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THE EFFECTS OF OVEREDUCATION ON WAGES IN TRINIDAD AND TOBAGO:

AN UNCONDITIONAL QUANTILE REGRESSION ANALYSIS

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Abstract

The main aim of this study is to analyse the wage returns of Overeducated workers employed in Trinidad and Tobago. To undertake such a study, data from the Continuous Sample Survey of Population (CSSP) for the period 1991-2015 is used to estimate an initial OLS and Quantile regression version of the Mincerian Earnings equations, which is commonly used in the education mismatch literature. To observe the unconditional partial effects of small changes in wage returns of overeducated workers at the mean, the Recentered Influence Function is estimated. The results reveal that if the earnings of overeducated workers who receive low wages, was replaced with that of high wages, then this would lead to a rise, or shift in the returns of overeducated workers, if only their biographical information is considered. The inclusion of their skill and geographic location would cause their earnings to shift further. The shift in the earnings of overeducated workers, when examined across the wage distribution, would tend to favor those who were married, younger, i.e., in the 25-35 age group, who were highly skilled at their jobs. These groups of overeducated workers would experience the lowest wage penalties in comparison to their single, mature, and semi-skilled colleagues.

Keywords: Job-Education Mismatch, Overeducation, Unconditional Quantile Regression, Trinidad, and Tobago.

JEL Classification: D31, I26, J31

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1. Introduction

The investment in education, particularly those at the university level, as reflected by the Education Economic literature is often associated with a growth in the earnings of workers (Artz and Welsh 2020). While this may be heartening news for workers who invest in acquiring higher level of certifications to enhance their skills and capabilities in the working environment, the attraction into higher education, can indeed become an impediment to the future earnings of current and potential workers, as well as their employability.

During the last four decades several low- and high-income developing countries, have invested heavily in developing their education systems (Battu and Bender 2020). The case of Trinidad and Tobago is not different as the relevant ministerial governments sought to make the funding of higher education more accessible through the implementation of several financial initiatives with commercial entities locally, which are aligned to the academic programmes offered by a wide range of post-secondary technical/vocational institutions, and universities both locally and regionally within the Caribbean.

Trinidad and Tobago during the period 1991-2015, undertook several higher education funding initiatives govern by several pieces of legislation, some of which include the Students Cess Act of 1989, the Student Revolving Loan Fund, the University Student Guarantee Loan Fund, the Higher Education Loan programme, the Financial Assistance Studies programme, the Dollar for Dollar programme and most recent the Government Assistance for Tuition Expenses programme (Trinidad and Tobago, 1989, 1973, 1994; Trinidad and Tobago. MOE 2017a, 2017b; Trinidad and Tobago. House of Representatives 2001). The result of such an investment into the twin island states education system, led to not only an exponential rise in the enrolment of students from 10,568 in 2002, to 17,969 students in 2015, at the main university, i.e., the university of the west indies, but also a significant outlay in transfers to educational institutions from TT\$145.1mn, to TT\$1,804.8mn during the 1991-2015 timeframe (UWI 2009, 2017; CBTT 2021a).

This growth in the investment in the human capital stock of Trinidad and Tobago, meant that the amount contributed by domestic education sector to the overall gross domestic product of the island improved quite a bit from TT\$1,203.2mn to TT\$1,882.5 between 1995-2015 (CBTT 2021b). Notwithstanding the definite improvement in the financial aspect of the education sector, the ministerial reviews of the education system, highlights a different problem. Some of these challenges at the secondary educational level include the low rates of achievement amongst students, problems of indiscipline amongst staff and students, and a significant difference in the performance of students

enrolled in private/public educational institutions (Trinidad and Tobago MOP 1990; Alleyne, Demas, and Warner 1984).

Apart from these challenges, the investment in the educational initiatives, from a labour market perspective have had many benefits, ranging from falling unemployment and youth unemployment rate (from 18.5% to 3.4% during 1991-2015, and from 7.3% in 1991, to 5.85% in 2015 respectively), and an improvement in the labour participation ratio from 58.8% to 60.6% between 1991-2015 (CBTT 2021c; WB 2021). However, despite the improvements to the economic and education environments, students in general were deemed to be ill prepared to enter the world of work because they lacked the training opportunities to develop their employability skills, while the phenomenon of unemployed university students have persisted as the system has continued to turn out students in fields for which there is no demand (Trinidad and Tobago MOP 1990).

The seminal literature of educational mismatch dates to the early 1970's, where according to Veselinovic, Mangafic and Turulja (2020,2648), clarifies that "the concept of education-job mismatch describes a situation in which an employed individual's level of education is different from the level of education appropriate for the job." Rahona-Lopez and Perez-Esparrells (2013, 1), goes on to explain, that there are, *"two types of educational mismatch have been identified: overeducation, which occurs if a worker has excess education to do his/her work, and undereducation, which results in workers not having enough education to do their job."*

A brief look into the literature on educational mismatch for similar developing countries like Trinidad and Tobago, where specific emphasis is placed on India, Africa, and China due to cultural connections, reveals that in the case of India much of their overeducation is related to not only the persons occupation, but most importantly their religious caste, gender, and geographic location (Battu and Bender 2020; Mukherjee and Paul 2012; Sharma and Sharma 2017; Chanana 1993). Similar conclusions are brought about by workers in Sub-Saharan Africa, where their age, gender, i.e., male, their employment in the informal sector, and level of job dissatisfaction puts them more at risk at becoming overeducated (Herrera and Merceron 2013). Where aspects such that the parent's level of education, field of study, quality of the job and the size of the business all appear to predict the accuracy of job mismatches in African countries (Morsey and Mukasa 2021). While, in China, about 13% of workers are overeducated for their current jobs, where its presence was thought to have a negative impact on their subjective job satisfaction. This is particularly the case, where according to Wan, Yoo and Cho (2020,131), *"workers' individual characteristics and job characteristics influences the occurrence of educational mismatch,"* while *"gender, language skills, firm size and employment status are major sources of educational mismatch."*

Further investigation into the overeducation spectacle in China, reveals that nearly half of online jobseekers in China are more than two years overeducated (Zheng, Zhang, and Zhu, Y. 2021). Where the effect that overeducation has on the earnings of this sub-category of workers is influenced by the field of study, the quality of the university attended, their geographical location, i.e., city, and the match between their college major and industry of employment. Interestingly the household registration system, i.e., hukou, a population registration system introduced in 1958, in China to regulate internal migration, while maintaining social protection and stability, also influenced the likelihood of college graduates to become overeducated. Where Chinese graduates were more likely to be educationally mismatched when registered through their job, than locals (Xie 2020).

Bearing in mind the brief experiences of these developing countries, and the lack of similar studies on educational mismatch for Trinidad and Tobago, it is interesting to understand the impact that this investment has had on the intensity of educational mismatch in Trinidad and Tobago, and to what extent have this influenced the earnings of workers who are overeducated, all while observing the heterogeneity of the overeducation penalty along the wage distribution. To do this, the methodology introduced by Firpo, Fortin and Lemieux (2009) are implemented to estimate a wage equation at specific quantiles that results in the unconditional quantile regression, across the entire wage distribution. Accordingly, to the best knowledge of the author, this is the first study to apply the distributional approach to examining the impact that overeducation has on the earnings of private and public sector workers in Trinidad and Tobago.

Using data from the Continuous Sample Survey of Population (CSSP) this study finds that for the period 1991-2015, the composition of overeducated workers has been growing, with the majority being employed in the Manufacturing, Construction, Wholesale and Retail Trade, Hospitality areas (Restaurants and Hotels), Financing, as well as Community and Personal Services industries. On average overeducated workers tend to have more years of schooling than matched workers. They are more inclined to be single, while their mothers have less years of schooling. Although overeducated workers appear to have less working experience than matched workers, they benefit from higher earnings overall.

An examination of the estimates reveals that earnings of overeducated workers seem to decline steadily at the lower deciles, i.e., 0.10th- 0.50th, and then improve from the 0.60th decile onwards towards the end of the wage distribution. The high returns of overeducated workers employed in low- and high-income jobs appears to be driven upward if he is male, a young adult, of a minority ethnic group, residing in either central, or south Trinidad, and employed within the energy sector, while in the case of middle-income workers their level of maturity tends to drive their wage.

Further to this, it was found that although similar in pattern, a comparison of both qualification levels reveals that both overeducated secondary and university educated workers experience smaller wage penalties at the higher deciles, but for overeducated university educated workers the wage penalty is larger and lasts longer at the lower deciles than secondary educated workers.

Following in the footsteps of Firpo, Fortin and Lemieux (2009), it was found that if we were to replace the earnings of overeducated workers who receive low wages, with that of high wages, then this would lead to a rise, or shift in the returns of overeducated workers of 29.5%, if only biographical information (UE) is considered. With the inclusion of the covariates which reflect the workers skill and geographic location (UPE1), lead to a substantial rise in the magnitudes in the first instance, which falls thereafter (UPE2 and UPE3) when industry and occupational covariates are considered as robust checks.

The shift in the earnings of overeducated workers, when examined across the wage distribution, would tend to favor those who were married, younger, i.e., in the 25-35 age group, who were highly skilled at their jobs, as their wage penalties across the distribution was often the lowest amongst the different groups. Whereas the shift would not favor overeducated workers who are single (highest wage penalty at the lowest deciles), mature, i.e., between the ages 51-65 (highest wage penalty at the highest deciles), and semi-skilled (highest wage penalty at the middle of the wage distribution).

This paper is organized as follows, where section 2 a detailed examination of the data and selected descriptive statistics is provided. This is followed by section 3 where the econometric methodology implemented in this study is outlined. The results of the findings of this study, together with its robust checks are given in sections 4 and 5, after which the study is concluded in section 6.

2. Data & Descriptive Statistics

2.1 Data

The sample data used in this study was obtained from the Continuous Sample Survey of Population (CSSP). Essentially, the CSSP survey is a grand sample, where a sampling frame is constructed from the Census Enumeration Districts (ED) based on the size of Sampling Unit. This leads to the grand sample to comprise of nine subsamples, in which sample units, i.e., clusters of households are randomly selected using the Probability Proportional Sampling (PPS) technique. Where the number of clusters in a household for a particular ED reflects its size (Trinidad and Tobago, CSO 1989).

Conducted on a bi-annual basis, the CSSP collects information based on a wide variety of individual and the household characteristics, inclusive of biographical data on areas such as sex, age, ethnic group, address, marital status; education data on areas such as training attainment, main education method, type of institution attended; economic activity data on areas such as months worked, last worked, reasons for leaving job, industry of employment, type of work, occupation, and housing features such as the type of dwelling, type of tenancy, material of dwelling, and source of lighting/water supply.

Since the survey continuously gathers a wide range of information, it is primarily used to measure the labour force participation and unemployment rates for Trinidad and Tobago. However, the data can also be used to form a variety of opinions on a variety of areas such as internal migration, housing, crime, income, expenditure, healthcare, and mortality. Given the diverse nature of the CSSP survey, sample data was extracted for the period 1991-2015, for men and women, ages 15-65, who are employed on a full-time basis, i.e., working more than 33 hours per week, within either the public, or private sector enterprises. Thus, leading to a sample of 125,087 observations.

For this study, a host of variables outlined in Table 1 below is integrated. Since most of these variables, such as educational mismatch, sex, marital status, age groups, ethnicity, skills group, immigrant status, geographic location, occupation, industry, and year groupings, are categorical in nature, dummy variables are generated, where the last class is used as the reference group. Continuous variables such that the real wage rate, weekly income, annual income, years of schooling, parents' education, and the workers potential working experience is also highlighted. The most important of these are those which reflect the workers years of schooling, the type of education mismatch present, and their income.

Briefly examining each of these areas, first to obtain the real wage rate, the workers' gross monthly income is calculated on an annual and weekly basis. Given that the number of hours worked in the past week is categorical nature, the average actual hours worked is used to derive the actual hours worked per week. To do this, the median hours worked is calculated using the upper- and lower-class hourly thresholds, then multiplied by the frequency of the hours worked during the past week, which gives the cumulative hours worked. By dividing the total cumulative hours worked by the total frequency of hours worked, the average actual hours worked per week is derived. After which, the hourly wage rate is deflated using an annual deflation series from 1991-2015 which incorporates the Consumer Price Index (CPI), then logged. Second, the workers years of schooling is constructed using the workers highest-level of non-vocational attainment by examination, and the period spent at different educational institutions as guided by the International Standard

Classification of Education (ISCE) and the structure of Trinidad and Tobago's education system outlined by the United Nations Educational, Scientific and Cultural Organization (UNESCO 2006).

Third, this sample will form the foundation upon which workers are classified as being either educationally mismatched, or matched, using the Realized Matches (RM) method. Working under the assumption, that one level of education is appropriate for each occupational grouping, the RM methods uses two variables which represent the workers years of schooling, and a three-digit classification of their occupational categories to determine if they are either over/undereducated, or matched. Using the modal method of the RM measure, workers are over/undereducated if their own education level is more than/less than one standard deviation above/below the modal education level of workers in the same occupation, and correctly matched if their own level of education falls within a one standard deviation range around the modal education level of workers in the same occupation (Kiker, Santos, and De Oliveira 1997).

Table 1. Variable Definitions

Variable	Definition
Real Hourly Wage Rate	Natural logarithmic of the Real Hourly Wage Rate.
Weekly Income	Earnings per week.
Annual Income	Earnings per year.
Well-matched Workers	Dummy Variable takes the value of 1 if matched, and 0 otherwise.
Overeducated Workers	Dummy Variable takes the value of 1 if overeducated, and 0 otherwise.
Schooling	Years of Schooling.
Parent Education	Separate dummy variables each taking the value of 1 if the mother, father has schooling, and 0 otherwise.
Potential Working Experience	Potential Working Experience=age-years of schooling-5.
Male	Dummy Variable takes the value of 1 if male, and 0 otherwise.
Marital Status	Separate dummy variables each taking the value of 1 if the worker has never married, married-alone, partner-alone, married, common law, and 0 otherwise.
Age	Separate dummy variables each taking the value of 1 if the worker is in the age range less than 24, between 25-35, 36-50, and 51-65, and 0 otherwise.
Ethnicity	Separate dummy variables each taking the value of 1 if the worker is of African, Indian, Chinese, Syrian Lebanese, White, Mixed decent, and 0 otherwise.

Skills	Separate dummy variables each taking the value of 1 if the worker is highly skilled, semi-skilled, low skilled and 0 otherwise.
Training Level	Separate dummy variables each taking the value of 1 if the worker education level is at the Primary level, Junior Secondary, Senior Secondary, Para-Professional, First Degree, Graduate Degree, and 0 otherwise.
Immigrant Status	Separate dummy variables each taking the value of 1 if the worker is a national or nonnational, and 0 otherwise.
Geographic Location	Separate dummy variables each taking the value of 1 if the worker is living in the areas of Caroni, Nariva-Mayaro, Saint Andrew, Saint David and Tobago, Saint George, Saint Patrick, Victoria, and 0 otherwise.
Occupation	Separate Dummy Variables each taking the value of 1 if in the occupational grouping of the Defense force; Legislators, Senior Officials and Managers; Professionals; Technicians and Associate Professionals; Clerks; Service workers and Shop sale workers; Agricultural, Forestry and Fishery workers; Craft and Related workers; Plant and Machine Operators and Assemblers; Elementary Occupations, and 0 otherwise.
Industry	Separate Dummy Variables each taking the value of 1 if within the Industrial grouping of Agriculture, Hunting, Forestry and Fishing; Mining and Quarrying; Manufacturing; Electricity, Gas and Water; Construction; Wholesale and Retail Trade, Restaurants and Hotels; Transport Storage and Communication; Financing, Insurance and Real Estate activities, and 0 otherwise.
Year	Dummy Variable takes the value of 1 if data collected between 1991-2015, and 0 otherwise.

Source: Own Compilation.

2.2 Descriptive Statistics

he descriptive statistics for a selected group of variables from Table 1, is generated and presented in Table 2 below. Based on this information, for the period 1991-2015, as expected overeducated workers tend to have on average more years of schooling (14 years), than matched workers. Overeducated workers more inclined to be single, i.e., less married (32%), than their matched counterparts. The mothers of overeducated worker tend to have less schooling (14 years), than the mothers of matched workers. Although overeducated workers appear to have less working experience (13 years), than that of matched workers, their earnings, i.e., hourly (TT\$28.35), weekly (TT\$1,014.69), annual (TT\$52,764.13), is significantly higher than workers who are corrected matched.

Bearing in mind the high average earnings of overeducated workers, Figure 1, reveals that although small, the number of overeducated workers in Trinidad and Tobago have been consistently growing throughout the period 1991-2015. Where the small dip in the number of workers during

2010-2011 may possibly be linked to the 2009-2015 economic recession, after which there is a steady growth in overeducated workers. In comparison, during 1991-2007 the quantity of workers becoming matched with their jobs, appears to be generally increasing, apart from the years 2000, and 2004 where this figure plummeted. The immediate years after seeing significant growth in the number of workers being matched. This may be likely due to the implementation of universal secondary education in 2000, and the implementation of the Dollar-for-Dollar programme in 2004, which could have collectively allowed workers to complete their educational programme to become better matched.

As the economies around the world began to crumble due to the inception of the Great recession in 2008, Trinidad and Tobago soon entered an economic recession in 2009. With this, the number of matched workers consistently decline during 2008-2011. However, even though there was minimal recovery made to number of workers who are matched during 2012-2015, since figure 1, shows a fluctuating trend, it is possible that the labour market may be struggling to place workers in the appropriate job.

Interesting enough, Figure 2, shows that a great majority of overeducated workers for the period 1991-2015, are employed within the Manufacturing, Construction, Wholesale and Retail Trade, Hospitality areas (Restaurants and Hotels), Financing, as well as Community and Personal Services industries. While those workers who are considered matched were most employed in the Financial Services, and Wholesale & Retail Trade industries. While the Agricultural, and Public Services (water, gas, electricity) industries accounted for employing the least amount of matched and overeducated workers.

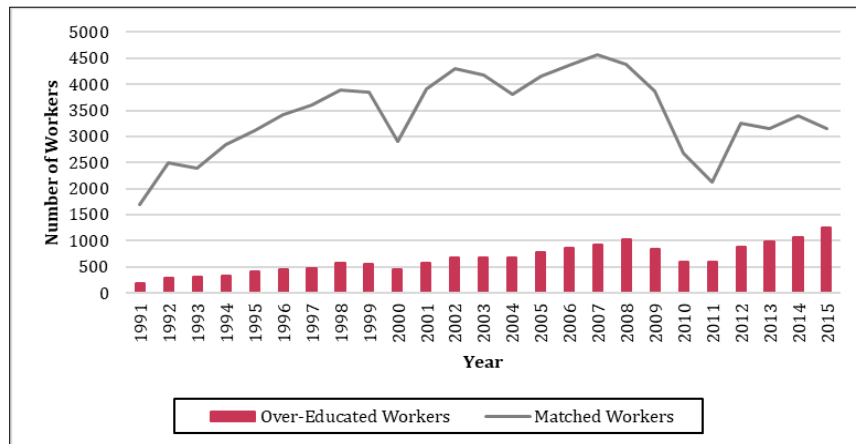
The industrial demand for overeducated workers during 1991-2015, may have also been influenced by their skill set. In that, according to Figure 3, there appears to be a general rise in the growth of overeducated workers considered to be semi-skilled during 1991-2008, followed by a steep drop occurring again at the same time of the global recession, after which in 2011 the growth continued. Further to this, although the number of overeducated workers considered to be highly educated is very small, its growth fluctuated continuously throughout 1991-2015, while those workers believed to be unskilled remained steady during 1991-2015.

Table 2. Selected Summary Statistics for Matched and Overeducated Workers

Selected Variables	Matched Workers		Overeducated Workers	
	Mean	Std. Dev.	Mean	Std. Dev.
Schooling	12.295	1.735	14.121	1.962
Married	0.359	0.480	0.320	0.466
Mother Education	0.158	0.364	0.142	0.349
Potential Working Experience	16.028	10.878	13.099	10.188
Real Hourly Wage	TT\$24.088	20.927	TT\$28.351	20.432
Weekly Income	TT\$861.467	747.080	TT\$1014.695	732.280
Annual Income	TT\$44,796.290	38,848.180	TT\$52,764.130	38,078.560
Observations	85,435		16,442	

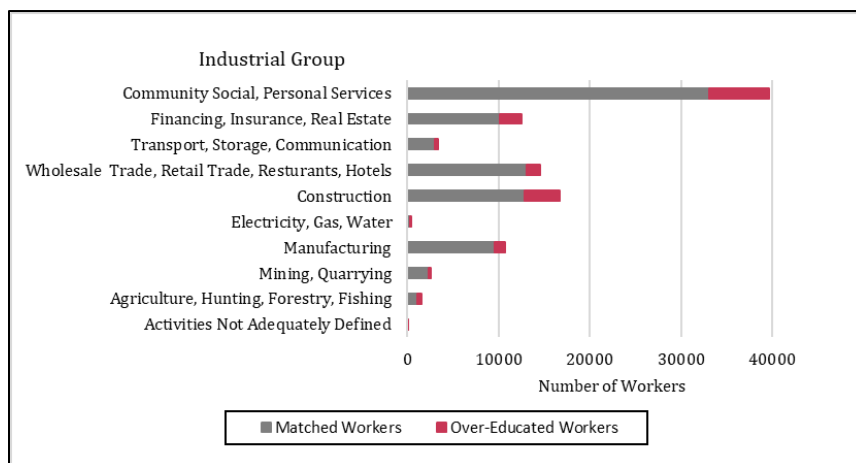
Source: Own Calculations.

Figure 1. Composition of Matched and Overeducated workers



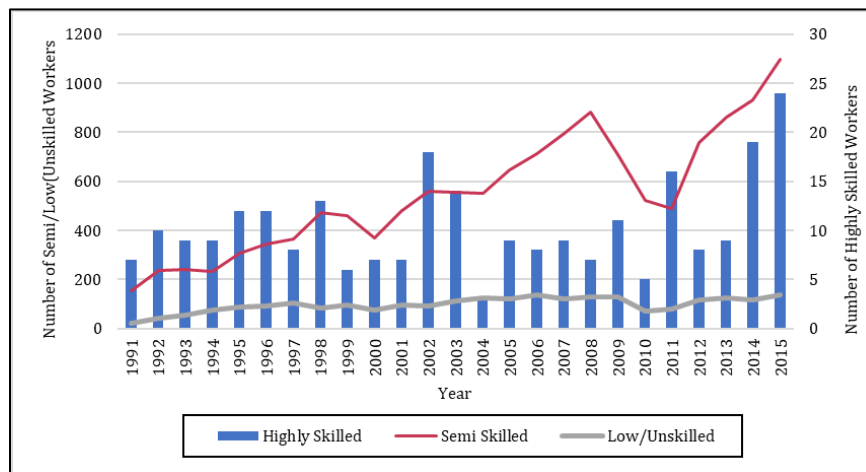
Source: Own Calculations.

Figure 2. Matched and Overeducated workers Industry of Employment



Source: Own Calculations.

Figure 3. Overeducated workers Level of Skill

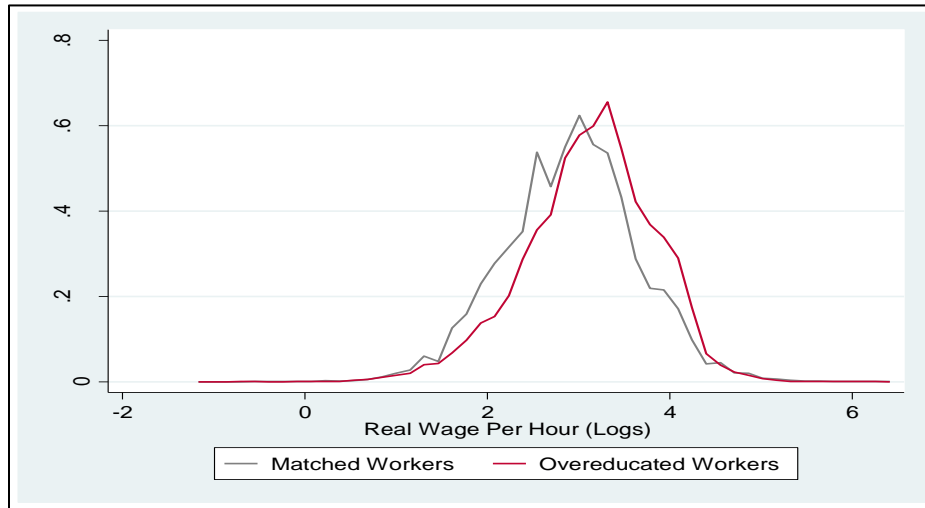


Source: Own Calculations.

2.3 Kolmogorov-Smirnov test

Given the outcome of the descriptive statistics examined above, the Kernel Density Estimates of the real hourly wage rate for both groups of workers, i.e., matched, and overeducated is graphed using the epanechnikov kernel function. The Epanechnikov density estimates for matched and overeducated workers is shown in Figure 4 below, which highlights that the distribution of labour income of overeducated workers is moved more to the right regarding the density of matched workers which is located more to the left. The Kolmogorov-Smirnov (K-S) test is implemented to determine if there are any differences in the distribution of the real wage rate for the two group of workers under consideration. The results summarized in Table 3 below, first seeks to determine if the real wage rate of matched workers is smaller than that of overeducated workers. The largest difference between the distribution function is 0.4, while the p-value, i.e., 0.480 is not significant at all conventional levels of alpha. The second line tests the hypothesis that the real wage rate of matched workers is larger than that of overeducated workers. The largest difference between the distribution of the function in this direction is 0.5625, with an associate p-value of 0.297 is not significant. These results implies that real wage rate of matched and overeducated workers have similar distribution functions.

Figure 4. Kernel Density Estimates of Matched and Overeducated Workers



Source: Own Calculations.

Table 3. Kolmogorov-Smirnov test for comparison between workers who are Matched and Overeducated.

Smaller Group	Difference	Exact
Matched Workers	0.4375 (0.480)	
Over-Educated Workers	-0.5625 (0.297)	
Combined K-S:	0.5625 (0.578)	0.413

Source: Own Calculations.

3 Econometric Methodology

3.1 Quantile Regression

As a starting point, the econometric methodology used to examine the returns of overeducated workers will be to first estimate an Ordinary Least Squares (OLS) and Quantile Regression (QR) version of the Mincerian earnings function. Adapted from Mincer (1974), this equation is simply specified as

$$\ln w_i = \beta_0 + \beta_1^O E_i^O + \beta_2 X_i + e_i \quad (1)$$

For this study, the QR allows for the estimation of the entire wage distribution from the 10th to 90th decile, because the returns of overeducated workers may vary along the wage distribution depending on their demographic, educational and occupational characteristics. The use of the QR then widens the empirical literature to which the technique is commonly applied. The QR version of the Mincerian earnings equation as specified by Koenker and Hallock (2001) is specified as

$$\ln w_i = X_i \beta_\tau + e_{\tau i}, \tau(\ln w_i | X_i) = X_i \beta_\tau \quad (2)$$

where for equations (1) and (2) above, the i^{th} worker, $\ln w$ is the natural logarithm of the real hourly wage, β_0 the returns associated with having no working experience or education, β_1^0 is the rate of return of the overeducated worker, E_i^0 refers to if the worker is overeducated, β_2 is the returns associated with the control variables, X_i is a vector of control variables specified in Table 1 above, and e_i is the error term, β_τ the unknown vector of parameters (constant), τ the sample quantile, and $\tau(\ln w_i | X_i)$ the conditional quantile (τ) of the i th overeducated workers' hourly wage rate ($\ln w_i | X_i$) given the vectors of independent variables.

3.2 Unconditional Quantile Regression

To evaluate the role in which overeducation plays in the definition of the wage gap of overeducated workers, the Recentered Influence Function (RIF) regression technique developed by Firpo, Fortin and Lemieux (2009) will be implemented. These Influence Functions (IF), first introduced by Hampel (1974), was chosen as the primary method for this article because it is used to capture small change in the sample data, that distributional statistics such as the mean and quantile regression are sensitivity to, while the RIF estimates captures the changes in the independent variables, on the unconditional distribution of the dependent variables.

The resulting estimate of the Mincerian wage equation, then harnesses the partial effect of a small location shifts across the wage distribution, i.e., throughout the 10th to the 90th deciles. This allows one to compare the variation of workers' wages at different quantiles across the wage distribution, without imposing a path dependence in the estimation of the gap at each quantile as mentioned in the work of Fortin and Lemieux (2011); Gaeta, Lavadera and Pastore (2018).

To better understand what IF functions are, consider the cumulative distribution function F , of the income (Y , dependent variables) of the i th overeducated worker. The function, $v(F_Y(y))$ uses the information from vector of independent variables X , i.e., the variables highlighted in Table 1, to estimate the distributional statistic, i.e., either at the mean, or at specific quantiles. To examine the impact that a change in this distribution may have on the income of overeducated workers using these distributional statistics, the indices from F is traded, with an alternative distribution $S_Y(y)$, written as; $\Delta a = a(S_Y) - a(F_Y)$. The change which occurs because of the inclusion of one additional overeducated worker, i.e., the outlier, now influences the position of all overeducated workers along the distribution, thus tainting the sample (Rios-Avila 2019).

The magnitude of the change depends on the change from $F_Y \rightarrow S_Y$. By standardizing this change in regards to a measure which it quantifies, i.e., $\Delta^s a = \frac{\Delta a}{\Delta(S_Y - F_Y)} = \frac{a(S_Y) - a(F_Y)}{\Delta(S_Y - F_Y)}$, the Gateaux Derivative as the derivative of a at $F_Y \rightarrow S_Y$, when applied shows how, a responds to changes in F , i.e.,

$\Delta^S a$, which can now be examined for small changes in the distribution. This measure known as the “Unconditional Effect” (UE), according to Choe and Van Kerm (2018), and is often expressed as,

$$UE(a(F), i) = \nabla a_{S_Y \rightarrow Y_Y} \quad (3)$$

Where the size of UE is dependent on the difference in the conditional distribution of overeducated workers. According to Firpo, Fortin and Lemieux (2009), S_Y this is written as, $S_Y(y) \equiv \int F_{(Y|X)}(y|X=x) \cdot dS_X(x)$. The UE allows for Influence Function (IF) of small shifts in the composition of overeducated women i.e., t , adapted from Firpo, Fortin and Lemieux (2009). This is specified as,

$$IF(y; a, F_Y) = \lim_{t \downarrow 0} \frac{a(F_Y, t, S_Y) - a(F_Y)}{t} = \int IF(y; a, F_Y) \cdot d(S_Y - F_Y)y \quad (4)$$

Instead of using IF, rec centred statistics, such as RIF can be used. This is specified as,

$$RIF(y; a, F_Y) = a(F_Y + IF(y; a, F_Y)) \quad (5)$$

Its estimates the Unconditional Partial Effects (UPE), of changes in the income distribution of overeducated workers on the distributional features of a (Firpo, Fortin and Lemieux 2009). The UPE adapted from Collary (1) of Firpo, Fortin and Lemieux (2009), when adjusted to consider policy effects, i.e., resulting from a change in the vector of covariates P , of overeducated workers, can be specified as

$$UPE(a, (F) i) = (\int E[IF(Y; a, F)|X = i | P = p] - E[IF(Y; a, F)|X = 1 | P = p]) \cdot f_{p(p)dp} t \quad (6)$$

Bearing in mind the thoughts of Firpo, Fortin and Lemieux (2009) when adapted for this study seeks to estimate the changes in the composition of overeducated workers, on their real hourly wage rate, using the mean and nine deciles. For this study, three vectors of covariates will be considered. In the first vector of covariates (UE), only biographical information of overeducated workers is used and includes information on their marital status, age group, and ethnicity. In the second vector of covariates (UPE1), the various types of variables reflecting the overeducated workers skill and geographic location are included, i.e., specifically the workers potential working experience, skill level, and geographic location. The third and final vector of covariates (UPE2 and UPE3) used as a check for robustness now integrates the overeducated workers occupational and industrial employment groupings, as well as their level of training.

4 Results & Discussion

4.1 The Returns to Overeducation

Table 4 below presents the estimates of overeducated workers for the period 1991-2015, under the assumption that the variable representing the persons who are overeducated is uncorrelated with the error terms specified in equations (1) and (2) above. It is acknowledged that

it is possible that by allowing for the presence of endogeneity, these estimates may be biased due to omitted variable bias, as variables such as the workers grades, distance from educational institutions, and the number of siblings in the household, which are not captured by the CSSP dataset, can indeed be correlated with the primary variable under investigation. Thus, for this study, the endogeneity problem will not be addressed, as the dataset does not contain sufficient information for a reliable and believable instrument to be designed.

Nevertheless, the information summarized in Table 4, shows that the estimates of overeducated workers are all statistically significant at all conventional levels of alpha. For the period 1991-2015, overeducated workers employed on a full-time basis within Trinidad and Tobago's public and private sectors, experienced an average return of 26.7%. A brief look at the control variables for this corresponding model shown in Table A.1. reveals that overeducated workers average return was influenced positively if the overeducated worker is male, married, of an older age group, i.e., either between 36-50, or 51-65, is of a white ethnicity, highly skilled, residing in central regions of Trinidad such as Caroni, while being employed as a Technician & Associate Professional, within either Mining & Quarrying, or Energy industries. Interestingly, these average returns of overeducated workers are impacted negatively if they are of either an Indian, or African decent, residing in rural areas such as the county of St. Patrick, while being employed in craft & related type occupations, and within the agriculture industry.

An examination of the QR estimates, also presented in Table 4, and illustrated by Figure 5, shows an interesting pattern in the returns of overeducated workers, where for the period 1991-2015, their returns first appear to have a bowl like appearance. Second, and specifically the earnings of overeducated workers seem to decline steadily at the lower deciles, i.e., 0.10th- 0.50th, and then improve from the 0.60th decile onwards towards the end of the wage distribution. Third, the estimates reveal that overeducated workers can expect their highest returns at both extremes of the wage distribution (0.10th and 0.90th deciles), and the lowest returns at the midpoint (0.50th decile) of the distribution. Why?

Based on the information provided in Table A.1. the high returns of overeducated workers employed in low-income jobs appears to be driven upward if the worker is male, married, considered to be a young adult (ages 36-50) of a Syrian/Lebanese decent, is highly skilled, residing in central Trinidad, employed within the Defense Force, or as a Technician/Associate Professional, within the Mining/Quarrying & Energy industries.

A similar group of variables was found to be driving the returns of overeducated workers employed in high income jobs. There was however a small difference in that the divers, as the returns

of overeducated high-income earners are propelled more if workers are of a white ethnic group and residing in the county of Victoria in Southern Trinidad.

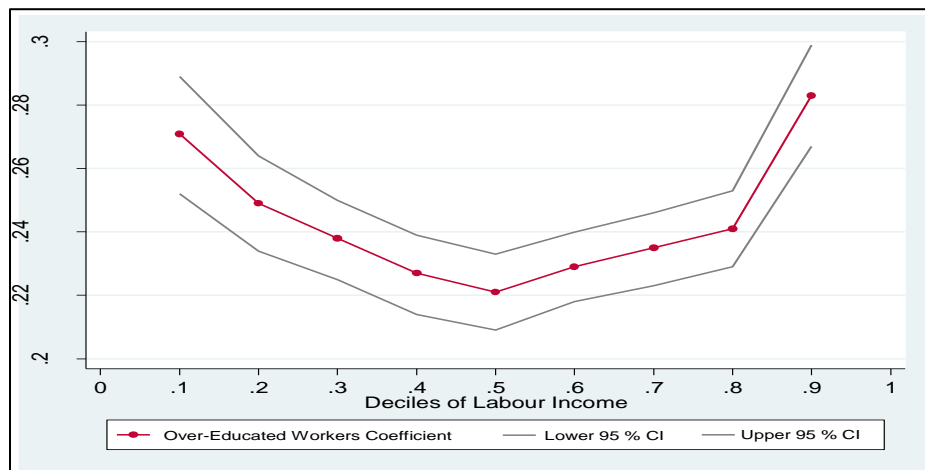
In the case of overeducated middle-income workers, their earnings happen to be influenced by the same variables as low and high-income workers, with the ages of more mature workers driving the wage.

Table 4. Summary OLS, and QR estimates of Over-Educated workers (1991-2015)

Variables	OLS	p10	p20	p30	p40	p50	p60	p70	p80	p90
Over-Educated Workers	0.267 ***	0.271 ***	0.249 ***	0.238 ***	0.227 ***	0.221 ***	0.229 ***	0.235 ***	0.241 ***	0.283 ***
	- 0.005	- 0.009	- 0.008	- 0.007	- 0.006	- 0.006	- 0.006	- 0.006	- 0.006	- 0.008

Source: Own Calculations. Note: *** p<0.01, ** p<0.05, * p<0.1.

Figure 5. Wage Returns of Overeducated Workers (1991-2015)



Source: Own Calculations.

4.2 Unconditional Quantile Regression Estimates

4.2.1 The Wage Penalty of Overeducation

Before going into the unconditional quantile regression effects of overeducation itself, first the estimates attained for overeducated workers who possess either secondary, or university level qualifications are considered, as similar studies such as Panna and Fanea-Ivanovici (2019), also generate a wage penalty in relation to the workers level of qualification. The outcome of such estimations for the period 1991-2015, is reflected by Figure 6 below, which also displays the results of the overeducated workers, when all the control variables presented in Table 1 are considered and is further discussed in relative to a few select studies summarized in Table A.2.

Based on this graph, the impact that overeducation has on the wages appears to be a bit irregular throughout the wage distribution for all overeducated workers, and by their specific level

of qualifications. This is supported by the large changes in the wage penalty at the lower deciles, i.e., 0.10th-0.20th, or 0.20th-0.30th, and very minuscule changes when moving between the higher deciles, i.e., 0.50th-0.60th, 0.70th-0.80th of the wage distribution.

For overeducated workers, there seems to be very little heterogeneity in the size of the wage penalty, as for a great majority of the wage distribution, the highest values of the penalty are found at the lowest deciles, and the lowest values of the wage penalty at the higher deciles. This outcome is quite different from other studies such as Gaeta, Lavadera and Pastore (2018), whose sample looked at overeducated PhD. students found great heterogeneity in the size of the wage penalty of overeducation, with the highest values being found at the upper wage deciles.

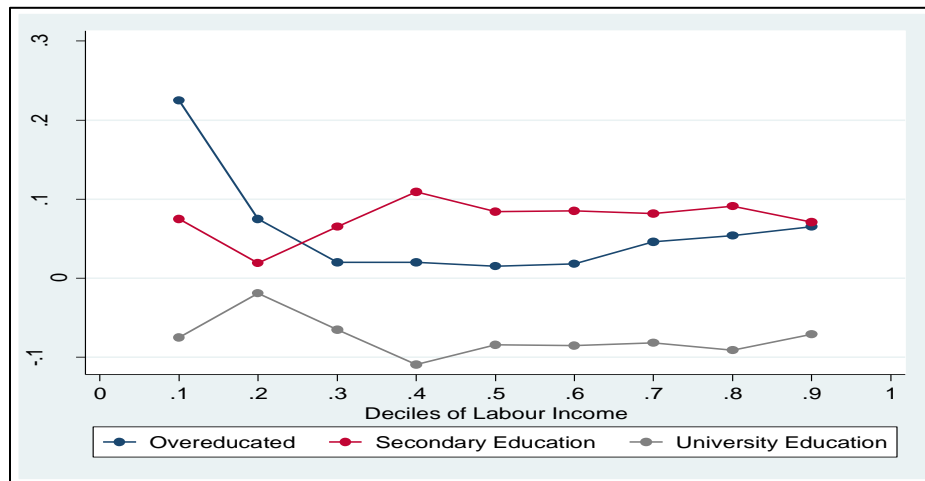
In the case of overeducated secondary and university educated workers, figure 6 reveals that both types of workers have a similar pattern along the wage distribution that mirrors each other. So that while the wage penalty of overeducated secondary workers tends to rise between the second and fourth decile, after which it remains somewhat flat until the eight deciles, for overeducated university workers their wage penalty seems to fall between the second and fourth decile but remains flat after the eight deciles. Johnes (2018) explains that in many cases, the decline in the wage premium of university educated persons, resulting from overeducation can diminish their wage premium to the level of a person with secondary level qualifications.

Although similar in pattern, a comparison of both qualification levels reveals that both overeducated secondary and university educated workers experience smaller wage penalties at the higher deciles (0.60th- 0.90th), but for overeducated university educated workers the wage penalty is larger and lasts longer at the lower deciles (0.20th-0.40th), than secondary educated workers. This poses an interesting point, as in the case of university educated workers in the United States (US), a primary concern amongst most is the burden of student debt when compared to the wage premium of undertaking higher education (Li, Simonson and Malvin, 2014). In the case of Trinidad and Tobago, even though the cost of higher education up to the year 2015, was 100% subsidized by the government through the GATE programme managed by the Funding and Grants Administration Division (FGAD) of the Ministry of Education (MOE), many students may not even encounter large student debt.

As the enrolment in higher educational institutions grow, what may be driving the university wage premium might be changes in the industry demand for highly educated workers (Leuven and Oosterbeek 2011). Presented with a larger stock of highly skilled and capable persons, industries and businesses alike may now make changes to the wage rate, and educational requirements of their job offerings, to take advantage of this group of workers. For this reason, the wage premium is also likely

to be influenced by the competition between secondary and university educated workers for the same jobs, level of cognition/skills, and their ability to undertake the tasks assigned (Daly, Buchel and Duncan 2000; Grunau 2020).

Figure 6: Wage Penalty of Overeducation (1991-2015)



Source: Own Calculations.

4.2.2 Unconditional Quantile Effects of Overeducation

Given the primary econometric methodology put forward by Firpo, Fortin and Lemieux (2009) outlined previous, when modified for this study seeks to examine the changes in the composition of overeducated workers real wage rate, using two distributional statistics, i.e., at the mean, and specific quantiles across the wage distribution. The outcome of such estimations is illustrated by Figures 7 and 8, and the full results presented in Tables A.3. and A.4.

To reiterate as in the methodology, for this study, three vectors of covariates will be considered. In the first vector of covariates (UE), only biographical information of overeducated workers is used and includes information on their gender, marital status, age group, and ethnicity. In the second vector of covariates (UPE1), the various types of variables reflecting the overeducated workers skill and geographic location are included, i.e., specifically the workers potential working experience, skill level, nationality, and geographic location. The third and final vector of covariates (UPE2 and UPE3) used as a robust check now integrates the overeducated workers occupational and industrial employment groupings, as well as the level of training.

The impact that these covariates have on the earnings of overeducated workers at the mean for the period 1991-2015, is shown in Table A.3. In the first instance, this table shows that if we were to replace the earnings of overeducated workers who receive low wages, with that of high wages, then this would lead to a rise, or shift in the returns of overeducated workers of 29.5%. The inclusion

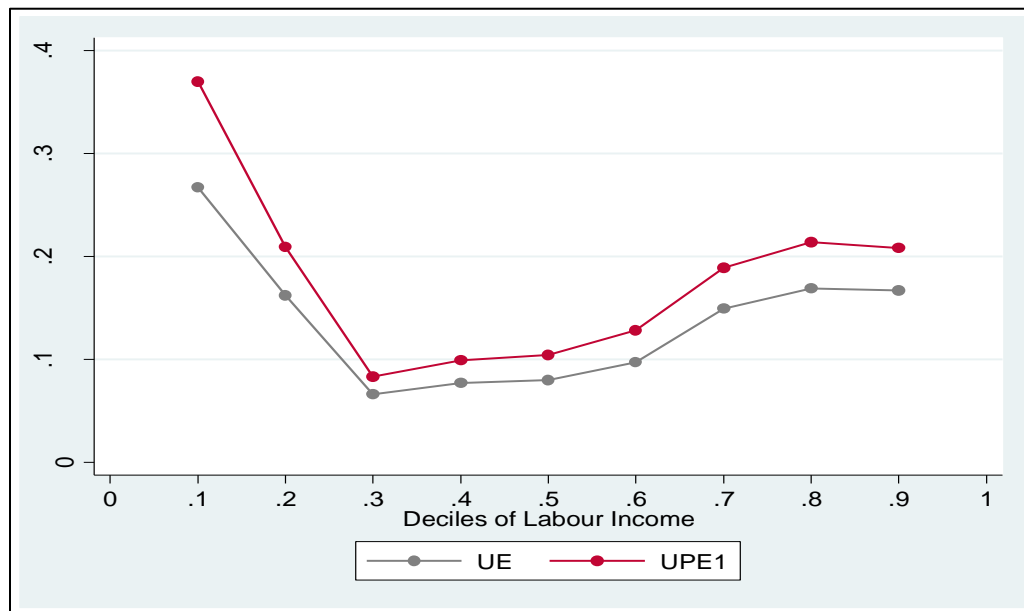
of the different categories of UE covariates distinguished above, lead to a substantial rise in the magnitudes in the first instance (UPE1), which falls thereafter (UPE2 and UPE3). Focusing on the former group, the impact on the earnings of overeducated workers remains positive and significant. This positive shift in the earnings of overeducated workers across the wage distribution, as reflected by Figure 7 below, reveals that with the inclusion of the specific groups of covariates, UE and UPE1, have a comparable trend along the distribution. For this reason, for both groups of covariates, even though overeducated workers benefit from the shift in earnings at UPE1, as reflected by the higher wage penalty at the lower deciles (0.10th-0.30th) and the highest decile (0.80th-0.90th), the shift itself leads to an overall lower wage penalty for most of the distribution (0.30th-0.80th), when compared to the UPE estimates, which have a higher wage penalty throughout. The exception being at the lower deciles.

Examining each of the covariates in detail, beginning with the first UE vector, the average returns of overeducated workers (29.5%), is impacted positively if the worker is male, married, between the ages of 51-65, and is of a white ethnic decent.

With the inclusion of the second set of vectors of covariates, i.e., UPE1, which reflects the workers level of skills, and geographic location, although the average returns of overeducated workers (34.8%) remain positive and significant, the magnitude of overeducated workers returns rises by 5.3%. In this instance, while being married, being in an older age group and a national of Trinidad and Tobago all have a positive impact on the returns of overeducated workers, while their ethnicity, working experience, type of skill group and county of residence all have an unfavorable impact on their returns. Of these latter variables, the average returns of overeducated workers are impacted most negatively if he is semi-skilled for his job and residing in the rural counties of St. Andrew-St. David and Tobago.

Finally, with the inclusion of the final vector of covariates, i.e., UPE2, which incorporates the workers occupation and industry of employment as a robust check, the average returns of overeducated workers although positive and significant, was found to be declining (13.9%), at a magnitude of 20.9%. A similar pattern in the influence of covariates as in UPE1 emerges for UPE2, however the average returns of overeducated workers are influenced most positively if he is employed as a Technician/Associate Professional, and within the Mining/Quarrying, or Energy industries, and most negatively if employed as a craft/related worker, within either the agricultural, or wholesale/retail industries.

Figure 7. Unconditional Effects (UE) of Overeducation (1991-2015)



Source: Own Calculations.

4.2.3 Unconditional Partial Effects (UPE1) of Overeducation

Bearing in mind the outcome of the unconditional partial effects of the vectors of covariates on the average earnings of overeducated workers, it was essential to look further into the impact that a select group of these covariates, i.e., the workers marital status, age group and skills, is likely to have on the earnings of workers across the wage distribution, at the specific deciles outlined in the methodology above. The estimates of these groups of covariates for the period 1991-2015 is illustrated by Figure 8 below, and the full model estimates are presented in Table A.4.

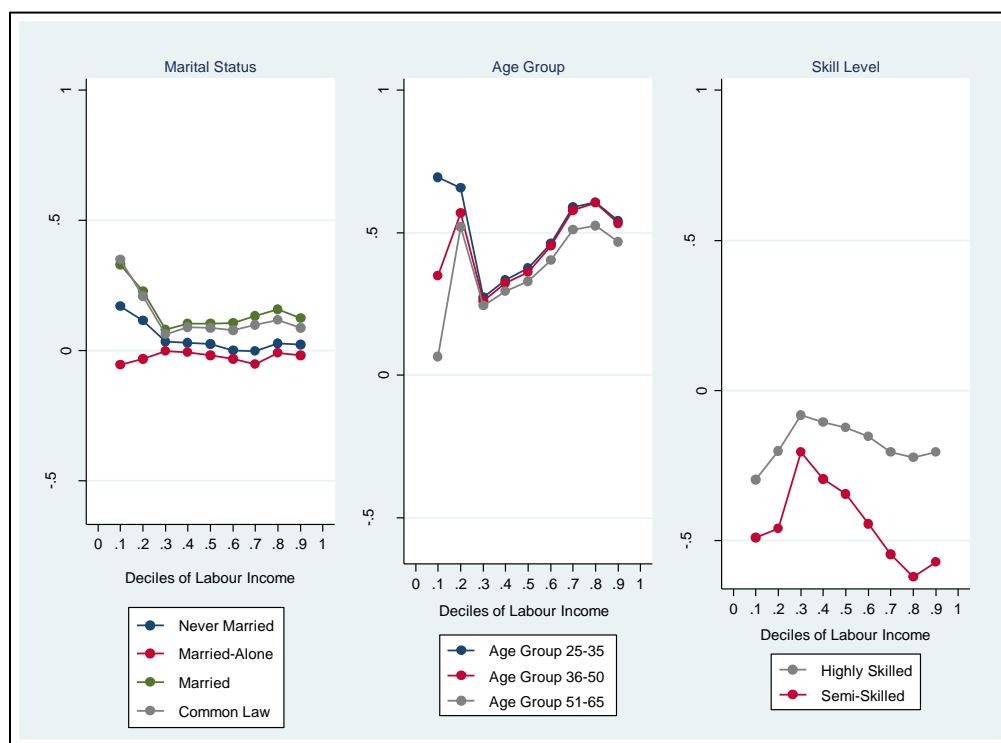
According to panel a, in Figure 8, the shift in the earnings of overeducated workers shown in Figure 7 above, would tend to favor those who were married, and to a lesser extent those who were in common law relationships, as their wage penalties across the distribution was often the lowest amongst the different groups. Whereas the shift would not favor overeducated workers who were either single or married but living alone. This is reflected by their high wage penalties, particularly at the 0.20th-0.30th deciles for single workers, and at the 0.60th-0.70th deciles for workers who are married but living alone.

When considering the age of overeducated workers, the shift, would tend to favor younger persons in the 25-35 age group, and to a lesser extent those in the 36-50 age group. The overall wage penalty for those in the 25-35 age group is the lowest of the all the age groups, with the highest penalty being at the lowest (0.10th-0.30th), and highest (0.80th-0.90th) deciles. The general shift does

not favor older overeducated workers in the 51-65 age group, as they experience a wage penalty throughout the 0.30th-0.80th deciles, with the largest penalty being at the 0.70th-0.80th.

Finally, when considering the different categories of employees' skills/competencies, it was found that the shift in earnings, would tend to favor overeducated workers who are highly skilled at their jobs. Notwithstanding this, even though highly skilled overeducated workers would experience smaller wage penalties throughout the wage distribution in comparison to their semi-skilled colleagues, their highest penalty would be at the middle of the distribution. Similarly, overeducated semi-skilled workers would experience significantly larger wage penalties at this same point.

Figure 8: Unconditional Partial Effects (UPE1) of Overeducation (1991-2015)



Source: Own Calculations.

5 Robust Checks

Given the main findings presented above, three additional checks for robustness were done. The first check used the inclusion of another group of covariates, i.e., UPE2 reflecting industry and occupation characteristics, as well as UPE3, i.e., which reflects the various categories of training, as mentioned earlier in the discussion. As shown by Figure 9 below, with the inclusion of separate groups of covariates, i.e., UPE2 and UPE3, in both cases led to a significant drop in the average returns of overeducated workers, although the impact remains positive and significant for much of the wage distribution. This negative shift in the earnings of overeducated workers, shows a similar outcome

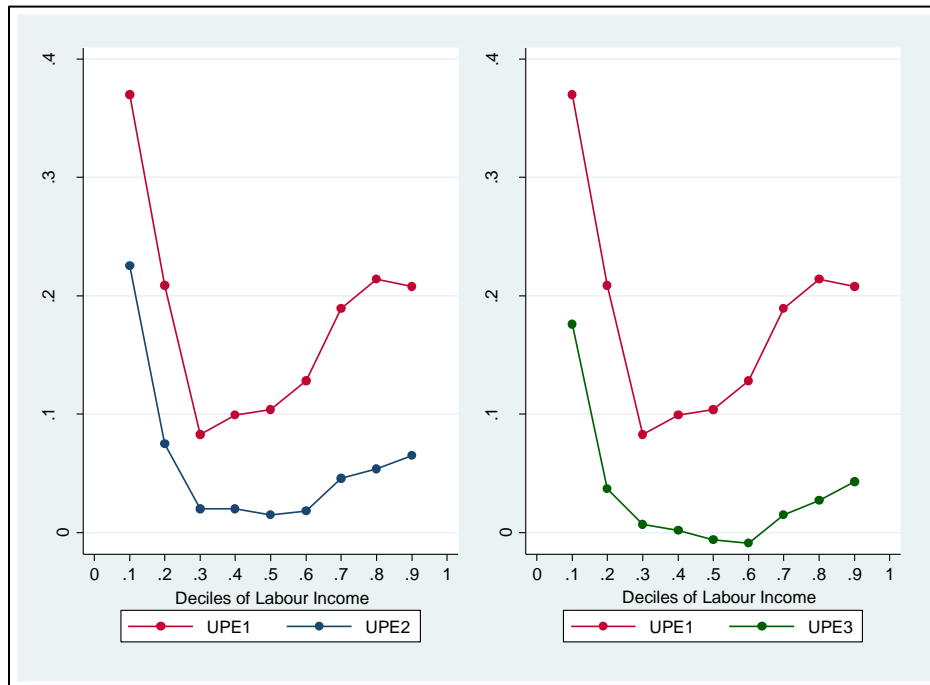
as Figure 7, in terms of the wage penalty i.e., a larger wage penalty at the lower/higher deciles, and a smaller penalty for the remaining of the distribution.

The estimates for these group of covariates, are presented in Table A.6-A.7, and illustrated by Figure 10 below, has generally the same findings as that of figure 8. The impact of this negative shift on the earnings of overeducated workers, does appear to be a bit more prominent for all variables under consideration in Figure 10. The only noticeable difference, is that the negative shift in earnings although still favoring highly skilled workers, would cause these workers to experience a larger pay penalty at the lower end of the wage distribution, when employment characteristics (UPE2) are considered, but when the training characteristics (UPE3) are considered this penalty reduces significantly.

The second check included the use of different income inequality measures, such as the Gini Coefficient and the Atkinson Index. Popularized by many authors such as Choe and Van Kerm (2014) and Firpo, Fortin and Lemieux (2018), the RIF-Gini distributional statistics can be used to investigate the changes income inequality. The RIF regression coefficients for the Gini reported in Table A.5, reveals that the occupation and industry of employment of overeducated workers have a negative effect on the measure, even though the magnitude appears to have improved slightly, while that of the Atkinson index remains the same throughout.

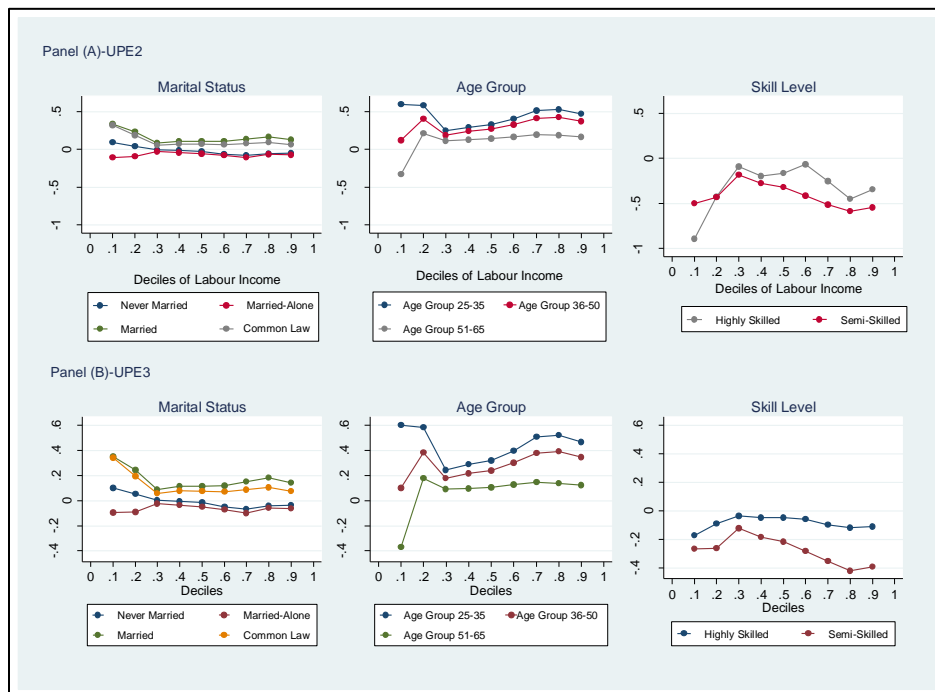
The third check included the use of the Inverse Probability Weighting (IPW) estimator designed based on the strategy designed by Firpo and Pinto (2016). While adjusting for covariates, within this strategy a probit model is specified, and an average treatment effect is included. The results of this estimation presented in Table A.8., shows that average returns of overeducated workers for the period 1991-2015, is around 26.5% at the mean, which unlike the results in Table A.3., causes a negative shift. A closer examination of these estimates across the distribution, reveals that although the coefficient is larger for the IPW estimator, the general findings is like that of Figure 7, where there is a positive shift in the earnings of overeducated workers across the distribution, with similar wage penalties. For these reasons, the findings in sections 5.2.2 and 5.2.3 appears to hold.

Figure 9. Unconditional Partial Effects (UPE2 & UPE3) of Overeducation (1991-2015)



Source: Own Calculations.

Figure 10: Unconditional Partial Effects (UPE2 & UPE3) of Overeducation (1991-2015)



Source: Own Calculations.

6 Conclusion

Education as highlighted in the literature and indeed the performance of the labour market, plays a crucial role in the earnings capacity of the worker. For this reason, many potential workers such as newly graduated high school and college students, and current workers tend to invest in acquiring more educational qualifications to enhance their skills and abilities, while ministerial bodies tend to invest towards providing greater opportunities for education and training.

Although the investment into higher education is not a bad one, there are consequences to be paid, often at the detriment of workers, if the labour market is not adequately prepared to absorb highly educated and skilled personnel. In that, workers whose level of education is more than what is required for their current job, may be believed to be overeducated. Trinidad and Tobago, like many developed and developing countries around the world is not immune to overeducation phenomenon, which has been on the rise during the period 1991-2015.

The consequence of such an education mismatch, revealed that many overeducated workers are employed in the Manufacturing, Construction, Wholesale and Retail Trade, Hospitality areas (Restaurants and Hotels), Financing, as well as Community and Personal Services industries. This is further compounded by the fact that during this timeframe, the earnings of overeducated workers appear to erode at the lower segment of the wage distribution, and towards the end of the wage distribution. These changes seem to be propelled by the overeducated workers' gender, age group, ethnic group and class, geographic location, and industry of employment.

It was also found that if we were to replace the earnings of overeducated workers who receive low wages, with that of high wages, then this would cause a positive shift in the returns of overeducated workers if biographical information, skills, and geographic location is considered. This shift would tend to favor overeducated workers who were married, younger, and highly skilled, as their wage penalties across the distribution was often the lowest amongst the different groups. Whereas the shift would not favor mature, single, and semi-skilled overeducated workers.

Bearing in mind the findings of this paper, it provides an interesting starting point to begin the educational mismatch discussion for Trinidad and Tobago, as further research can be done in areas to explore the gender wage gap of overeducated workers, the schooling of minority groups, as well as the intensity of educational mismatch for the main revenue earners for Trinidad and Tobago and Caribbean islands such as the energy and tourism sector.

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Appendix 1

Table A.1. The Returns to Over-Education (OLS, QR) (1991-2015).

Variables	OLS	p10	p20	p30	p40	p50	p60	p70	p80	p90
Over-Educated Workers	0.267*** (-0.005)	0.271*** (-0.009)	0.249*** (-0.008)	0.238*** (-0.007)	0.227*** (-0.006)	0.221*** (-0.006)	0.229*** (-0.006)	0.235*** (-0.006)	0.241*** (-0.006)	0.283*** (-0.008)
Matched-Workers	0.137*** (-0.004)	0.141*** (-0.007)	0.130*** (-0.005)	0.127*** (-0.005)	0.119*** (-0.005)	0.115*** (-0.004)	0.115*** (-0.004)	0.116*** (-0.004)	0.119*** (-0.004)	0.139*** (-0.005)
Male	0.270*** (-0.003)	0.311*** (-0.005)	0.282*** (-0.004)	0.261*** (-0.004)	0.243*** (-0.004)	0.237*** (-0.004)	0.229*** (-0.003)	0.220*** (-0.004)	0.220*** (-0.004)	0.214*** (-0.005)
Never Married	0.013* (-0.007)	0.015 (-0.011)	0.022* (-0.012)	0.014 (-0.010)	0.008 (-0.009)	0.007 (-0.008)	0.003 (-0.008)	0.010 (-0.007)	0.018** (-0.008)	0.014 (-0.010)
Married-Alone	0.067*** (-0.008)	0.075*** (-0.014)	0.062*** (-0.013)	0.054*** (-0.011)	0.051*** (-0.011)	0.058*** (-0.010)	0.053*** (-0.010)	0.060*** (-0.009)	0.076*** (-0.009)	0.081*** (-0.011)
Married	0.148*** (-0.007)	0.159*** (-0.011)	0.160*** (-0.011)	0.151*** (-0.010)	0.145*** (-0.009)	0.138*** (-0.008)	0.125*** (-0.008)	0.124*** (-0.007)	0.131*** (-0.008)	0.124*** (-0.010)
Common Law	0.038*** (-0.008)	0.049*** (-0.012)	0.046*** (-0.012)	0.036*** (-0.010)	0.031*** (-0.010)	0.028*** (-0.009)	0.025*** (-0.009)	0.029*** (-0.008)	0.030*** (-0.009)	0.029*** (-0.010)
Age Group 25-35	0.206*** (-0.005)	0.206*** (-0.008)	0.196*** (-0.006)	0.195*** (-0.006)	0.193*** (-0.005)	0.185*** (-0.005)	0.185*** (-0.005)	0.181*** (-0.005)	0.178*** (-0.006)	0.174*** (-0.007)
Age Group 36-50	0.309*** (-0.008)	0.289*** (-0.015)	0.295*** (-0.011)	0.304*** (-0.010)	0.298*** (-0.010)	0.283*** (-0.009)	0.276*** (-0.009)	0.266*** (-0.009)	0.257*** (-0.010)	0.253*** (-0.011)
Age Group 51-65	0.315*** (-0.013)	0.271*** (-0.024)	0.293*** (-0.018)	0.312*** (-0.016)	0.306*** (-0.015)	0.287*** (-0.014)	0.282*** (-0.014)	0.272*** (-0.013)	0.252*** (-0.015)	0.248*** (-0.017)
African	- 0.300*** (-0.063)	- -0.255** (-0.108)	- -0.241* (-0.134)	- 0.265*** (-0.080)	- 0.263*** (-0.046)	- 0.247*** (-0.063)	- 0.294*** (-0.088)	- -0.288* (-0.153)	- 0.264*** (-0.042)	- 0.295*** (-0.049)
Indian	- 0.344*** (-0.063)	- 0.296*** (-0.108)	- -0.281** (-0.134)	- 0.308*** (-0.080)	- 0.307*** (-0.046)	- 0.295*** (-0.063)	- 0.335*** (-0.088)	- -0.327** (-0.153)	- 0.307*** (-0.042)	- 0.338*** (-0.049)
Chinese	-0.055 (-0.068)	-0.012 (-0.114)	0.013 (-0.138)	-0.031 (-0.083)	-0.047 (-0.058)	-0.013 (-0.068)	-0.072 (-0.090)	-0.045 (-0.161)	-0.005 (-0.059)	0.003 (-0.060)
Syrian/Lebanese	-0.066 (-0.085)	0.056 (-0.120)	0.039 (-0.188)	-0.004 (-0.086)	0.023 (-0.075)	-0.031 (-0.088)	-0.042 (-0.107)	-0.029 (-0.158)	-0.099** (-0.049)	-0.196* (-0.110)
White	0.012 (-0.066)	-0.024 (-0.111)	-0.001 (-0.139)	0.011 (-0.084)	0.004 (-0.051)	0.049 (-0.067)	0.016 (-0.092)	0.071 (-0.154)	0.115** (-0.047)	0.066 (-0.057)
Mixed	- 0.286*** (-0.063)	- -0.256** (-0.108)	- -0.239* (-0.134)	- 0.262*** (-0.080)	- 0.253*** (-0.046)	- 0.238*** (-0.063)	- 0.280*** (-0.088)	- -0.265* (-0.153)	- 0.239*** (-0.042)	- 0.260*** (-0.049)

Highly Skilled	1.106*** (-0.009)	0.853*** (-0.018)	0.933*** (-0.016)	0.996*** (-0.012)	1.044*** (-0.012)	1.089*** (-0.011)	1.134*** (-0.011)	1.175*** (-0.010)	1.240*** (-0.012)	1.332*** (-0.014)
Semi-Skilled	0.229*** (-0.030)	0.085 (-0.058)	0.126*** (-0.046)	0.158*** (-0.046)	0.237*** (-0.031)	0.244*** (-0.038)	0.237*** (-0.024)	0.286*** (-0.042)	0.322*** (-0.030)	0.405*** (-0.029)
National	0.060*** (-0.008)	0.072*** (-0.017)	0.077*** (-0.014)	0.066*** (-0.010)	0.063*** (-0.009)	0.072*** (-0.009)	0.057*** (-0.010)	0.042*** (-0.009)	0.031*** (-0.009)	0.028** (-0.011)
Caroni	0.044*** (-0.008)	0.060*** (-0.015)	0.051*** (-0.012)	0.042*** (-0.010)	0.043*** (-0.009)	0.043*** (-0.008)	0.045*** (-0.008)	0.041*** (-0.010)	0.037*** (-0.010)	0.028*** (-0.010)
Nariva-Mayaro	0.018** (-0.009)	-0.015 (-0.016)	0.025** (-0.012)	0.034*** (-0.010)	0.029*** (-0.009)	0.030*** (-0.009)	0.033*** (-0.008)	0.026*** (-0.010)	0.018* (-0.010)	0.008 (-0.010)
St. Andrew, St. David, Tobago	0.014* (-0.008)	0.016 (-0.015)	0.014 (-0.011)	0.002 (-0.009)	0.000 (-0.009)	0.007 (-0.008)	0.015* (-0.008)	0.013 (-0.010)	0.012 (-0.010)	0.009 (-0.010)
St. Patrick	0.048*** (-0.008)	0.093*** (-0.015)	0.081*** (-0.012)	0.082*** (-0.010)	0.067*** (-0.009)	0.052*** (-0.009)	0.033*** (-0.009)	0.026*** (-0.010)	-0.013 (-0.010)	-0.006 (-0.010)
Victoria	0.034*** (-0.008)	0.030** (-0.014)	0.025** (-0.011)	0.021** (-0.009)	0.027*** (-0.009)	0.033*** (-0.008)	0.039*** (-0.008)	0.037*** (-0.010)	0.036*** (-0.010)	0.039*** (-0.010)
Defense force	0.525*** (-0.031)	0.861*** (-0.060)	0.709*** (-0.048)	0.624*** (-0.048)	0.500*** (-0.032)	0.449*** (-0.040)	0.433*** (-0.026)	0.360*** (-0.044)	0.317*** (-0.031)	0.255*** (-0.032)
Professionals	0.146*** (-0.010)	0.462*** (-0.019)	0.339*** (-0.017)	0.237*** (-0.012)	0.159*** (-0.012)	0.100*** (-0.012)	0.045*** (-0.011)	0.005 (-0.011)	-0.027** (-0.013)	0.043*** (-0.016)
Technicians & Associate Professionals	0.557*** (-0.030)	0.681*** (-0.059)	0.664*** (-0.046)	0.630*** (-0.047)	0.549*** (-0.031)	0.544*** (-0.039)	0.548*** (-0.024)	0.493*** (-0.043)	0.462*** (-0.030)	0.371*** (-0.029)
Clerks	0.290*** (-0.030)	0.493*** (-0.058)	0.427*** (-0.046)	0.362*** (-0.047)	0.261*** (-0.031)	0.238*** (-0.039)	0.228*** (-0.024)	0.168*** (-0.043)	0.135*** (-0.030)	0.043 (-0.029)
Service workers & Shop sale workers	0.143*** (-0.030)	0.240*** (-0.058)	0.187*** (-0.046)	0.151*** (-0.047)	0.084*** (-0.031)	0.100*** (-0.039)	0.127*** (-0.024)	0.103** (-0.043)	0.102*** (-0.030)	0.056* (-0.029)
Craft & Related workers	-0.047 (-0.030)	0.095 (-0.059)	0.049 (-0.046)	0.008 (-0.047)	-0.077** (-0.031)	-0.078** (-0.039)	0.071*** (-0.024)	-0.108** (-0.043)	0.122*** (-0.030)	0.179*** (-0.029)
Plant & Machine Operators & Assemblers	0.066** (-0.030)	0.215*** (-0.059)	0.141*** (-0.046)	0.099** (-0.047)	0.011 (-0.031)	0.007 (-0.039)	0.023 (-0.024)	-0.013 (-0.043)	-0.024 (-0.031)	-0.029 (-0.030)
Agriculture, Hunting, Forestry, Fishing	0.136*** (-0.047)	0.330*** (-0.100)	0.247*** (-0.063)	0.195*** (-0.075)	0.136*** (-0.043)	0.136*** (-0.045)	0.138*** (-0.030)	-0.089 (-0.072)	-0.059 (-0.039)	0.052** (-0.026)
Mining, Quarrying	0.418*** (-0.046)	0.210** (-0.098)	0.290*** (-0.061)	0.345*** (-0.074)	0.393*** (-0.042)	0.400*** (-0.044)	0.403*** (-0.029)	0.435*** (-0.071)	0.471*** (-0.039)	0.630*** (-0.026)
Manufacturing	0.035	-0.157	-0.091	-0.045	0.003	0.005	0.000	0.053	0.098**	0.264***

	(-0.045)	(-0.097)	(-0.061)	(-0.074)	(-0.042)	(-0.043)	(-0.028)	(-0.071)	(-0.038)	(-0.023)
Electricity, Gas, Water	0.412***	0.136	0.208**	0.336***	0.411***	0.419***	0.407***	0.462***	0.512***	0.672***
	(-0.051)	(-0.101)	(-0.093)	(-0.078)	(-0.050)	(-0.047)	(-0.037)	(-0.075)	(-0.053)	(-0.049)
Construction	0.024	-0.129	-0.056	-0.007	0.031	0.021	-0.003	0.026	0.045	0.162***
	(-0.045)	(-0.098)	(-0.061)	(-0.074)	(-0.041)	(-0.043)	(-0.028)	(-0.071)	(-0.038)	(-0.022)
Wholesale Trade, Retail Trade, Restaurants, Hotels	-	-	-	-	-	-	-	-	-	-
	0.192***	0.306***	0.262***	0.234***	0.209***	0.223***	0.245***	0.203***	0.168***	-0.013
	(-0.045)	(-0.097)	(-0.061)	(-0.074)	(-0.041)	(-0.043)	(-0.028)	(-0.071)	(-0.038)	(-0.023)
Transport, Storage, Communication	0.054	-0.173*	-0.069	-0.005	0.043	0.044	0.039	0.090	0.129***	0.274***
	(-0.046)	(-0.098)	(-0.062)	(-0.074)	(-0.042)	(-0.043)	(-0.029)	(-0.071)	(-0.039)	(-0.025)
Financing, Insurance, Real Estate	0.065	-0.072	-0.013	0.021	0.051	0.043	0.028	0.069	0.105***	0.232***
	(-0.045)	(-0.098)	(-0.061)	(-0.074)	(-0.041)	(-0.043)	(-0.028)	(-0.071)	(-0.038)	(-0.022)
Community Social, Personal Services	0.023	-0.212**	-0.085	-0.008	0.052	0.061	0.043	0.077	0.082**	0.173***
	(-0.045)	(-0.097)	(-0.061)	(-0.074)	(-0.041)	(-0.043)	(-0.027)	(-0.071)	(-0.038)	(-0.022)
Potential Working Experience	0.002***	0.002***	0.002***	0.002***	0.002***	0.003***	0.003***	0.003***	0.004***	0.004***
	(0.000)	(-0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	1.502***	1.018***	1.214***	1.394***	1.493***	1.567***	1.743***	1.822***	1.866***	1.891***
	(-0.079)	(-0.149)	(-0.151)	(-0.108)	(-0.064)	(-0.077)	(-0.093)	(-0.170)	(-0.058)	(-0.057)
Observations	125,087	125,087	125,087	125,087	125,087	125,087	125,087	125,087	125,087	125,087
Adjusted R-Sq.	0.641									

Source: Own Calculations. Note: *** p<0.01, ** p<0.05, * p<0.1. Note: Robust Standard Errors are shown in parentheses.

Table.A.2. Summary Literature (selected papers) highlighting the Wage Premium due to Overeducation.

Author Citation	Country	Dataset	Description
Dockery and Miller (2012)	Australia	Population Census (2006)	There is a positive wage premium associated with each additional year of schooling attained. A year of over-education often leads to positive returns in terms of higher hourly wages between 3-6%. However, this wage premium is only for that point in time.
Pana and Fanea-Ivanovici (2019)	Romania	IBELM-WEF (2006-2017) IBELM-HF (2005-2018)	Being overqualified generates a wage premium which is relative to the job being undertaken. However, a penalty is generated relative to the qualification that the worker has attained.
Li, Simonson and Malvin (2014)	United States	ACS (2011)	One of the many contributors towards the rise in the enrolment for higher education, which is expanding the gap between the lifetime expected earning amongst workers with a high school diploma and a college, is the college wage premium. Bearing in mind that almost 50% of college graduates are in debt due to student loans, most are concerned about the burden of students' loans when compared to the wage premium of a higher education degree.
Leuven and Oosterbeek (2011)	United States	-	The college wage premium is often in response to the rise in the supply of highly educated workers, as businesses now adjust their level of production to take into advantages of the now relatively more

			affordable and ample stock of highly educated workers. Some of whom are overeducated, compete for a limited number of jobs by accepting lower wages than is expected to be demanded.
Daly, Buchel and Duncan (2000)	United States and Germany	–	Persons with overeducation or a surplus of educated often received a wage premium, while those with a shortage (deficit) of education suffered from a wage penalty. Thus, implying that the productivity of the job is likely to be influenced by the education level of the worker, who offer his services to the business.
Johnes (2018)	G7 countries apart from Canada	PIAAC (2011-2012)	The instance of persons with higher education, the decline in their wages due to overeducation also reduces their wage premium, often to a level that is like persons with secondary education qualifications.
Grunau (2020)	Germany	NEPS (2012)	There is very little of a worker's wage penalty (wage premium) with over (under) education may be linked to the wider concept of human capital endowment. He finds that overeducation is often associated with a wage penalty, while those who are considered undereducated are linked to a wage premium. As most studies examining the wage impact of educational mismatch may not have considered the cognitive abilities/skills of workers, thus detecting the wage penalty linked to overeducation, and a wage premium with that of undereducation.
Morsy and Mukasa (2012)	Africa	STWT (2012-2015)	Findings show that over-skilling and overeducation is often linked with a wage penalty, while that of undereducation leads to a wage premium. However, those persons considered undereducated appear to suffer from low levels of job satisfaction, while benefiting from the same wage premium.
Nieto (2014)	Spain	PIAAC (2011-2012)	While undereducated persons benefitted from a wage premium, while their overeducated counterparts tend to earn more than workers with the required level of education, overeducated persons still suffered from a wage penalty.
Marchante, Ortega, and Pagan (2005)	Spain	–	Finds that in their investigation of educational mismatch and wages in the hospitality sector, that their estimation led to a positive wage premium being linked to overeducation in the sector. There is again a positive wage premium for overeducated workers in the hospitality sector.
Garcia-Mainar and Montuenga-Gomez (2019)	Spain	SQWLS (2007-2012)	Wage premium is found to be associated with less educated workers, and a wage penalty with overeducated workers.
Walker and Zhu (2008)	United Kingdom	LFS (1994-2006)	Acknowledges that most of the literature finds that there is a rise in the college wage premium.
Yudkevich, Altbach, and De Wit (2020)	–	–	The returns to a doctoral degree vary according to field, from a 20% wage premium in business to engineering. The wage premium for a doctoral degree and the opportunities for employment vary depending on the countries and fields of study. However, the wage premium of a worker with a master's degree is notably higher than a worker with a doctoral degree.

Source: Own Compilation.

Table A.3. The Unconditional Partial Effects (UE, UPE1, UPE2) of Over-Education at the Mean (1991-2015).

Variables	UE	UPE1	UPE2
Over-Educated Workers	0.295*** (-0.006)	0.348*** (-0.005)	0.139*** (-0.004)
Male	0.080*** (-0.004)	0.128*** (-0.004)	0.267*** (-0.003)
Never Married	0.042*** (-0.009)	0.000 (-0.008)	-0.062*** (-0.006)
Married-Alone	-0.074*** (-0.013)	-0.044*** (-0.012)	-0.071*** (-0.009)
Married	0.135*** (-0.008)	0.077*** (-0.007)	0.079*** (-0.006)
Common Law	-0.073*** (-0.01)	-0.038*** (-0.009)	-0.035*** (-0.006)
Age Group 25-35	0.392*** (-0.006)	0.395*** (-0.006)	0.234*** (-0.005)
Age Group 36-50	0.546*** (-0.006)	0.665*** (-0.011)	0.372*** (-0.008)
Age Group 51-65	0.712*** (-0.008)	0.922*** (-0.016)	0.415*** (-0.012)
African	-0.434*** (-0.109)	-0.313*** (-0.079)	-0.310*** (-0.063)
Indian	-0.355*** (-0.109)	-0.335*** (-0.08)	-0.356*** (-0.063)
Chinese	-0.03 (-0.115)	-0.179** (-0.086)	-0.059 (-0.069)
Syrian/Lebanese	0.081 (-0.153)	-0.162 (-0.112)	-0.068 (-0.086)
White	0.159 (-0.113)	-0.049 (-0.083)	0.013 (-0.067)
Mixed	-0.300*** (-0.109)	-0.229*** (-0.08)	-0.296*** (-0.063)

Potential Working Experience	-0.008*** (0.000)	-0.002*** (0.000)
Highly Skilled	-0.754*** (-0.007)	-0.877*** (-0.031)
Semi-Skilled	-1.224*** (-0.008)	-1.094*** (-0.009)
National	0.143*** (-0.011)	0.057*** (-0.008)
Caroni	-0.093*** (-0.012)	0.054*** (-0.008)
Nariva-Mayaro	-0.078*** (-0.012)	0.018** (-0.009)
St. Andrew, St. David, Tobago	-0.239*** (-0.011)	0.026*** (-0.008)
St. Patrick	-0.070*** (-0.012)	-0.038*** (-0.008)
Victoria	-0.093*** (-0.012)	0.046*** (-0.008)
Defense force		0.552*** (-0.031)
Professionals		0.161*** (-0.01)
Technicians & Associate Professionals		0.588*** (-0.03)
Clerks		0.321*** (-0.03)
Service workers & Shop sale workers		0.163*** (-0.03)
Craft & Related workers		-0.028 (-0.03)
Plant & Machine Operators & Assemblers		0.076** (-0.031)

Agriculture, Hunting, Forestry, Fishing			-0.136*** (-0.047)
Mining, Quarrying			0.410*** (-0.046)
Manufacturing			0.026 (-0.046)
Electricity, Gas, Water			0.409*** (-0.052)
Construction			0.019 (-0.046)
Wholesale Trade, Retail Trade, Restaurants, Hotels			-0.201*** (-0.046)
Transport, Storage, Communication			0.045 (-0.046)
Financing, Insurance, Real Estate			0.059 (-0.046)
Community Social, Personal Services			0.022 (-0.045)
Constant	2.733*** (-0.11)	3.491*** (-0.081)	2.790*** (-0.079)
Observations	125087	125087	125087
Adjusted R-sq.	0.137	0.301	0.637

Source: Own Calculations. Note: *** p<0.01, ** p<0.05, * p<0.1. Note: Robust Standard Errors are shown in parentheses.

Table A.4. The Unconditional Partial Effects (UE & UPE1) Overeducation across the wage distribution (1991-2015).

Variables	p10	p20	p30	p40	p50	p60	p70	p80	p90
UE Overeducation	0.267*** (0.061)	0.162*** (0.042)	0.066*** (0.016)	0.077*** (0.02)	0.08*** (0.019)	0.097*** (0.023)	0.149*** (0.026)	0.169*** (0.023)	0.167*** (0.023)
UPE1 Overeducation	0.370*** (-0.073)	0.209*** (-0.048)	0.083*** (-0.017)	0.099*** (-0.02)	0.104*** (-0.022)	0.128*** (-0.024)	0.188*** (-0.027)	0.212*** (-0.027)	0.207*** (-0.023)

Male	-0.035	0.022	0.042***	0.063***	0.093***	0.106***	0.143***	0.166***	0.160***
	(-0.06)	(-0.037)	(-0.014)	(-0.016)	(-0.017)	(-0.019)	(-0.022)	(-0.022)	(-0.019)
Never Married	0.171	0.116	0.034	0.03	0.027	0.0001	-0.002	0.028	0.023
	(-0.122)	(-0.075)	(-0.027)	(-0.03)	(-0.031)	(-0.032)	(-0.039)	(-0.04)	(-0.034)
Married-Alone	-0.055	-0.033	-0.002	-0.007	-0.017	-0.032	-0.053	-0.008	-0.017
	(-0.21)	(-0.127)	(-0.044)	(-0.051)	(-0.054)	(-0.057)	(-0.068)	(-0.066)	(-0.057)
Married	0.331***	0.227***	0.080***	0.104***	0.105***	0.107***	0.134***	0.155***	0.124***
	(-0.116)	(-0.071)	(-0.025)	(-0.028)	(-0.029)	(-0.03)	(-0.036)	(-0.036)	(-0.031)
Common Law	0.349***	0.210***	0.063**	0.089***	0.087***	0.079**	0.100**	0.116***	0.087**
	(-0.125)	(-0.079)	(-0.028)	(-0.032)	(-0.033)	(-0.035)	(-0.041)	(-0.042)	(-0.037)
Age Group 25-35	0.693***	0.656***	0.275***	0.334***	0.375***	0.461***	0.589***	0.596***	0.539***
	(-0.115)	(-0.071)	(-0.026)	(-0.029)	(-0.031)	(-0.034)	(-0.041)	(-0.04)	(-0.035)
Age Group 36-50	0.348**	0.570***	0.260***	0.323***	0.362***	0.454***	0.578***	0.589***	0.530***
	(-0.14)	(-0.094)	(-0.035)	(-0.04)	(-0.043)	(-0.047)	(-0.057)	(-0.055)	(-0.048)
Age Group 51-65	0.065	0.520***	0.245***	0.294***	0.328***	0.402***	0.510***	0.508***	0.464***
	(-0.204)	(-0.138)	(-0.051)	(-0.058)	(-0.062)	(-0.068)	(-0.081)	(-0.08)	(-0.069)
African	-0.301***	-0.251***	-0.110***	-0.141***	-0.142***	-0.161***	-0.193***	-0.218***	-0.213***
	(-0.11)	(-0.071)	(-0.028)	(-0.034)	(-0.036)	(-0.043)	(-0.054)	(-0.057)	(-0.051)
Indian	-0.451***	-0.338***	-0.137***	-0.172***	-0.177***	-0.216***	-0.281***	-0.289***	-0.268***
	(-0.116)	(-0.076)	(-0.029)	(-0.035)	(-0.038)	(-0.045)	(-0.056)	(-0.059)	(-0.053)
Chinese	-0.250**	-0.184***	-0.072***	(-0.089***	-0.085**	-0.093**	-0.111**	-0.125**	-0.120**
	(-0.097)	(-0.064)	(-0.025)	(-0.032)	(-0.035)	(-0.042)	(-0.053)	(-0.056)	(-0.051)
Syrian/Lebanese	-0.165*	-0.136*	-0.054*	-0.067*	-0.064	-0.072	-0.084	-0.094	-0.091
	(-0.098)	(-0.07)	(-0.029)	(-0.037)	(-0.042)	(-0.052)	(-0.065)	(-0.068)	(-0.062)
White	-0.185***	-0.147***	-0.057***	-0.074***	-0.079**	-0.094**	-0.113**	-0.123**	-0.114**
	(-0.07)	(-0.051)	(-0.021)	(-0.027)	(-0.031)	(-0.039)	(-0.049)	(-0.052)	(-0.047)
Mixed	-0.247**	-0.241***	-0.083***	-0.102***	-0.116***	-0.128***	-0.150***	-0.171***	-0.164***
	(-0.113)	(-0.075)	(-0.028)	(-0.035)	(-0.038)	(-0.045)	(-0.056)	(-0.058)	(-0.053)
Potential Working Experience	0.028***	0.008*	0.002	0.002	0.003	0.003*	0.004*	0.006**	0.005***
	(-0.007)	(-0.004)	(-0.002)	(-0.002)	(-0.002)	(-0.002)	(-0.002)	(-0.002)	(-0.002)
Highly Skilled	-0.297***	-0.200***	-0.081***	-0.106***	-0.124***	-0.153***	-0.204***	-0.220***	-0.204***

	(-0.058)	(-0.033)	(-0.012)	(-0.013)	(-0.013)	(-0.014)	(-0.017)	(-0.016)	(-0.014)
Semi-Skilled	-0.490***	-0.459***	-0.204***	-0.294***	-0.344***	-0.443***	-0.546***	-0.613***	-0.568***
	(-0.111)	(-0.069)	(-0.025)	(-0.03)	(-0.031)	(-0.035)	(-0.041)	(-0.041)	(-0.036)
National	0.361	0.258**	0.115**	0.152***	0.142***	0.137**	0.163***	0.184***	0.185***
	(-0.223)	(-0.129)	(-0.046)	(-0.053)	(-0.052)	(-0.054)	(-0.063)	(-0.063)	(-0.056)
Caroni	-0.340*	-0.287***	-0.096**	-0.108**	-0.128***	-0.159***	-0.155**	-0.160**	-0.157***
	(-0.184)	(-0.107)	(-0.04)	(-0.047)	(-0.048)	(-0.052)	(-0.065)	(-0.063)	(-0.054)
Nariva-Mayaro	-0.312*	-0.17	-0.057	-0.044	-0.043	-0.065	-0.064	-0.074	-0.082
	(-0.188)	(-0.108)	(-0.042)	(-0.049)	(-0.049)	(-0.053)	(-0.067)	(-0.065)	(-0.056)
St. Andrew, St. David, Tobago	-0.13	-0.118	-0.025	-0.019	-0.028	-0.065	-0.052	-0.054	-0.067
	(-0.164)	(-0.096)	(-0.037)	(-0.044)	(-0.045)	(-0.048)	(-0.061)	(-0.06)	(-0.051)
St. Patrick	0.031	0.003	0.009	0.002	-0.027	-0.039	-0.011	-0.024	-0.038
	(-0.17)	(-0.099)	(-0.039)	(-0.046)	(-0.047)	(-0.051)	(-0.064)	(-0.063)	(-0.054)
Victoria	-0.09	-0.185*	-0.080**	-0.100**	-0.130***	-0.166***	-0.170***	-0.170***	-0.166***
	(-0.17)	(-0.101)	(-0.039)	(-0.046)	(-0.047)	(-0.051)	(-0.064)	(-0.062)	(-0.053)
Constant	-0.348	0.229	0.730***	0.686***	0.710***	0.730***	0.674***	0.741***	0.828***
	(-0.274)	(-0.166)	(-0.061)	(-0.07)	(-0.072)	(-0.079)	(-0.098)	(-0.099)	(-0.087)
Observations	125247	125247	125247	125247	125247	125247	125247	125247	125247
Adjusted R-Sq.	0.002	0.003	0.004	0.005	0.006	0.008	0.009	0.011	0.011

Source: Own Calculations. Note: *** p<0.01, ** p<0.05, * p<0.1. Note: Robust Standard Errors are shown in parentheses.

Appendix 2

Table A.5 Unconditional Partial Effects on the Mean, Gini, and Atkinson Indices of the Earnings of Overeducated workers (1991-2015).

Variables	Mean Value			Gini Index			Atkinson index (e = 1)		
	UPE	UPE1	UPE2	UE	UPE1	UPE2	UE	UPE1	UPE2
Over-Educated Workers	0.295*** (-0.006)	0.348*** (-0.005)	0.139*** (-0.004)	-0.015*** (-0.001)	-0.014*** (-0.001)	0.001 (-0.001)	-0.006*** (-0.001)	-0.006*** (-0.001)	0.0004 (-0.001)
Male	0.080*** (-0.004)	0.128*** (-0.004)	0.267*** (-0.003)	-0.012*** (-0.001)	-0.013*** (-0.001)	-0.028*** (-0.001)	-0.006*** (0.000)	-0.007*** (0.000)	-0.014*** (-0.001)
Never Married	0.042*** (-0.009)	0.000 (-0.008)	-0.062*** (-0.006)	-0.003** (-0.001)	-0.005*** (-0.001)	0.001 (-0.001)	-0.001 (-0.001)	-0.002** (-0.001)	0.001 (-0.001)
Married-Alone	-0.074*** (-0.013)	-0.044*** (-0.012)	-0.071*** (-0.009)	0.001 (-0.002)	0.001 (-0.002)	0.005** (-0.002)	0.001 (-0.001)	0.001 (-0.001)	0.003* (-0.001)
Married	0.135*** (-0.008)	0.077*** (-0.007)	0.079*** (-0.006)	-0.010*** (-0.001)	-0.009*** (-0.001)	-0.008*** (-0.001)	-0.005*** (-0.001)	-0.005*** (-0.001)	-0.005*** (-0.001)
Common Law	-0.073*** (-0.01)	-0.038*** (-0.009)	-0.035*** (-0.006)	-0.006*** (-0.001)	-0.005*** (-0.001)	-0.004*** (-0.001)	-0.004*** (-0.001)	-0.004*** (-0.001)	-0.003*** (-0.001)
Age Group 25-35	0.392*** (-0.006)	0.395*** (-0.006)	0.234*** (-0.005)	-0.037*** (-0.001)	-0.032*** (-0.001)	-0.027*** (-0.001)	-0.021*** (-0.001)	-0.018*** (-0.001)	-0.016*** (-0.001)
Age Group 36-50	0.546*** (-0.006)	0.665*** (-0.011)	0.372*** (-0.008)	-0.047*** (-0.001)	-0.035*** (-0.002)	-0.022*** (-0.002)	-0.024*** (-0.001)	-0.018*** (-0.001)	-0.012*** (-0.001)
Age Group 51-65	0.712*** (-0.008)	0.922*** (-0.016)	0.415*** (-0.012)	-0.040*** (-0.001)	-0.021*** (-0.003)	0.004 (-0.003)	-0.021*** (-0.001)	-0.011*** (-0.002)	0.000 (-0.002)
African	-0.434*** (-0.109)	-0.313*** (-0.079)	-0.310*** (-0.063)	-0.045*** (-0.017)	-0.021 (-0.015)	-0.015 (-0.017)	-0.015** (-0.007)	-0.005 (-0.006)	-0.002 (-0.007)
Indian	-0.355*** (-0.109)	-0.335*** (-0.08)	-0.356*** (-0.063)	-0.038** (-0.017)	-0.015 (-0.015)	-0.006 (-0.017)	-0.011 (-0.007)	-0.002 (-0.006)	0.003 (-0.007)
Chinese	-0.03 (-0.115)	-0.179** (-0.086)	-0.059 (-0.069)	-0.035** (-0.018)	-0.023 (-0.016)	-0.024 (-0.018)	-0.01 (-0.007)	-0.005 (-0.007)	-0.004 (-0.008)
Syrian/Lebanese	0.081	-0.162	-0.068	-0.02	-0.016	-0.014	-0.006	-0.003	-0.001

	(-0.153)	(-0.112)	(-0.086)	(-0.026)	(-0.024)	(-0.027)	(-0.011)	(-0.01)	(-0.011)
White	0.159	-0.049	0.013	-0.001	0.000	0.001	0.003	0.004	0.005
	(-0.113)	(-0.083)	(-0.067)	(-0.017)	(-0.016)	(-0.018)	(-0.007)	(-0.006)	(-0.008)
Mixed	-0.300***	-0.229***	-0.296***	-0.048***	-0.025*	-0.015	-0.016**	-0.006	-0.001
	(-0.109)	(-0.08)	(-0.063)	(-0.017)	(-0.015)	(-0.017)	(-0.007)	(-0.006)	(-0.007)
Potential Working Experience		-0.008***	-0.002***		-0.001***	-0.001***		-0.000***	-0.001***
		(0.000)	(0.000)		(0.000)	(0.000)		(0.000)	(0.000)
Highly Skilled		-0.754***	-0.877***		-0.043***	-0.032***		-0.017***	-0.011*
		(-0.007)	(-0.031)		(-0.001)	(-0.007)		(-0.001)	(-0.006)
Semi-Skilled		-1.224***	-1.094***		0.004**	0.007***		0.003***	0.005***
		(-0.008)	(-0.009)		(-0.002)	(-0.002)		(-0.001)	(-0.001)
National		0.143***	0.057***		-0.028***	-0.021***		-0.013***	-0.010***
		(-0.011)	(-0.008)		(-0.002)	(-0.002)		(-0.001)	(-0.001)
Caroni		-0.093***	0.054***		0.021***	0.015***		0.010***	0.006***
		(-0.012)	(-0.008)		(-0.002)	(-0.002)		(-0.002)	(-0.002)
Nariva-Mayaro		-0.078***	0.018**		0.007***	0.004**		0.002	0.001
		(-0.012)	(-0.009)		(-0.002)	(-0.002)		(-0.002)	(-0.002)
St. Andrew, St. David, Tobago		-0.239***	0.026***		0.018***	0.006***		0.005***	0.000
		(-0.011)	(-0.008)		(-0.002)	(-0.002)		(-0.002)	(-0.002)
St. Patrick		-0.070***	-0.038***		0.003*	0.003		0.000	0.000
		(-0.012)	(-0.008)		(-0.002)	(-0.002)		(-0.002)	(-0.002)
Victoria		-0.093***	0.046***		0.021***	0.015***		0.009***	0.006***
		(-0.012)	(-0.008)		(-0.002)	(-0.002)		(-0.002)	(-0.002)
Defense force			0.552***			-0.022***			-0.013**
			(-0.031)			(-0.007)			(-0.006)
Professionals			0.161***			-0.001			-0.003**
			(-0.01)			(-0.003)			(-0.001)
Technicians & Associate Professionals			0.588***			-0.024***			-0.013**
			(-0.03)			(-0.007)			(-0.006)
Clerks			0.321***			-0.045***			-0.025***
			(-0.03)			(-0.007)			(-0.006)

Service workers & Shop sale workers	0.163***					0.003			-0.001
	(-0.03)					(-0.007)			(-0.006)
Craft & Related workers	-0.028					0.013*			0.007
	(-0.03)					(-0.007)			(-0.006)
Plant & Machine Operators & Assemblers	0.076**					0.012*			0.004
	(-0.031)					(-0.007)			(-0.006)
Agriculture, Hunting, Forestry, Fishing	-0.136***					0.027**			0.017***
	(-0.047)					(-0.013)			(-0.006)
Mining, Quarrying	0.410***					0.02			0.010*
	(-0.046)					(-0.012)			(-0.005)
Manufacturing	0.026					0.012			0.006
	(-0.046)					(-0.012)			(-0.005)
Electricity, Gas, Water	0.409***					0.024*			0.014**
	(-0.052)					(-0.013)			(-0.006)
Construction	0.019					-0.012			-0.007
	(-0.046)					(-0.012)			(-0.005)
Wholesale Trade, Retail Trade, Restaurants, Hotels	-0.201***					0.024**			0.012**
	(-0.046)					(-0.012)			(-0.005)
Transport, Storage, Communication	0.045					0.003			0.004
	(-0.046)					(-0.012)			(-0.005)
Financing, Insurance, Real Estate	0.059					-0.003			0.000
	(-0.046)					(-0.012)			(-0.005)
Community Social, Personal Services	0.022					0.008			0.009*
	(-0.045)					(-0.012)			(-0.005)
Constant	2.733***	3.491***	2.790***	0.232***	0.260***	0.306***	0.075***	0.088***	0.114***
	(-0.11)	(-0.081)	(-0.079)	(-0.017)	(-0.015)	(-0.021)	(-0.007)	(-0.007)	(-0.01)
Observations	125087	125087	125087	125087	125087	125087	125042	125042	125042
Adjusted R-sq.	0.137	0.301	0.637	0.032	0.066	0.165	0.019	0.034	0.095

Source: Own Calculations. Note: *** p<0.01, ** p<0.05, * p<0.1. Note: Robust Standard Errors are shown in parentheses.

Table A.6. The Unconditional Partial Effects (UPE2) Overeducation across the wage distribution (1991-2015).

Variables	p10	p20	p30	p40	p50	p60	p70	p80	p90
UPE2 Overeducation	0.225*** (-0.072)	0.075 (-0.05)	0.02 (-0.018)	0.02 (-0.021)	0.015 (-0.022)	0.018 (-0.025)	0.046* (-0.028)	0.054** (-0.028)	0.065*** (-0.023)
Male	0.140** (-0.07)	0.178*** (-0.043)	0.110*** (-0.016)	0.152*** (-0.018)	0.190*** (-0.019)	0.229*** (-0.022)	0.302*** (-0.025)	0.342*** (-0.026)	0.311*** (-0.022)
Never Married	0.09 (-0.122)	0.038 (-0.075)	-0.001 (-0.027)	-0.013 (-0.03)	-0.024 (-0.031)	-0.061* (-0.033)	-0.080** (-0.039)	-0.056 (-0.04)	-0.053 (-0.034)
Married-Alone	-0.106 (-0.21)	-0.096 (-0.127)	-0.026 (-0.044)	-0.041 (-0.051)	-0.055 (-0.054)	-0.079 (-0.057)	-0.108 (-0.067)	-0.067 (-0.067)	-0.072 (-0.057)
Married	0.337*** (-0.116)	0.233*** (-0.071)	0.083*** (-0.025)	0.107*** (-0.028)	0.105*** (-0.029)	0.109*** (-0.03)	0.140*** (-0.036)	0.169*** (-0.037)	0.131*** (-0.031)
Common Law	0.326*** (-0.125)	0.185** (-0.079)	0.052* (-0.028)	0.073** (-0.032)	0.068** (-0.033)	0.059* (-0.035)	0.076* (-0.041)	0.092** (-0.043)	0.062* (-0.037)
Age Group 25-35	0.596*** (-0.112)	0.585*** (-0.07)	0.246*** (-0.026)	0.295*** (-0.029)	0.327*** (-0.03)	0.402*** (-0.034)	0.513*** (-0.04)	0.529*** (-0.04)	0.472*** (-0.034)
Age Group 36-50	0.123 (-0.145)	0.406*** (-0.096)	0.191*** (-0.036)	0.238*** (-0.04)	0.267*** (-0.043)	0.333*** (-0.048)	0.411*** (-0.057)	0.426*** (-0.056)	0.374*** (-0.048)
Age Group 51-65	-0.331 (-0.22)	0.211 (-0.144)	0.112** (-0.052)	0.127** (-0.059)	0.143** (-0.063)	0.169** (-0.069)	0.195** (-0.082)	0.185** (-0.082)	0.164** (-0.07)
African	-0.424** (-0.165)	-0.314*** (-0.119)	-0.145*** (-0.049)	-0.146** (-0.059)	-0.118* (-0.061)	-0.160* (-0.085)	-0.262** (-0.111)	-0.278** (-0.114)	-0.264*** (-0.101)
Indian	-0.609*** (-0.17)	-0.434*** (-0.122)	-0.192*** (-0.049)	-0.203*** (-0.06)	-0.181*** (-0.062)	-0.251*** (-0.086)	-0.394*** (-0.112)	-0.400*** (-0.115)	-0.363*** (-0.102)
Chinese	-0.259 (-0.158)	-0.185 (-0.118)	-0.084* (-0.049)	-0.072 (-0.06)	-0.036 (-0.063)	-0.088 (-0.087)	-0.149 (-0.114)	-0.15 (-0.117)	-0.132 (-0.104)
Syrian/Lebanese	-0.383** (-0.178)	-0.237* (-0.141)	-0.128** (-0.057)	-0.083 (-0.075)	-0.049 (-0.082)	-0.091 (-0.105)	-0.238* (-0.133)	-0.243* (-0.137)	-0.194 (-0.124)
White	-0.250* (-0.142)	-0.166 (-0.11)	-0.081* (-0.046)	-0.072 (-0.057)	-0.044 (-0.06)	-0.11 (-0.084)	-0.191* (-0.111)	-0.18 (-0.114)	-0.153 (-0.101)

Mixed	-0.449***	-0.374***	-0.152***	-0.152**	-0.145**	-0.192**	-0.301***	-0.321***	-0.292***
	(-0.17)	(-0.122)	(-0.049)	(-0.06)	(-0.062)	(-0.085)	(-0.112)	(-0.115)	(-0.102)
Potential Working Experience	0.034***	0.013***	0.004**	0.005***	0.005***	0.007***	0.009***	0.011***	0.010***
	(-0.008)	(-0.004)	(-0.002)	(-0.002)	(-0.002)	(-0.002)	(-0.002)	(-0.002)	(-0.002)
Highly Skilled	-0.89	-0.426	-0.09	-0.196	-0.164	-0.069	-0.251	-0.45	-0.345
	(-1.016)	(-0.606)	(-0.185)	(-0.219)	(-0.214)	(-0.221)	(-0.295)	(-0.312)	(-0.256)
Semi-Skilled	-0.499***	-0.435***	-0.186***	-0.276***	-0.323***	-0.416***	-0.515***	-0.588***	-0.543***
	(-0.138)	(-0.08)	(-0.027)	(-0.032)	(-0.033)	(-0.037)	(-0.044)	(-0.044)	(-0.038)
National	0.273	0.186	0.084*	0.113**	0.101*	0.087	0.098	0.103*	0.119**
	(-0.222)	(-0.128)	(-0.046)	(-0.053)	(-0.052)	(-0.054)	(-0.062)	(-0.062)	(-0.056)
Caroni	-0.24	-0.195*	-0.064	-0.058	-0.069	-0.083	-0.071	-0.077	-0.077
	(-0.189)	(-0.109)	(-0.041)	(-0.047)	(-0.048)	(-0.052)	(-0.065)	(-0.064)	(-0.053)
Nariva-Mayaro	-0.25	-0.103	-0.038	-0.006	0.005	-0.004	-0.004	-0.02	-0.024
	(-0.192)	(-0.11)	(-0.042)	(-0.049)	(-0.049)	(-0.053)	(-0.066)	(-0.066)	(-0.055)
St. Andrew, St. David, Tobago	0.072	0.061	0.045	0.079*	0.085*	0.075	0.120*	0.132**	0.101**
	(-0.17)	(-0.1)	(-0.038)	(-0.045)	(-0.046)	(-0.049)	(-0.062)	(-0.062)	(-0.051)
St. Patrick	0.036	0.005	0.007	0.003	-0.026	-0.038	-0.014	-0.031	-0.041
	(-0.172)	(-0.101)	(-0.039)	(-0.046)	(-0.047)	(-0.051)	(-0.063)	(-0.063)	(-0.053)
Victoria	0.017	-0.092	-0.046	-0.051	-0.074	-0.094*	-0.087	-0.086	-0.085
	(-0.171)	(-0.101)	(-0.039)	(-0.046)	(-0.047)	(-0.05)	(-0.063)	(-0.062)	(-0.052)
Defense force	1.079	0.638	0.17	0.301	0.278	0.231	0.437	0.634**	0.502*
	(-1.018)	(-0.609)	(-0.186)	(-0.221)	(-0.216)	(-0.222)	(-0.297)	(-0.314)	(-0.257)
Professionals	0.298***	0.224***	0.093***	0.123***	0.135***	0.175***	0.230***	0.241***	0.202***
	(-0.087)	(-0.049)	(-0.018)	(-0.019)	(-0.019)	(-0.021)	(-0.026)	(-0.025)	(-0.022)
Technicians & Associate Professionals	0.934	0.514	0.136	0.265	0.246	0.185	0.385	0.589*	0.454*
	(-1.013)	(-0.605)	(-0.185)	(-0.22)	(-0.214)	(-0.221)	(-0.295)	(-0.313)	(-0.257)
Clerks	1.096	0.661	0.195	0.33	0.301	0.245	0.466	0.679**	0.534**
	(-1.011)	(-0.605)	(-0.185)	(-0.22)	(-0.215)	(-0.221)	(-0.296)	(-0.313)	(-0.257)
Service workers & Shop sale workers	0.737	0.313	0.018	0.118	0.075	-0.039	0.101	0.28	0.175
	(-1.016)	(-0.608)	(-0.186)	(-0.221)	(-0.215)	(-0.222)	(-0.297)	(-0.314)	(-0.258)
Craft & Related workers	0.039	-0.196	-0.14	-0.117	-0.192	-0.395*	-0.358	-0.192	-0.229

	(-1.015)	(-0.607)	(-0.185)	(-0.22)	(-0.215)	(-0.221)	(-0.296)	(-0.313)	(-0.257)
Plant & Machine Operators & Assemblers	0.59	0.147	-0.039	0.017	-0.037	-0.174	-0.057	0.102	0.014
	(-1.014)	(-0.607)	(-0.185)	(-0.22)	(-0.215)	(-0.221)	(-0.296)	(-0.314)	(-0.258)
Agriculture, Hunting, Forestry, Fishing	-0.37	-0.588**	-0.238**	-0.287**	-0.337***	-0.477***	-0.633***	-0.630***	-0.568***
	(-0.384)	(-0.281)	(-0.1)	(-0.113)	(-0.118)	(-0.139)	(-0.167)	(-0.166)	(-0.144)
Mining, Quarrying	0.029	0.043	0.004	0.005	0.009	0.022	0.02	0.033	0.037
	(-0.11)	(-0.091)	(-0.038)	(-0.047)	(-0.05)	(-0.062)	(-0.081)	(-0.084)	(-0.074)
Manufacturing	-0.051	-0.029	-0.009	-0.017	-0.03	-0.015	-0.032	-0.03	-0.01
	(-0.139)	(-0.095)	(-0.038)	(-0.046)	(-0.05)	(-0.062)	(-0.082)	(-0.084)	(-0.074)
Electricity, Gas, Water	-0.085	-0.033	-0.033	-0.029	-0.019	-0.029	-0.075	-0.088	-0.072
	(-0.114)	(-0.083)	(-0.035)	(-0.044)	(-0.049)	(-0.062)	(-0.082)	(-0.085)	(-0.076)
Construction	0.296**	0.263***	0.070*	0.102**	0.113**	0.173***	0.202**	0.214**	0.182**
	(-0.132)	(-0.09)	(-0.037)	(-0.045)	(-0.049)	(-0.061)	(-0.081)	(-0.084)	(-0.074)
Wholesale Trade, Retail Trade, Restaurants, Hotels	-0.436***	-0.243***	-0.082**	-0.104**	-0.121**	-0.132**	-0.204**	-0.213**	-0.201***
	(-0.14)	(-0.09)	(-0.036)	(-0.045)	(-0.049)	(-0.061)	(-0.081)	(-0.084)	(-0.074)
Transport, Storage, Communication	-0.084	-0.083	-0.048	-0.064	-0.076	-0.092	-0.170*	-0.216**	-0.186**
	(-0.134)	(-0.098)	(-0.04)	(-0.049)	(-0.053)	(-0.065)	(-0.087)	(-0.091)	(-0.08)
Financing, Insurance, Real Estate	-0.192*	-0.065	-0.02	-0.035	-0.04	-0.051	-0.084	-0.084	-0.068
	(-0.114)	(-0.078)	(-0.033)	(-0.041)	(-0.045)	(-0.057)	(-0.077)	(-0.08)	(-0.071)
Community Social, Personal Services	-0.435***	-0.350***	-0.159***	-0.220***	-0.257***	-0.324***	-0.428***	-0.443***	-0.387***
	(-0.12)	(-0.083)	(-0.035)	(-0.043)	(-0.047)	(-0.059)	(-0.079)	(-0.082)	(-0.072)
Constant	-2.054***	-0.506*	0.186	0.162	0.219	0.314**	-0.463**	-0.360*	-0.08
	(-0.589)	(-0.306)	(-0.127)	(-0.137)	(-0.136)	(-0.153)	(-0.22)	(-0.218)	(-0.187)
Observations	125087	125087	125087	125087	125087	125087	125087	125087	125087
Adjusted R-sq.	0.005	0.01	0.013	0.017	0.019	0.025	0.03	0.034	0.037

Source: Own Calculations. Note: *** p<0.01, ** p<0.05, * p<0.1. Note: Robust Standard Errors are shown in parentheses.

Table A.7. The Unconditional Partial Effects (UPE3) Overeducation across the wage distribution (1991-2015)

Variables	p10	p20	p30	p40	p50	p60	p70	p80	p90
UPE3 Overeducation	0.176** (-0.073)	0.037 (-0.053)	0.007 (-0.019)	0.002 (-0.022)	-0.006 (-0.024)	-0.009 (-0.027)	0.015 (-0.03)	0.027 (-0.03)	0.043* (-0.025)
Male	0.049 (-0.059)	0.077** (-0.036)	0.067*** (-0.014)	0.097*** (-0.016)	0.131*** (-0.017)	0.154*** (-0.019)	0.207*** (-0.022)	0.239*** (-0.022)	0.222*** (-0.019)
Never Married	0.103 (-0.122)	0.051 (-0.075)	0.006 (-0.026)	-0.004 (-0.03)	-0.014 (-0.031)	-0.05 (-0.032)	-0.066* (-0.039)	-0.04 (-0.04)	-0.038 (-0.034)
Married-Alone	-0.095 (-0.21)	-0.088 (-0.127)	-0.023 (-0.044)	-0.036 (-0.051)	-0.049 (-0.054)	-0.072 (-0.057)	-0.1 (-0.067)	-0.058 (-0.067)	-0.064 (-0.057)
Married	0.353*** (-0.117)	0.246*** (-0.071)	0.089*** (-0.025)	0.114*** (-0.028)	0.113*** (-0.029)	0.119*** (-0.03)	0.153*** (-0.036)	0.183*** (-0.037)	0.144*** (-0.031)
Common Law	0.343*** (-0.125)	0.195** (-0.079)	0.057** (-0.028)	0.079** (-0.032)	0.075** (-0.033)	0.069** (-0.035)	0.088** (-0.041)	0.105** (-0.043)	0.073** (-0.037)
Age Group 25-35	0.600*** (-0.112)	0.583*** (-0.07)	0.243*** (-0.026)	0.290*** (-0.028)	0.321*** (-0.03)	0.396*** (-0.034)	0.507*** (-0.04)	0.523*** (-0.04)	0.467*** (-0.034)
Age Group 36-50	0.104 (-0.142)	0.383*** (-0.093)	0.177*** (-0.035)	0.218*** (-0.04)	0.242*** (-0.043)	0.304*** (-0.047)	0.378*** (-0.056)	0.393*** (-0.056)	0.346*** (-0.048)
Age Group 51-65	-0.369* (-0.216)	0.176 (-0.141)	0.092* (-0.051)	0.099* (-0.059)	0.108* (-0.063)	0.127* (-0.069)	0.147* (-0.082)	0.138* (-0.082)	0.124* (-0.07)
African	-0.542*** (-0.157)	-0.405*** (-0.106)	-0.187*** (-0.044)	-0.205*** (-0.053)	-0.187*** (-0.054)	-0.249*** (-0.072)	-0.371*** (-0.099)	-0.390*** (-0.102)	-0.363*** (-0.089)
Indian	-0.706*** (-0.164)	-0.509*** (-0.11)	-0.222*** (-0.045)	-0.247*** (-0.054)	-0.232*** (-0.055)	-0.318*** (-0.074)	-0.474*** (-0.1)	-0.482*** (-0.103)	-0.436*** (-0.09)
Chinese	-0.292** (-0.147)	-0.182* (-0.104)	-0.077* (-0.044)	-0.064 (-0.053)	-0.026 (-0.056)	-0.075 (-0.074)	-0.131 (-0.102)	-0.128 (-0.105)	-0.113 (-0.092)
Syrian/Lebanese	-0.407** (-0.166)	-0.219* (-0.129)	-0.115** (-0.053)	-0.067 (-0.071)	-0.031 (-0.077)	-0.066 (-0.095)	-0.206* (-0.122)	-0.206 (-0.127)	-0.162 (-0.115)
White	-0.276** (-0.131)	-0.156 (-0.095)	-0.071* (-0.041)	-0.061 (-0.05)	-0.031 (-0.052)	-0.093 (-0.071)	-0.169* (-0.098)	-0.155 (-0.101)	-0.13 (-0.089)

Mixed	-0.531***	-0.432***	-0.177***	-0.189***	-0.188***	-0.247***	-0.368***	-0.389***	-0.352***
	(-0.161)	(-0.109)	(-0.045)	(-0.053)	(-0.055)	(-0.073)	(-0.1)	(-0.103)	(-0.09)
Potential Working Experience	0.035***	0.013***	0.004***	0.005***	0.006***	0.007***	0.010***	0.011***	0.010***
	(-0.007)	(-0.004)	(-0.002)	(-0.002)	(-0.002)	(-0.002)	(-0.002)	(-0.002)	(-0.002)
Highly Skilled	-0.174**	-0.091**	-0.037**	-0.046***	-0.049***	-0.061***	-0.099***	-0.117***	-0.112***
	(-0.07)	(-0.042)	(-0.015)	(-0.016)	(-0.017)	(-0.018)	(-0.021)	(-0.021)	(-0.018)
Semi-Skilled	-0.266**	-0.265***	-0.123***	-0.187***	-0.215***	-0.283***	-0.353***	-0.420***	-0.393***
	(-0.12)	(-0.075)	(-0.027)	(-0.031)	(-0.032)	(-0.035)	(-0.041)	(-0.042)	(-0.036)
National	0.259	0.171	0.076*	0.102*	0.089*	0.07	0.076	0.079	0.097*
	(-0.222)	(-0.128)	(-0.046)	(-0.053)	(-0.052)	(-0.054)	(-0.062)	(-0.063)	(-0.056)
Caroni	-0.302	-0.227**	-0.073*	-0.072	-0.086*	-0.103**	-0.097	-0.106*	-0.101*
	(-0.186)	(-0.107)	(-0.04)	(-0.047)	(-0.048)	(-0.051)	(-0.064)	(-0.064)	(-0.053)
Nariva-Mayaro	-0.314*	-0.139	-0.051	-0.023	-0.016	-0.03	-0.039	-0.058	-0.058
	(-0.189)	(-0.108)	(-0.042)	(-0.049)	(-0.049)	(-0.053)	(-0.066)	(-0.066)	(-0.055)
St. Andrew, St. David, Tobago	0.03	0.053	0.047	0.079*	0.083*	0.074	0.117*	0.128**	0.099*
	(-0.166)	(-0.097)	(-0.038)	(-0.045)	(-0.045)	(-0.049)	(-0.061)	(-0.061)	(-0.051)
St. Patrick	0.003	-0.004	0.004	-0.002	-0.033	-0.045	-0.023	-0.042	-0.051
	(-0.17)	(-0.099)	(-0.039)	(-0.046)	(-0.047)	(-0.051)	(-0.064)	(-0.064)	(-0.053)
Victoria	-0.036	-0.112	-0.052	-0.059	-0.084*	-0.106**	-0.103	-0.103	-0.100*
	(-0.171)	(-0.1)	(-0.039)	(-0.046)	(-0.046)	(-0.05)	(-0.063)	(-0.063)	(-0.052)
Junior Secondary	1.785***	-0.834	-0.467	-0.435	-0.408	-0.377	-0.37	-0.132	-0.039
	(-0.398)	(-1.823)	(-0.762)	(-0.755)	(-0.726)	(-0.719)	(-0.949)	(-0.873)	(-0.709)
Senior Secondary	0.628***	0.534***	0.219***	0.283***	0.295***	-0.594	-0.567	-0.449	-0.305
	(-0.143)	(-0.108)	(-0.044)	(-0.054)	(-0.055)	(-0.936)	(-1.019)	(-0.938)	(-0.76)
Para-Professional	0.312***	0.166***	0.074***	0.105***	0.117***	0.155***	0.206***	0.229***	0.200***
	(-0.086)	(-0.052)	(-0.019)	(-0.021)	(-0.022)	(-0.025)	(-0.029)	(-0.029)	(-0.025)
First Degree	0.469***	0.342***	0.144***	0.198***	0.226***	0.282***	0.371***	0.405***	0.362***
	(-0.067)	(-0.039)	(-0.014)	(-0.016)	(-0.017)	(-0.018)	(-0.022)	(-0.022)	(-0.018)
Graduate Degree	0.430***	0.302***	0.128***	0.172***	0.202***	0.250***	0.316***	0.330***	0.289***
	(-0.075)	(-0.045)	(-0.016)	(-0.018)	(-0.019)	(-0.021)	(-0.025)	(-0.025)	(-0.021)
Constant	-2.408***	-0.686**	0.109	0.053	0.081	0.151	-0.692***	-0.603***	-0.299*

	-0.595	-0.297	-0.125	-0.131	-0.129	-0.138	-0.203	-0.199	-0.168
Observations	125087	125087	125087	125087	125087	125087	125087	125087	125087
Adjusted R-sq.	0.004	0.008	0.012	0.015	0.016	0.021	0.025	0.029	0.032

Source: Own Calculations. Note: *** p<0.01, ** p<0.05, * p<0.1. Note: Robust Standard Errors are shown in parentheses.

Table A.8. The Unconditional Partial Effects (UPE1) of Overeducation (Inverse-Probability Weighting Coefficient Estimates-IPW) (1991-2015).

Variables	Mean	p10	p20	p30	p40	p50	p60	p70	p80	p90
UPE1 Overeducation	0.265*** (-0.013)	0.377*** (-0.055)	0.252*** (-0.035)	0.102** (-0.041)	0.201*** (-0.035)	0.215*** (-0.035)	0.234*** (-0.033)	0.277*** (-0.025)	0.292*** (-0.023)	0.191*** (-0.023)
Male	0.02 (-0.018)	-0.103* (-0.054)	0.011 (-0.038)	0.091* (-0.047)	0.086** (-0.038)	0.133*** (-0.039)	0.138*** (-0.036)	0.121*** (-0.027)	0.131*** (-0.026)	0.154*** (-0.026)
Never Married	0.126 (-0.096)	0.224 (-0.173)	0.142 (-0.087)	0.102 (-0.09)	0.066 (-0.102)	0.119 (-0.102)	0.115 (-0.091)	0.099 (-0.069)	0.07 (-0.061)	0.093 (-0.062)
Married-Alone	0.062 (-0.099)	0.188 (-0.182)	-0.131 (-0.226)	-0.16 (-0.231)	-0.025 (-0.194)	0.048 (-0.183)	-0.016 (-0.171)	-0.031 (-0.133)	-0.044 (-0.115)	-0.048 (-0.116)
Married	0.229** (-0.108)	0.306* (-0.179)	0.190** (-0.087)	0.133 (-0.091)	0.129 (-0.089)	0.141 (-0.09)	0.126 (-0.081)	0.123* (-0.063)	0.100* (-0.055)	0.105* (-0.055)
Common Law	0.045 (-0.099)	0.29 (-0.191)	0.191** (-0.094)	0.170* (-0.095)	0.179* (-0.095)	0.197** (-0.096)	0.203** (-0.087)	0.184*** (-0.068)	0.150** (-0.06)	0.140** (-0.062)
Age Group 25-35	0.442*** (-0.027)	0.643*** (-0.145)	0.540*** (-0.077)	0.648*** (-0.088)	0.353*** (-0.073)	0.401*** (-0.072)	0.427*** (-0.068)	0.485*** (-0.052)	0.505*** (-0.048)	0.501*** (-0.048)
Age Group 36-50	0.814*** (-0.061)	0.579*** (-0.179)	0.511*** (-0.097)	0.722*** (-0.116)	0.421*** (-0.097)	0.488*** (-0.097)	0.497*** (-0.093)	0.534*** (-0.071)	0.553*** (-0.065)	0.564*** (-0.066)
Age Group 51-65	1.046*** (-0.06)	0.538** (-0.225)	0.536*** (-0.136)	0.754*** (-0.165)	0.486*** (-0.151)	0.548*** (-0.148)	0.508*** (-0.141)	0.555*** (-0.106)	0.578*** (-0.097)	0.580*** (-0.098)
African	-0.576*** (-0.201)	-0.122* (-0.068)	-0.154** (-0.069)	-0.159** (-0.08)	-0.113** (-0.053)	-0.118** (-0.057)	-0.09 (-0.059)	-0.092 (-0.057)	-0.103* (-0.059)	-0.110* (-0.062)
Indian	-0.616*** (-0.204)	-0.265*** (-0.082)	-0.185** (-0.073)	-0.227*** (-0.085)	-0.142** (-0.062)	-0.140** (-0.065)	-0.158** (-0.065)	-0.130** (-0.06)	-0.151** (-0.061)	-0.141** (-0.064)
Chinese	-0.416**	-0.141	-0.077	-0.051	-0.067	-0.069	-0.045	-0.011	-0.014	-0.018

	(-0.205)	(-0.092)	(-0.075)	(-0.087)	(-0.059)	(-0.063)	(-0.066)	(-0.064)	(-0.067)	(-0.069)
Syrian/Lebanese	-0.605***	0.007	0.069	0.136	0.081	0.098	0.14	0.167	0.156	0.162
	(-0.227)	(-0.131)	(-0.111)	(-0.135)	(-0.097)	(-0.106)	(-0.11)	(-0.109)	(-0.111)	(-0.114)
White	-0.452*	-0.184*	-0.087	-0.074	-0.068	-0.202	-0.168	-0.103	-0.095	-0.092
	(-0.242)	(-0.095)	(-0.075)	(-0.089)	(-0.057)	(-0.149)	(-0.133)	(-0.098)	(-0.09)	(-0.092)
Mixed	-0.477**	-0.201**	-0.103	-0.044	-0.027	-0.039	-0.038	-0.015	-0.033	-0.052
	(-0.201)	(-0.1)	(-0.076)	(-0.086)	(-0.059)	(-0.062)	(-0.065)	(-0.06)	(-0.062)	(-0.065)
Potential Working Experience	-0.014***	0.008*	0.004	0.003	0.001	0.001	0.004	0.003	0.002	0.003
	(-0.003)	(-0.005)	(-0.003)	(-0.004)	(-0.004)	(-0.004)	(-0.004)	(-0.003)	(-0.003)	(-0.003)
Highly Skilled	-0.396***	-0.112***	-0.076***	-0.105***	-0.063***	-0.078***	-0.102***	-0.092***	-0.099***	-0.099***
	(-0.073)	(-0.031)	(-0.024)	(-0.03)	(-0.021)	(-0.021)	(-0.021)	(-0.017)	(-0.017)	(-0.017)
Semi-Skilled	-0.949***	-0.682***	-0.599***	-0.880***	-0.874***	-1.010***	-1.068***	-0.883***	-0.880***	-0.943***
	(-0.079)	(-0.168)	(-0.099)	(-0.118)	(-0.115)	(-0.117)	(-0.108)	(-0.079)	(-0.072)	(-0.073)
National	0.091**	0.096	0.157*	0.114	0.079	0.051	0.038	0.019	0.043	0.045
	(-0.036)	(-0.097)	(-0.085)	(-0.084)	(-0.056)	(-0.055)	(-0.05)	(-0.041)	(-0.043)	(-0.042)
Caroni	-0.038	-0.212	0.183	0.176	0.168	0.075	0.039	-0.037	-0.076	-0.087
	(-0.027)	(-0.271)	(-0.343)	(-0.34)	(-0.275)	(-0.254)	(-0.222)	(-0.148)	(-0.127)	(-0.126)
Nariva-Mayaro	-0.044	-0.069	0.357	0.338	0.339	0.225	0.148	0.065	-0.002	-0.014
	(-0.027)	(-0.256)	(-0.355)	(-0.353)	(-0.285)	(-0.265)	(-0.232)	(-0.156)	(-0.135)	(-0.134)
St. Andrew, St. David, Tobago	-0.182***	0.07	0.332	0.323	0.241	0.171	0.097	0.011	-0.025	-0.032
	(-0.035)	(-0.24)	(-0.348)	(-0.346)	(-0.281)	(-0.259)	(-0.226)	(-0.151)	(-0.129)	(-0.128)
St. Patrick	-0.036	0.175	0.452	0.451	0.318	0.239	0.199	0.122	0.091	0.086
	(-0.024)	(-0.247)	(-0.354)	(-0.353)	(-0.288)	(-0.265)	(-0.231)	(-0.154)	(-0.132)	(-0.131)
Victoria	-0.023	0.008	0.265	0.154	0.106	0.033	-0.006	-0.054	-0.105	-0.121
	(-0.023)	(-0.256)	(-0.345)	(-0.343)	(-0.282)	(-0.26)	(-0.227)	(-0.152)	(-0.13)	(-0.129)
Constant	3.395***	-0.284	-0.159	0.03	0.432	0.463	0.516**	0.590***	0.676***	0.769***
	(-0.222)	(-0.258)	(-0.354)	(-0.359)	(-0.302)	(-0.284)	(-0.251)	(-0.175)	(-0.156)	(-0.157)
Observations	125087	125087	125087	125087	125087	125087	125087	125087	125087	125087
Adjusted R-Sq.	0.289	0.003	0.005	0.006	0.011	0.014	0.016	0.018	0.019	0.02

Source: Own Calculations. Note: *** p<0.01, ** p<0.05, * p<0.1. Note: Robust Standard Errors are shown in parentheses.