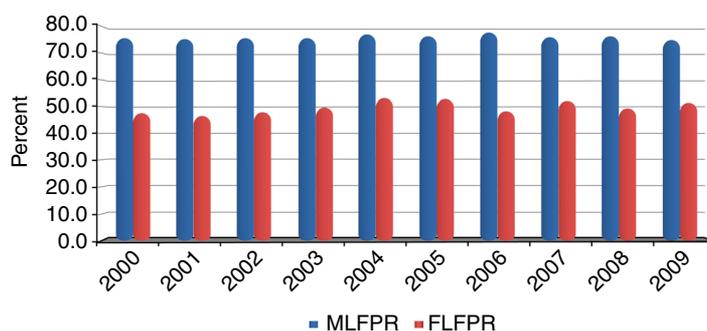
Several factors, including the average market wage rate and the number of dependents living in the household, influence a woman's decision to participate in the labour market. Some of these include her level of educational attainment, marital status, access to social security programmes and residence (urban vs rural). In this research the following a priori relationships were tested:

- (1) the more educated the woman becomes, the higher the probability of her participating in the labour market – schooling tends to increase the opportunity cost of a woman's time spent in the household;
- (2) if she is single as opposed to in a relationship, the higher the probability of her participating in the labour force;
- (3) access to non-labour income through social security programmes will decrease the probability of labour market participation;
- (4) the status in the household and presence of children. It is expected that women who are head of households will be more likely to participate in the labour force and the contrary for women with children present in their home;
- (5) chronic disease negatively impacts the probability of a woman participating in the labour force; and
- (6) women living in urban areas are more likely to participate in the labour market since, in general, urban dwellers tend to have a greater acceptance towards women entering the labour force.

3. National data

According to the 2009 Central Statistical Office (CSO) *Pocket Digest*, the population of Trinidad and Tobago is comprised of approximately 653,100 females or 48 per cent of the population. Of these women, 254,300 comprise the female labour force or approximately 41 per cent of the total labour force. The female unemployment rate is 6.2 per cent compared to a male unemployment rate of 4.5 per cent (CSO, 2009b).

Historically, national labour force participation rates have shown a large disparity between men and women, as shown in Figure 1. Notwithstanding this, the disparity has been decreasing over the period 2000-2009. During this period, the participation



Source: International Labour Organisation (ILO)

Figure 1.
Labour force participation
rates by gender
(2000-2009)

rate for women hovered around 50 per cent. This data is somewhat surprising as the 2009/2010 enrolment at the University of the West Indies (UWI) St. Augustine campus showed 65 per cent of total registered Trinidad and Tobago students across all faculties were female (UWI, 2010).

The Continuous Sample Survey of the Population (CSSP) showed that in 2007, the average income for men exceeded women across all listed occupational groupings (Figure 2). Noticeably, the spread is largest at the professional and legislator/senior managers' groupings and smallest across the elementary occupations. This difference in wages poses the potential for decreased participation of women in the workforce due to a lack of motivation and sentiments of unfair treatment. While this is a valid and important issue, the concept of wage differentials reaches beyond the scope of this paper. However, it is important to note that senior positions that require tertiary level training, qualifications and experience are seeing just as much if not greater wage differentials than other positions. This is so despite the fact that the number of females enrolled at UWI has outnumbered males in recent years. Furthermore, having a tertiary education has not enabled women to achieve the same level of remuneration as men.

Figure 3 shows employment disaggregated by gender from data arising out of the CSSP 2007. The data shows that women are dominant in the service industry and as

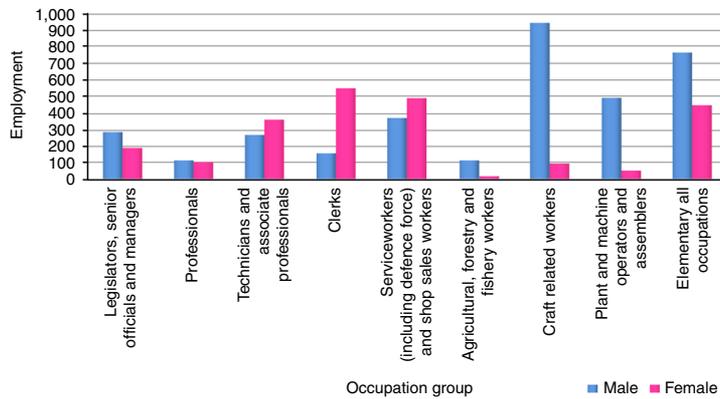


Figure 2.
Employment by occupational group and gender (2007)

Source: Continuous Sample Survey of the Population (CSSP) (2007)

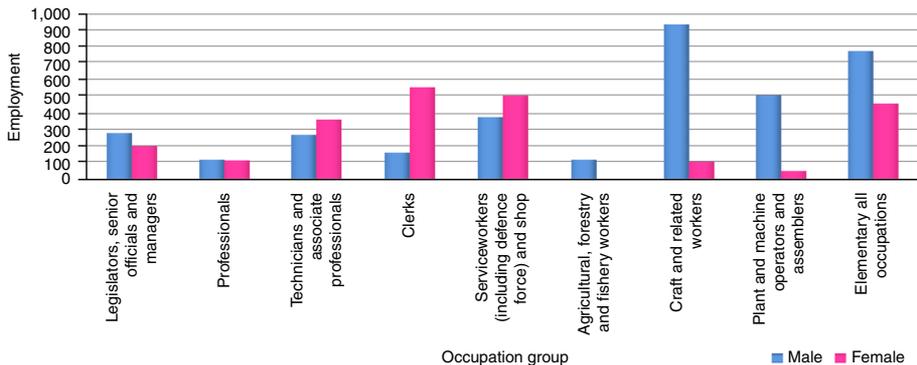


Figure 3.
Employment (occupation and gender)

Source: Continuous Sample Survey of the Population (CSSP) (2007)

clerks and associate professionals. There is some level of parity at the professional level, with men having a greater presence at senior levels. The nature of the enrolment at the tertiary level is something that has potential for further discussion, to ascertain whether the labour market reflects the gender composition of the persons with qualifications or whether women are not offering themselves for employment or not obtaining equitable opportunities for employment.

The CSO 2010b sampled 10,805 persons as is shown in Table I. The sample of women represented approximately 41 per cent of the total sample. The largest percentage of the women in the sample were found to be in the middle-income area (49 per cent) compared with 53 per cent of men falling into the middle-income area. The data from the HBS in Table II also shows that almost 64 per cent of women live in urban areas as compared with 57 per cent of sampled males residing in urban areas.

Income area	Male	Female	Total
<i>Low</i>			
Count	1,672	1,125	2,797
% within income area	59.79	40.22	100.00
% within gender	26.44	25.10	25.89
<i>Middle</i>			
Count	3,300	2,202	5,502
% within income area	59.98	40.02	100.00
% within gender	52.19	49.13	50.92
<i>High</i>			
Count	1,351	1,155	2,506
% within income area	53.91	46.09	100.00
% within gender	21.37	25.77	23.19
<i>Total</i>			
Count	6,323	4,482	10,805
% within income area	58.52	41.49	100.00
% within gender	100.00	100.00	100.00

Source: CSO (2010b)

Table I.
Income area × gender
cross tabulation

Income area	Male	Female	Total
<i>Urban</i>			
Count	3,607	2,884	6,491
% within urban/rural	55.57	44.43	100.00
% within gender	57.05	64.35	60.074
<i>Rural</i>			
Count	2,716	1,598	4,314
% within urban/rural	62.96	37.04	100.00
% within gender	42.95	35.65	39.93
<i>Total</i>			
Count	6,323	4,482	10,805
% within urban/rural	58.52	41.48	100.00
% within gender	100	100	100

Source: CSO (2010b)

Table II.
Location × gender cross
tabulation

Other valuable information coming out of the CSO (2010b) showed that of all females in the sample, 25 per cent were heads of households compared to 52 per cent of sampled men being heads of households. Further, of all heads of households females constituted 25 per cent and men constituted 75 per cent. Spouse of head and child of head of household contributed equally to 66 per cent of all females' relationship to the head. Further, the sample showed that among persons whose highest level of education achieved was tertiary women constituted 55 per cent of the sample.

4. Methodology

The HBS of Trinidad and Tobago 2008/2009 enumeration period ran from May 2008 to April 2009. The initial sample was 7,680 households but due to an overall non-response rate of 7.7 per cent, this fell to a realised sample of 7,090 (CSO, 2010b). The HBS captured information on a range of issues from consumption expenditure, demographic information and socio-economic status in addition to other key variables. The disaggregation of the data by gender proved useful for the purpose of this study.

The CSO of Trinidad and Tobago graciously made the CSO (2010b) dataset for females between the ages of 15 and 64 available for purposes of this study[3]. The data was analysed using the probit estimation technique, which utilises a binary format of the dependent variable, in this case whether the female participates or does not participate in the labour force (given values of one and zero, respectively) and the results are shown in Table III. The variables used in this study included non-labour income (i.e. income from the social sector), health, age, religion, ethnicity, household headship, education and location (urban vs rural).

The first stage involved the identification of the variables for the probit model. All variables faced significance tests at all conventional levels of α [4]. The paper includes the final model with only significant variables. Some of the excluded variables included income status of household, disability and location by regional corporation. Those variables that were included were placed into groupings to identify the socio-economic factor that it helps explain. For example, the variable measuring whether any chronic illness is present can be utilised as one measure of the impact of health on the FLFPR.

This research sought to expand the literature on FLFPRs in Trinidad and Tobago. Further, for cross-country comparisons, the authors adopted a model that was similar to other literature on countries such as Barbados (Downes, 1998), Jamaica (MacKinnon, 1992), Ghana (Sackey, 2005), Chile (Contreras and Plaza, 2010) and North Cyprus (Güven-Lisaniler and Bhatti, 2005). For this reason, the base model was built similar to these studies and changes were made following tests of significance of variables and inclusion of country-specific variables, for example ethnicity.

The probit model explains the direction of the relationship between the independent variables and participation. In order to have some guide of the magnitude of the impact of these variables on participation the marginal effect needed to be calculated (Table IV). The use of dummy variables within the model led to the grouping of data into specific values, such as age into stated age groups, access to government and non-government social programmes into non-labour income and location into urban and rural.

The variable single measured the size of the impact of being single on the FLFPR. The measure that was applied to being single vs a couple was based on whether the parties were "living together", "married living with spouse" or "living common-law" being regarded as a couple. Those who were previously married or in a relationship but no longer living together and those never married or never had a partner were considered

Dependent variable: female participation				
	Coefficient	SE	Z statistic	Probability
C	-1.233000	0.078342	-15.73870	0.0000
Marital status				
Single	0.170897	0.021433	7.973384	0.0000
Income source				
Non-labour income	-0.342081	0.037202	-9.195142	0.0000
Age grouping				
20-24	1.204038	0.056113	21.45727	0.0000
25-29	1.414732	0.057807	24.47353	0.0000
30-34	1.374383	0.061942	22.18820	0.0000
35-39	1.347535	0.062278	21.63758	0.0000
40-44	1.430652	0.062586	22.85906	0.0000
45-49	1.172134	0.061586	19.03246	0.0000
50-54	0.952155	0.061530	15.47457	0.0000
55-59	0.732107	0.070562	10.37544	0.0000
Health				
Chronic illness	-0.161252	0.039306	-4.102520	0.0000
Religion				
Roman Catholic	0.093983	0.025977	3.617865	0.0003
Hindu	-0.095911	0.025717	-3.729531	0.0002
Household				
Head of household	0.413105	0.042110	9.810154	0.0000
Presence of children	-0.239106	0.032473	-7.363329	0.0000
Education				
Primary	0.315507	0.063504	4.968287	0.0000
Secondary	0.351925	0.058861	5.978946	0.0000
Tertiary	0.212687	0.075476	2.817943	0.0048
Location				
Urban	0.174433	0.031266	5.578918	0.0000
Ethnic background				
African	0.259606	0.027022	9.607252	0.0000
East Indian	-0.260652	0.029590	-8.808874	0.0000
McFadden R^2	0.169901	Mean dependent variable		0.536494
SD-dependent variable	0.498697	SE of regression		0.440990
Akaike information criterion	1.151670	Sum squared resid		1599.731
Schwarz criterion	1.170389	Log likelihood		-4727.487
Hannan-Quinn criteria	1.158067	Restr. log likelihood		-5695.089
LR statistics	1935.203	Average log likelihood		-0.573168
Probability (LR statistics)	0.000000			
Obs with dep = 0	3,823	Total obs		8,248
Obs with dep = 1	4,425			

Table III.
Probit model

as single. For purposes of the probit, the variable couple was treated as the reference and omitted.

The variable non-labour income focused on whether the individual was a beneficiary of financial aid either from government or non-government sources. This variable provides insight into the impact of such sources of income on the probability of participation in the labour force. The omitted variable was not receiving any such form of income.

The ages of the women were placed into five-year groups. The 15-19 age group was treated as the reference, while the 60-64 was not significant at all levels of α . Other

Table IV.
Probit model: coefficients
and marginal effects

Variable	Coefficient	Marginal effect*	Variable	Coefficient	Marginal effect
Single	0.1709	0.0679	Hindu	-0.0959	-0.0381
Non-labour income	-0.3421	-0.1359	Head of household	0.4131	0.1641
20-24	1.2040	0.4783	Presence of children	-0.2391	-0.0950
25-29	1.4147	0.5620	Primary	0.3155	0.1253
30-34	1.3744	0.5459	Roman catholic	0.0940	0.0373
35-39	1.3475	0.5353	Secondary	0.3519	0.1398
40-44	1.4307	0.5683	Tertiary	0.2127	0.0845
45-49	1.1721	0.4656	Urban	0.1744	0.0693
50-54	0.9522	0.3782	African	0.2596	0.1031
55-59	0.7321	0.2908	East Indian	-0.2607	-0.1035
Chronic illness	-0.1613	-0.0641			

Note: *The probability density function of 0.3972 was used in the calculation of the marginal effects

groups included religion, where religions other than Roman Catholic and Hindu[5] were grouped as other and treated as the reference. In addition, education categories included primary, secondary and tertiary, with no education treated as the reference; while African and Indian were the major ethnicities[6], with the others being treated as the reference. Other variables included role of female in household (headship), presence of children and health of individual. Rural was the reference variable for location, with urban as the variable within the model.

5. Data analysis

In testing the goodness of fit of the model, the Hosmer-Lemeshow test was utilised. The probability (χ^2) values were significant at all conventional levels of α for both the *H-L* statistic and Andrews test statistic. In addition, the variables have *p*-values less than α at the 1, 5 and 10 per cent levels, signifying their significance in the model. The probability (LR) statistic is significant at all levels of α .

The data showed that the variables non-labour income, chronic illness, Hindu, presence of children and East Indian had negative coefficients. A negative coefficient implies an inverse relationship between these variables and the probability of participating. The other variables had a positive relationship, meaning that persons in these groups have a higher likelihood of participating in the labour force. Table IV shows the marginal effects that measured the magnitude of the impact on participation.

The results support the notion that the relationship status of a woman influences her decision to participate in the labour force. Single women had a positive relationship with participation in the labour force, with a 6 per cent greater likelihood of participating as opposed to women in a relationship. Women who were the head of the household were 16 per cent more likely than women who were not heads of households to participate in the labour force.

Hindus showed a greater probability of not participating in the labour force; in fact, Hindu women are 4 per cent less likely to participate in the labour force as compared to other religions. Roman Catholics exhibited the opposite relationship with 4 per cent more likely to participate. Another cultural factor, which exhibited a strong correlation with participation, was ethnicity. In reference to other ethnicities, East Indians were 10 per cent less likely to participate compared to a similar 10 per cent in the opposite direction for women of African descent.

The presence of children also exhibited a significant impact on the FLFPR. Women with children were 10 per cent less likely to participate in the labour force as compared to women without children. In addition, the age groupings influence the FLFPR. The highest probabilities to participate occurred in the 25-29 and 40-44 age groups, 56 and 57 per cent, respectively. However, the probabilities diminished as women get older, with probabilities of participation of 47, 38 and 29 per cent for the 45-49, 50-54 and 55-59 age groups, respectively.

The other variable under consideration was the level of schooling. As stated earlier, persons with their highest level of education attained falling outside of the primary, secondary and tertiary system, were treated as the reference group. The data revealed that for women whose highest level of education attained was primary and secondary level, the probability to participate was 13 and 14 per cent, respectively. Interestingly, women with tertiary level education had a probability of participation of only 8 per cent. This is a very intriguing result and lends itself to the need for further analysis of the issue. There is a probability that women who have completed university education may choose to spend some time with their families before joining the labour force, however validation of such an assumption or any others runs beyond the scope of this research. Women living in urban areas were 7 per cent more likely to participate in the labour force than those living in rural areas.

6. Conclusions

It is widely known that increasing the welfare and earnings of women can help alleviate poverty, stimulate economic growth in the short term through higher consumption expenditures, and increase long-term growth through higher savings (Morrison *et al.*, 2007). This research highlighted that in Trinidad and Tobago FLFPR have been substantially lower than male participation rates. This fact is quite alarming given the high enrolment rate of females in tertiary learning institutions – about 65 per cent of total students enrolled at UWI, St. Augustine campus in 2009/2010 were female. It was also discovered that FLFPRs in Trinidad and Tobago are also lower than female participation rates in other Caribbean countries, namely Jamaica and Barbados. Further research is needed to ascertain the reason(s) for this trend.

The results of the model fell in line with a priori expectations. Summarily, the level of schooling, age, being the head of the household and being single all had positive influences on female participation. Conversely, the presence of children in the household, accessing social security programmes and chronic illness had negative effects on participation. Country-specific variables like ethnicity and religion were also tested. For instance, women of East Indian descent and Hindus were 10 and 4 per cent, respectively, less likely to participate in the labour force. Positive relationships were found between women of African descent (10 per cent) and Roman Catholic women (4 per cent). However, further analysis is required to discern a deeper understanding regarding both the direction and magnitude of these impacts and to identify some possible remedies for the low FLFPR in Trinidad and Tobago.

Notes

1. HBS conducted in 1971/1972, 1975/1976, 1981/1982, 1988, 1997/1998, 2008/2009. SLC conducted in 1992 and 2005.
2. Data were sourced from the International Labour Organisation (ILO).

3. The dataset was limited only to information relevant to the research being conducted, with no identifiers of respondents or sensitive information.
4. The conventional levels of α used were 1, 5 and 10 per cent.
5. The 2000 Census showed Roman Catholics constituted 26.0 per cent of the population and Hindus 22.5 per cent.
6. The 2000 Census showed persons of African descent constituted 37.5 per cent of the population and East Indians 40.0 per cent.

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About the authors

Karen A. Roopnarine is currently a PhD candidate (Economic Development Policy) at the Sir Arthur Lewis Institute of Social and Economic Studies (SALISES), University of the West Indies, St Augustine Campus in Trinidad and Tobago. She has been employed at the Central Bank of Trinidad and Tobago for the past seven years as an Economist, working in the areas of Commercial Banking Statistics, Balance of Payments, Exchange Rates, Liquidity Management, and Latin American and Caribbean Economic Developments. The University of the West Indies awarded her a First Class Honours undergraduate degree in Economics (major) and Finance (minor) in 2003, and a MSc in Economics in 2004. Her research interests include sustainable development, climate change, poverty and income inequality, economic development policy, and gender-specific policy issues. She has also lectured and tutored several undergraduate courses including Intermediate Macroeconomics I and II, Intermediate Microeconomics I and Topics in Economic Development. Karen Anne Roopnarine is the corresponding author and can be contacted at: kroopnarine@central-bank.org.tt

Dindial Ramrattan is currently pursuing a postgraduate degree in Development Statistics at the Sir Arthur Lewis Institute of Social and Economic Studies (SALISES), University of the West Indies, St Augustine Campus in Trinidad and Tobago. He also obtained an undergraduate degree in Economics, with a minor in International Relations, from this institution in 2007. He has gained vital experience from working at various public and private sector organisations in Trinidad and Tobago over the last five years, with specific training and experience in the areas of economic research, data collection, data analysis and monitoring and evaluation. He has also been actively involved in various social policy, research and programming initiatives, with emphasis on a range of topics inclusive of poverty, labour, agriculture and healthcare. In addition, he has assisted in the education of secondary school students at both the Ordinary and Advanced levels.