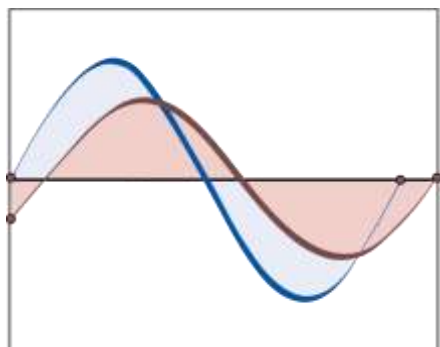


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Understanding Wages in a Small Open Economy: The Case of Trinidad and Tobago

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The Trinidad and Tobago labour market is currently in an advantageous situation as for almost a decade the country's unemployment rate has been in single digits. However while the participation rate has been on a general downward trajectory from 2008, not surprisingly the value of the compensation of employees has been on an upward path. This paper seeks to examine factors which influence the wage received by persons in the country. Using available data from the 2008 Household Budgetary Survey, the empirical investigation suggests that for an individual being male, married, having a secondary and/or tertiary level education are significant positive factors in one's wage earning capacity.

JEL Classification Numbers: E24, J21, J31

Keywords: Wages, Labour Force, Trinidad and Tobago, Household Budgetary Survey.

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Understanding Wages in a Small Open Economy: The Case of Trinidad and Tobago

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1. Introduction

Trinidad and Tobago like many countries is experiencing slow economic growth in the years following the global economic recession. This paper seeks to assess the factors that influence wages in Trinidad and Tobago from both a micro and a macro perspective. The issue of wage costs is important from the perspective that it can account for a significant part of a firm's overall costs, and thus impact the price of the goods and services that a firm sells. This in turn will affect the inflation rate in the economy. From the macroeconomic perspective the traditional economic literature posits wages as being determined by the marginal productivity of labour, economic growth, inflation and the level of unemployment. While at the micro level factors such as the level of education, age, gender tend to be the determining factor in the level of wages that a person receives. This paper begins by providing some descriptive statistics on the Trinidad and Tobago labour market; and a review of wages in the economy. This is followed by an empirical investigation of the determinants of wages for individuals in the Trinidad and Tobago economy using data from the 2008 Household Budgetary Survey. The paper ends with some conclusions and policy recommendations emanating from the results.

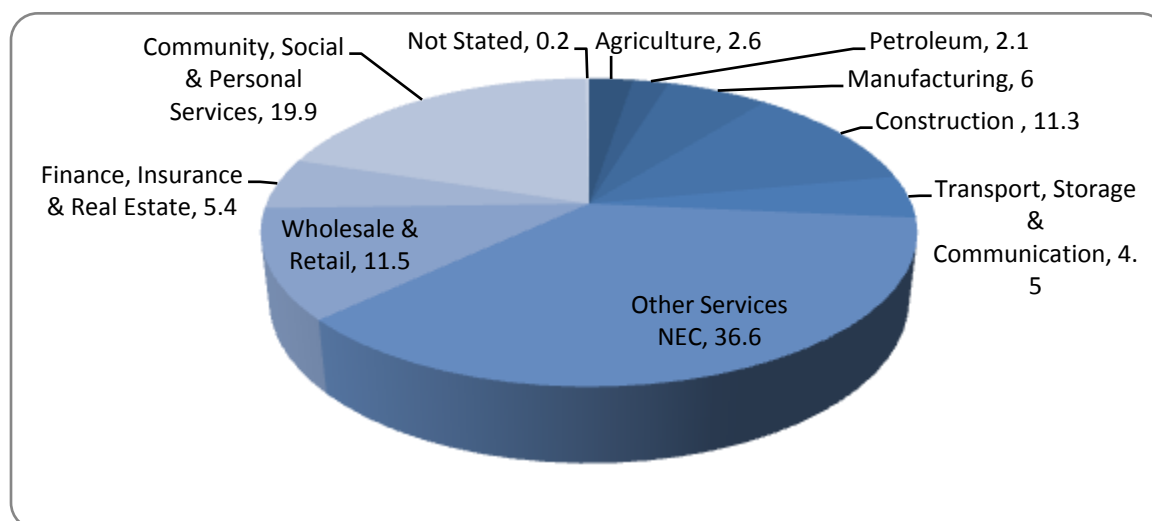
¹ The authors are economists in the Research Department of the Central Bank of Trinidad and Tobago. The views expressed are those of the authors and not necessarily those of the Central Bank.

2. The Trinidad and Tobago Labour Market: Some Stylized Facts

2.1 The Labour Force

Over the past 50 or so odd years there have been significant changes in the Trinidad and Tobago labour market. In the early years agriculture was the main employer of labour, and while the economy mushroomed from an agriculturally based economy to an energy based economy, the capital intensive nature of the energy sector left the government and entrepreneurial (particularly services) sectors to be the main employers in the economy. Indeed an analysis of the sectoral distribution of employment over the period 2004-2011 indicates that the broad category of other services was the main employer (36.6 per cent) followed by community, social and personnel services – which includes the government – (19.9 per cent), the construction sector (11.3 per cent) and wholesale and retail sectors (11.5 per cent)

Chart 1: Average Employment by Industrial Group 2004-2011 (Per cent)

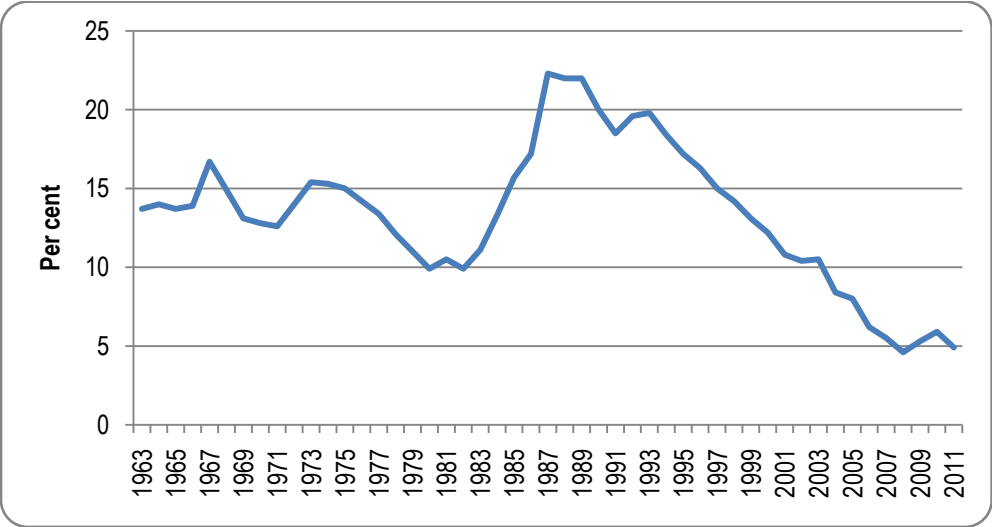


Source: The Central Statistical Office of Trinidad and Tobago (Various Years).

The level of unemployment has fluctuated over the years, with a peak in the unemployment rate in 1987 when the country entered into a prolonged recession and had to approach the IMF for assistance. Downes (1998) notes that four reasons put forward in the literature for the high unemployment rate in Trinidad and Tobago were the relatively high capital intensity of the energy sector; the 'stickiness' of wages at levels higher than labour productivity; the lack of information on vacancies; and the inadequacy of the education and training system. The implementation of the IMF stabilization programmes and the reinvigoration of the economy due to the vibrant energy sector were accompanied by falling unemployment levels. In 2004 the unemployment rate reached single digits. Further analysis of the Trinidad and Tobago situation by Downes (1998) and Craigwell, Mathouraparsad and Maurin (2011) found empirical evidence of unemployment hysteresis. Downes (1998) found that a one per cent change in the unemployment rate in the

previous period can lead to a 0.51 per cent change in the current unemployment rate. In Trinidad and Tobago an examination of the unemployment rate by sex reveals that women fare worse than men in the labour market and by age cohort those between 15-24 years also face higher unemployment rates compared to the rest of the market.

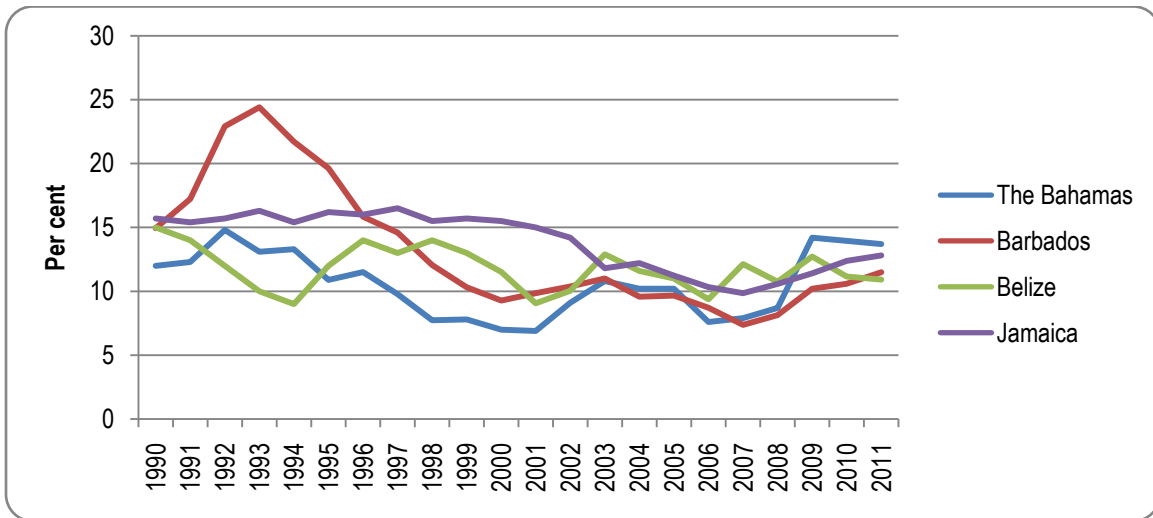
Chart 2: Trinidad and Tobago’s Unemployment Rate 1963-2011



Source: The Central Statistical Office of Trinidad and Tobago (Various Years).

Trinidad and Tobago currently has the lowest unemployment rate among the Caribbean countries, with other countries experiencing double digit unemployment rates. Indeed with an unemployment rate just above 5 per cent, Trinidad and Tobago’s unemployment rate for 2011 is lower than the OECD rate of 8.0 per cent and the EU27 average rate of 10.0 per cent. Rather surprisingly, at least at the aggregated level the global financial crisis did not have much of an impact on the domestic unemployment rate, though the general downward trend was arrested. This may have much to do with exposure of employers to the crisis. In the other regional markets, where the tourism sector is a major employer, the effects of the global financial crisis may have had a more significant impact.

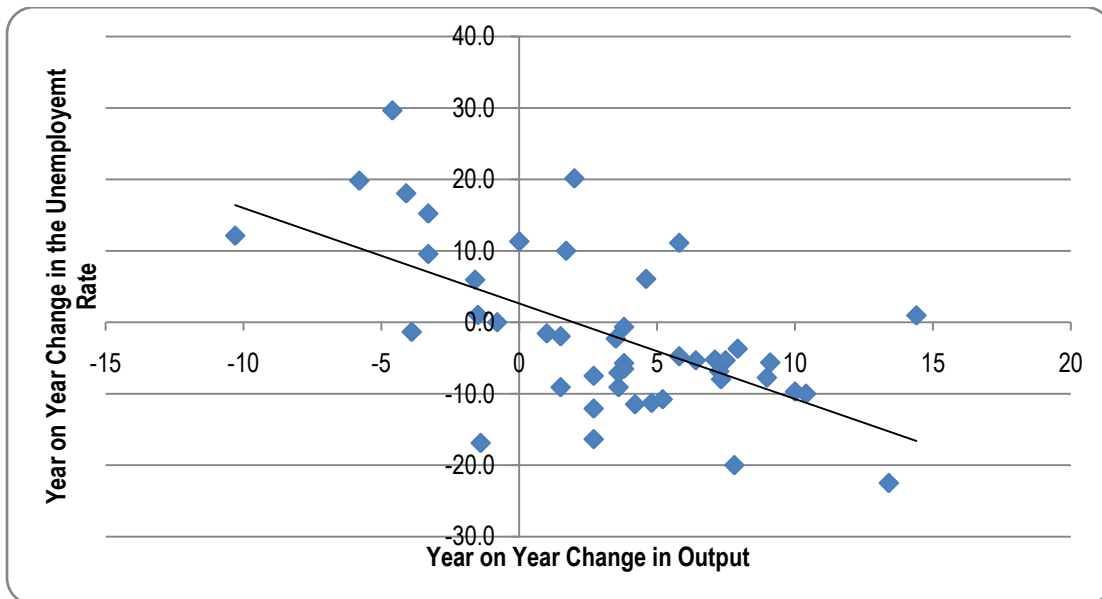
Chart 3: Regional Unemployment Rates 1990-2011



Source: International Monetary Fund, World Economic Outlook Database, April 2012.

The fall in unemployment was accompanied by increased economic activity in the domestic economy; this coincides with the negative relationship between these two variables that is described in Okun's law. Okun's law refers to the relationship between changes in a country's unemployment rate and economic growth rate. Simply put it seeks to give an idea of how much a one per cent growth in the economy will impact the unemployment rate.

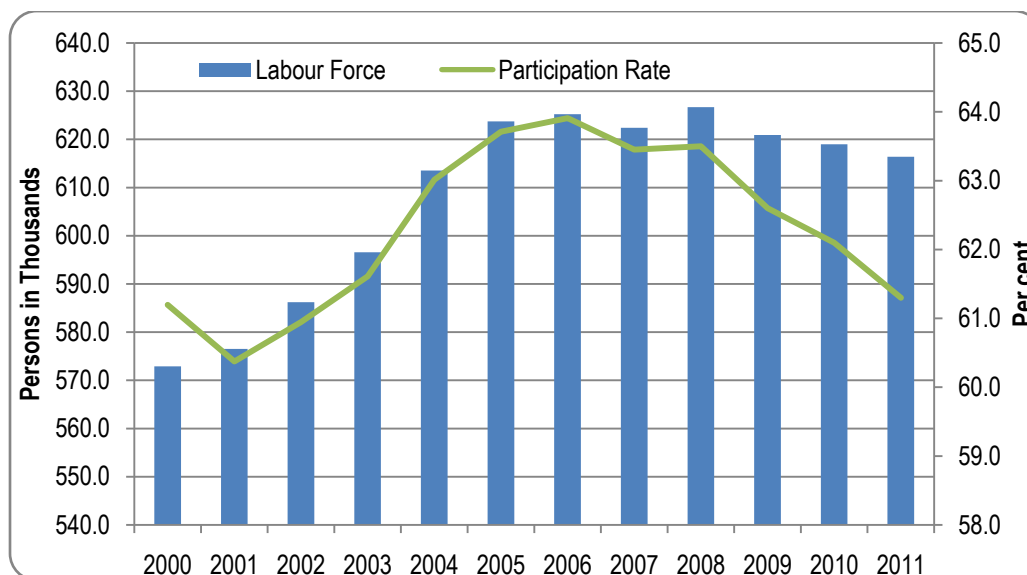
Chart 4: Okun's Law



Source: The Central Statistical Office of Trinidad and Tobago (Various Years).

The differenced version of Okun's law² suggests that for Trinidad and Tobago a one per cent increase in real GDP yields a fall in unemployment of 1.0 to 1.4 per cent. Similar analysis for the two other main economies in the region, Barbados and Jamaica (for the period 1980-2011) finds that in the case of Barbados a one per cent increase in real GDP results in a fall in unemployment of between 1.7 and 2.4 per cent. In the case of Jamaica a one per cent change in real GDP had an insignificant effect on unemployment. Downes (1998) found that in the case of Trinidad and Tobago increased GDP resulted in reduced unemployment rates in both the long and short term.

Chart 5: Labour Force 2000-2011



Source: The Central Statistical Office of Trinidad and Tobago (Various Years).

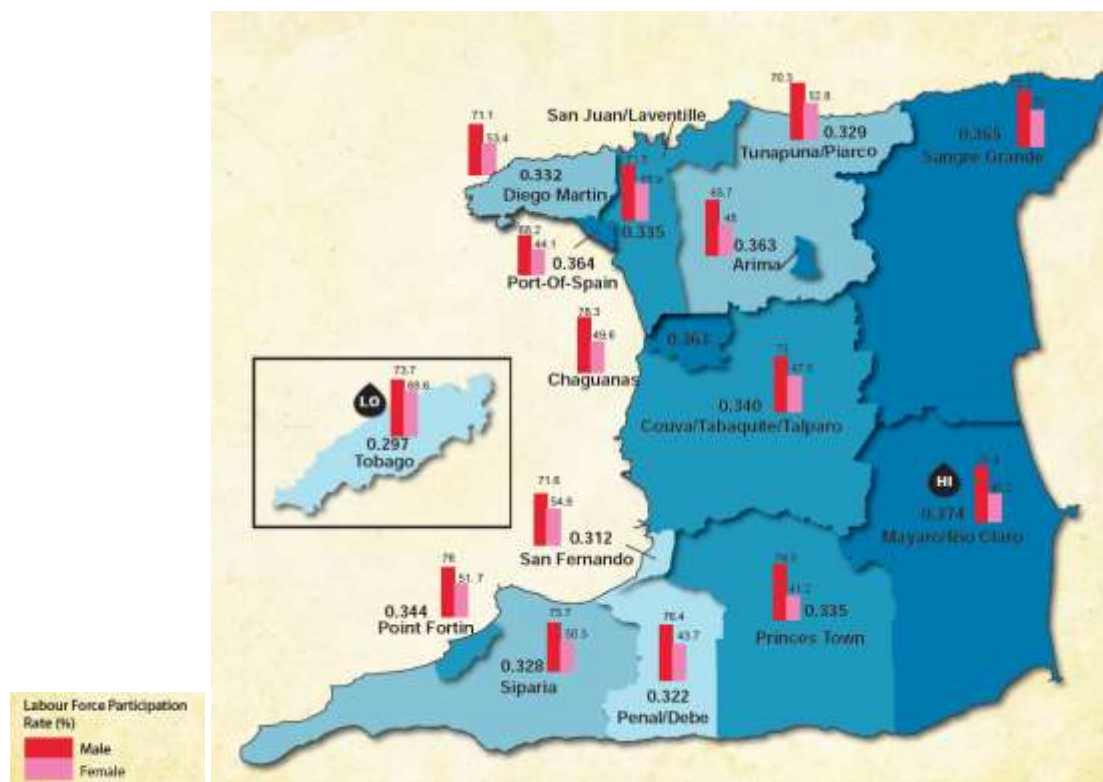
The participation rate (the labour force³ divided by the non-institutional population) has generally remained above 60 per cent over the last decade (See Chart 5). The size of the labour force has increased over the years, between 1995 and 2011 the labour force increased by 88,500 persons to reach 609,500 persons. While the labour force in Trinidad and Tobago is dominated by males with men accounting for some 60 per cent of the labour force, the number of females has been steadily increasing from approximately 220,000 in 2000 to 255,000 in 2011. An examination of information provided in the Trinidad and Tobago Human Development Atlas 2012 shows that within Trinidad and Tobago participation rates vary, in the case of men from 78.3 per cent in Chaguanas to 65.7 per cent in Arima, and for women from 68.6 per cent in Tobago to 41.2 per cent in Princes Town (See Chart 6). Roopnarine and Ramrattan (2012) in exploring the reasons for the lower rate of female participation in Trinidad and Tobago identify factors such

² Change in the unemployment rate = $a+b*(\text{real output growth})$.

³ The non-institutional population consists of those persons who are 15 years old and over and who are not institutionalized. The labour force consists of persons with a job, or those who are unemployed and seeking work. Persons who are not seeking work, for example a discouraged worker or a student, are not considered to be in the labour force.

as the number of children in a household, access to social programmes and chronic illness as being important determinants that negatively affect a woman's decision to join the labour force.

Chart 6: Labour Force Participation Rate (2010) by Administrative Areas



Source: The Central Statistical Office of Trinidad and Tobago (2012).

Note: The shaded blue areas refer to the Gender Inequality Index.

The labour force comprises mainly adults (30 years and over) followed by youths (15-24 years) and young adults (25-29 years). While the number of adults and young adults in the labour market has increased over the past ten years, the number of youths has declined. This characteristic of the labour market may be driven by a number of factors including government policy of human capital development and the resultant institution of policies to encourage persons to further their education. In addition the falling birth rate (according to UNICEF⁴ the crude birth rate⁵ fell from 21 in 1990 to 15 in 2010) and the corresponding demographic shift in the age structure of the population would result in an aging of the population generally and the labour force as well. The effects of a high murder rate of youths and young adults as well as a tendency for young persons to migrate to other countries may also be partly responsible for the aging of the labour force.

⁴ http://www.unicef.org/infobycountry/trinidad_tobago_statistics.html.

⁵ Annual number of births per 1,000 population.

2.2 Wages in Trinidad and Tobago

The Trinidad and Tobago labour market is governed by a variety of laws including the Minimum Wage Act, the Trade Union Act, the OSHA Act 2004 and the Maternity Act⁶. These laws seek to guide the conditions of work, the hiring and firing practices, as well as ensure that employees receive a minimum wage. The minimum wage was introduced in Trinidad and Tobago in 1998, and since then has been revised twice. On January 1 2011 the implementation of the Minimum Wage Act 2010 resulted in the minimum wage being raised to TT\$12.50 per hour from TT\$9.00 per hour, and up from the initial minimum wage of TT\$7.00 per hour.

Table 1: Minimum Wages Across CARICOM

Country	Minimum Wage	As of
Antigua and Barbuda	EC\$7.50 per hour (US\$2.78)	2008
Bahamas	BSD\$4 per hour - private sector(US\$4.00)	2002
Barbados	BDS\$6.25 per hour - Shop assistants (US\$3.13)	2012
Belize	BZ\$3.10 per hour for all workers except for manual/agricultural workers (US\$1.58)	2010
Dominica	EC\$4.50 per hour - daily paid (factory and tourism) workers (US\$1.67) EC\$5.50 per hour - cashiers/receptionists/sales persons (US\$2.04) EC\$4.50 per hour - shop assistants (US\$1.67) EC\$4.00 per hour - agricultural and other unskilled workers (US\$1.48) EC\$3.60 per hour - trainees and youth (US\$1.33)	2008
Grenada	EC\$6.00 per hour (US\$2.22)	2002
Guyana	G\$33,207 per month - Public Sector (US\$165.46)	
Haiti	250 gourdes per day - workers in industrial and commercial enterprises. (US\$5.96)	2010
Jamaica	J\$125 per hour (US\$1.43) J\$183.01 per hour - Industrial Security Guards (US\$2.10)	2012
St Kitts and Nevis	EC\$8.00 per hour (US\$2.96)	2008
St. Lucia	office clerks - EC\$300 per month (US\$111.00) shop assistants EC\$200 per month (US\$74.00) messengers EC\$160 per month (US\$59.20)	1985
St. Vincent and the Grenadines	The minimum wage varies by sector and the nature of the job. Examples include Professional workers - Secretary/Typist EC\$ 700.00 per month (US\$259.00) Professional workers - Office Attendant EC\$ 400.00 per month (US\$148.00) Hotel Workers -Chef EC\$ 1,000.00 per month (US\$370.00) Hotel Workers -House man/Bellboy EC\$ 400.00 per month (US\$148.00)	2003
Suriname	No minimum wage	
Trinidad and Tobago	TT\$12.50 per hour (US\$1.96)	2011

Sources: ILO and exchange rates as of May 29 2012.

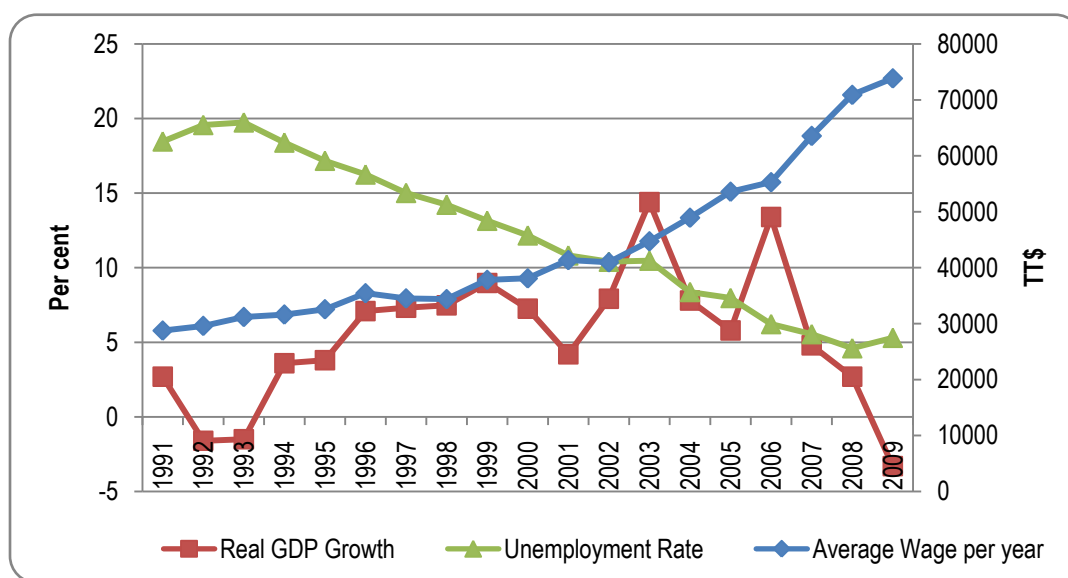
A review of the minimum wages in the countries across the region finds that at TT\$12.50 per hour, Trinidad and Tobago's minimum wage is among the highest in the region. Dickerson and McIntosh (2011) in looking at the effects of the introduction of the minimum wage in the UK found that it resulted in the narrowing of the productivity gap among age groups. Fairris, Popli, and Zepeda (2008) found that in Mexico wages were set as a multiple of the

⁶ See <http://www.molsmed.gov.tt/Resources/DocumentLibrary/tabid/87/Default.aspx> for a list of acts and the documents.

minimum wage. Strobl and Walsh (2004) noted that the introduction of the minimum wage in Trinidad and Tobago resulted in job losses among low wage earners, and an increase in the use of part time workers.

The CSO's Labour Force Report (various years) provides information on the both the value of the compensation of employees and the number of workers in each sector. The compensation of employees⁷ can be viewed as the wage bill for the economy. Looking at the average wage of a person (compensation of employees divided by the number of employees) over the past two decades finds that this nominal figure has been steadily increasing. A visual examination of the trends in nominal wages, unemployment and GDP suggests that there may be a relationship between unemployment and wages, but not necessarily one between wages and GDP⁸.

Chart 7: Movement in Wages, Unemployment and GDP 1991-2009



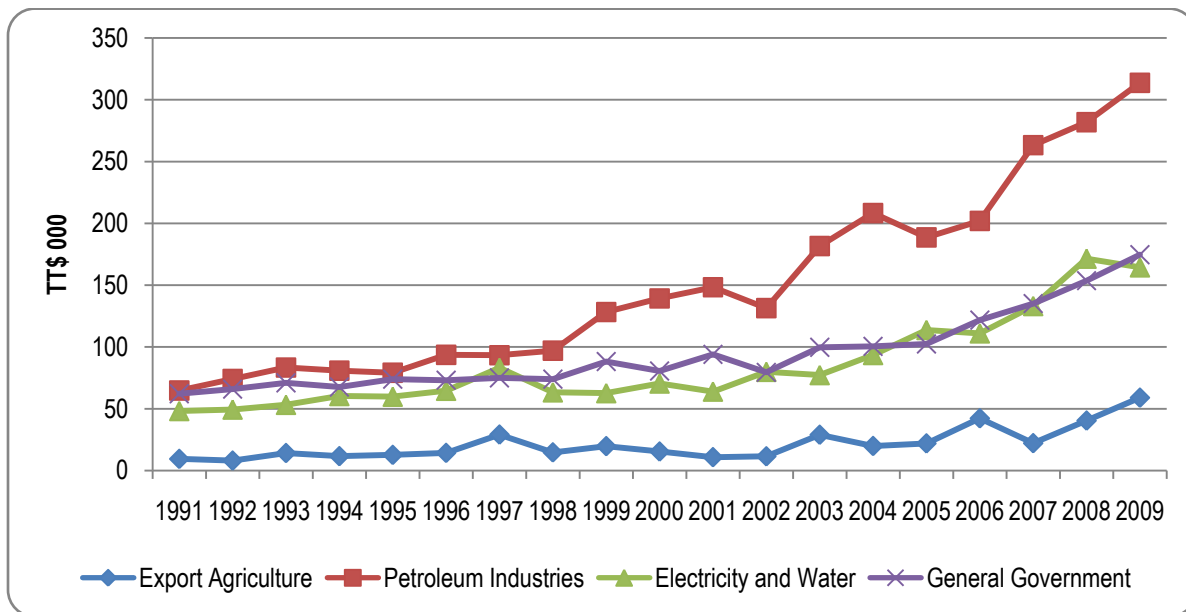
Source: The Central Statistical Office of Trinidad and Tobago (Various Years).

A closer examination of wages by sector finds, not surprisingly that the average wage of someone in the petroleum sector in 2009 was almost 5 times larger than the average wage of persons in the other sectors. Interestingly the persons in the government sector are recorded as earning the second highest average wage in 2009, followed by those working in the electricity and water sector. While there is no obvious explanation for this finding, one can hypothesize that in the case of the government sector the high average wages may be a reflection of the use of contract workers in the sector, as well as the negotiated increases for staff on establishment. In addition one can suggest that the active trade union presence in the electricity and water sector may have led to the high wages paid in the sector.

⁷ Compensation of employees includes wages as well as payment in kind such as food.

⁸ An econometric analysis of the relationship between wages and these variables find no significant association.

Chart 8: Average Annual Wages of A Worker: 1991-2009, Selected Sectors



Source: The Central Statistical Office of Trinidad and Tobago (Various Years).

Among the sectors in which workers earned the lowest wages in 2009 were domestic agriculture (though notably those producing agriculture for export earn about 6 times as much as those producing for the domestic market), and wood and related products.

As mentioned earlier the presence of trade unions may impact the level of wages in a particular sector. In Trinidad and Tobago there are 123 registered trade unions, with the size of memberships ranging from 4 to 20,000 for the largest trade union. The number of persons unionized in Trinidad and Tobago is estimated at 94,621⁹ for 2011 and representing a trade union intensity ratio of 16.4 per cent. Overall the trade union intensity ratio is lower than an average of 26 per cent calculated for industrialized countries for 2010. Trinidad and Tobago's trade union intensity ratio is comparable to that of Chile (14.3) in 2009 and Mexico (14.4) in 2010 while international trade union density ratio ranges from 8 per cent in Estonia to 70 per cent in Finland in 2010¹⁰.

⁹ Notably some unions such as the Trinidad and Tobago Teachers Association the membership includes persons that have retired from the profession.

¹⁰ Organisation for Economic Co-operation and Development, *OECD.StatExtracts*. http://stats.oecd.org/Index.aspx?DatasetCode=UN_DEN.

Table 2: Summary of Registered Wage Increases under Collective Agreements - by Sector

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Services ¹						5.8			4.7	
Construction						8.0	5.3	4.3	5.0	
Utility			5.0	5.0	5.0	2.0	1.5*	2.0*	5.0*	
Education and Cultural Community Services			16.0	3.5	3.0					
Distribution				4.0	6.0	4.7	5.4	4.3	0.0	
Finance, Business and Insurance Services	8.5	4.5	5.3	4.2	6.2	7.5	5.1	4.8	4.7	
Government			7.8	2.5	24.5	2.0*	1.0*	2.0*		
Personal					1.5	5.7	7.8	4.0	5.5	7.0
Manufacturing						6.4			5.7	
Manufacturing ¹			5.5	6.8	5.2	6.9	4.1	5.7	5.0	
Printing, Publishing and Paper Converters						5.0	5.0	5.0	5.0	
Wood and Related Products						14.0	7.0	6.0		
Assembly Type and Related Industries								13.0	5.0	5.0
Chemical and Non-Metallic				6.0	5.4	5.5	4.1	3.7	5.0	5.0
Food Processors and Drink				5.0	5.0	6.0	7.4	5.0	4.7	
Energy ¹						5.0			7.8	
Petroleum and Other Mining Industries			6.0	4.5	4.4	6.1	6.0	7.3	10.0	10.0

Source: The Industrial Court of Trinidad and Tobago (2012).

¹ Represents average three year wage increases prior to year.

* Author adjusted - to include WASA's wage settlement which was not included in the Industrial Court's 2010 report.

** Author adjusted - to include Central Government's 2008-2010 wage settlement which was not included in the Industrial Court's 2010 report.

According to the Industrial Relations Act of 1972 all collective agreements in Trinidad and Tobago must cover a period of at least 3 years and no more than 5 years. Evidence suggests that trade unions tend to negotiate wage increases to cover a 3 year span. Indeed Mahabir *et al* (2012) in a survey of firms in Trinidad and Tobago found that a substantial number indicated that they changed the wages paid once every three years. In Trinidad and Tobago the collective bargaining process typically is a retroactive one, where the trade unions tend to be negotiating for wage increases for previous years. Registered outcomes of collective agreements show that average wage increases range from 4.7 per cent in the service sector to 7.8 per cent in the energy sector during the period 2009 to 2011 (Table 2).

3. The Determination of Wages in Trinidad and Tobago

The traditional micro economic literature is built on the idea that labour is homogenous, as well as on the ideas of perfect competition and profit maximization. The existence of wage differentials led to the neoclassical school of thought developing three main theories to explain these differentials: the Theory of Equalizing Differences, Human Capital Theory, and Efficiency Wage Theory. The first theory posits that the intrinsic properties of some jobs, such as the ease/difficult of learning, the permanence/temporary nature of the job, results in wage differential. The Human Capital Theory emphasises that persons have different levels of productivity. The Efficiency Wage Theory explains

wage differentials as a consequence of employers seeking to discourage shirking, reduce turnover, and attract loyal employees. Other schools of thought look at the long term relationship between firms and their employees in which there may be an implicit contract between the two actors that explains promotions, job hierarchy, and tenure; as well as the segmentation of the labour market

Many of the empirical studies which look at factors that determine the level of wages an individual can earn examine the level of education, age and gender. Data from the 2008 Household Budgetary Survey of Trinidad and Tobago (HBS), which provides information on gross monthly individual income is utilised. The HBS data is truncated to include in the analysis only those persons who have a job or had a job and are earning income. The following equation is estimated via OLS:

$$\ln Income = \alpha + \beta_1 gender + \beta_2 age + \beta_3 marital\ status + \beta_4 education + \beta_5 jobtype + \epsilon$$

The study finds that women on average earn less than men, and as persons age it is expected that their wages will increase. The gender bias in wages is a phenomena found across the world. For example, the European Commission (2011) finds that across the EU women earn on average 17.5 per cent less than men, varying from nearly 31 per cent in Estonia to below 5 per cent in Italy. In Australia, according to Cassells *et al* (2009) women earned 17.0 per cent less than men in 2009. This study indicates that women in general earn 35.3 per cent less than men on average. While we do not investigate the reasons for this, readings would suggest this may have to do with the type of jobs that women hold as well as the gender-wage gap for similar jobs (Table 3). The figure for Trinidad and Tobago is also higher than that found in Bellony, Hoyos, & Ñopo (2010) who find that in Barbados men earn between 14 and 27 per cent more than women, and between 8 and 17 per cent more than the average females' wages in Jamaica. Notably an earlier study using 1993 data for Trinidad and Tobago by Olsen and Coppin (2001) found that there was an earning differential of 19 per cent between the sexes.

Table 3: Different reasons why women are more vulnerable to low wages: Arguments and implications from a literature review

Argument	Key Principles
1. Women's work may be undervalued because women's economic lives follow different patterns	<ul style="list-style-type: none"> • Low valuation of skill and status • Low valuation because women assumed to be second earners • Low valuation because women concentrated in low paying firms in the secondary labour market • Low valuation because women's lives perceived to follow different patterns to men's, obliging non-commensurate forms of work (e.g. part-time)

Argument	Key Principles
Women tend to have lower reservation wage than men	<ul style="list-style-type: none"> • Gender bias in eligibility rules for unemployment benefits and social protection in general (e.g. hours/earnings thresholds, duration of employment, etc.) • Insufficient maternity protection • Gender inequality in dependence on family income (especially during periods of child-rearing)
Gender-bias in wage setting institutions many have uneven gender effects	<ul style="list-style-type: none"> • Female dominated sectors and occupations less likely to be covered. • Statutory national minimum wage more likely to benefit women's pay than men's • Positive impact on gender pay equality in the more centralized public sector wage systems
Women are often disadvantaged by independent workplace effects (i.e. by workplace specific practices)	<ul style="list-style-type: none"> • Ability and willingness of employer to pay varying levels of wages according to the gender composition of workplace • Monopsonistic employer power • Barriers to women's mobility exposes their risk of exploitation • Inter-firm contracting and cost minimization in female dominated private services

Source: International Labour Office (2010)

This study also suggests that for every year a person ages, their income increases by 0.5 per cent. Myck (2007) find that in the case of German and British men an examination of the link between age and wages suggests a positive relationship, with a negative relationship taking place only at the very late stage in life. An expansion of the age category in the Trinidad and Tobago model indicates that there is no significant difference in the wages of person between the ages of 15 and 20, with a peak in the wage earning capacity in persons in their 40's and 50's with these persons earning approximately 50 per more that someone aged 15. This finding is consistent with studies in other countries which report an "inverse U" relationship between age and wages.

Table 4: Micro Economic Determinants of Wages in Trinidad and Tobago - 2008

lwages	Model 1	Model 2	Model 3	Model 4	Model 5
Female	-0.245*** (16.36)	-0.236*** (15.35)	-0.313*** (23.15)	-0.307*** (22.12)	-0.353*** (24.74)
Age	0.004*** (7.06)	0.001 (1.12)	0.009*** (15.60)	0.006*** (8.63)	0.005*** (7.80)
Marital Status					
Married but now living alone		0.152*** (4.37)		0.165*** (5.37)	0.163*** (5.77)
Had a Partner but now living alone		0.060** (2.00)		0.110*** (4.09)	0.140*** (5.50)
Married living with spouse		0.231*** (11.43)		0.214*** (11.75)	0.191*** (11.08)
Living common law		0.040* (1.83)		0.121*** (5.87)	0.145*** (7.30)
Not Stated		-0.076 (0.59)		0.033 (0.27)	0.013 (0.13)
Education					
Pre-School			0.301* (1.70)	0.290* (1.68)	0.201 (1.15)
Primary			0.137 (0.97)	0.106 (0.74)	0.077 (0.69)
Secondary			0.504*** (3.58)	0.466*** (3.25)	0.321*** (2.92)
University			1.228*** (8.62)	1.192*** (8.24)	0.803*** (7.16)
Other			0.791*** (5.51)	0.749*** (5.14)	0.507*** (4.51)
Not Stated			0.389* (1.75)	0.348 (1.57)	0.251 (1.33)
Job					
Professionals					0.067* (1.76)
Technical and Associate Professional					-0.064** (2.03)
Clerks					-1.77*** (5.43)
Service and Shop Sales Workers					-0.293*** (9.45)
Agricultural, Forestry and Fishery Workers					-0.841*** (16.74)
Craft and Related Workers					-0.391*** (12.60)
Plant and Machine Operators					-0.272*** (8.18)
Elementary Workers					-0.564*** (19.22)
constant	8.566*** (271.67)	8.342*** (350.11)	7.660*** (53.52)	7.707*** (53.11)	8.213*** (70.57)
R2	0.0374	0.0555	0.2120	0.2253	0.2972

Note: Standard errors in parenthesis.

In regards to education the results indicate that generally the higher level of education a person receives the higher the level of wages earned. Persons who have received Secondary and University level education also earn significantly more income than those without any education. One curious category is that of other which is significant; however there is no description as to what constitutes other – one can hypothesize that this may mean some form of certification at a trade school or course taken. Notably several studies conducted at the firm level in various developed countries have found that increased training, while resulting in increased productivity, has limited effects on the wages earned by the recipients. For instance Dearden, Reed, and Van Reenen (2006) found that a 1 per cent increase in work related training in British industries resulted in increased value added per hour of 0.6 per cent, and an increase in hourly wages of 0.3 per cent. Conti (2005) finds that for Italy, while training increases productivity there is no impact on wages. López-Acevedo (2003) found that in Mexico in-house training increased wages by 4 per cent while external training increased wages by 26 per cent, while an additional year of schooling in 1999 resulted in a 10 per cent increase in wages. The findings also suggest that the investment in education that is undertaken by students, and their parents, will be of significant financial benefit to them after the completion of their studies.

The model also took into account the marital status of the individual as well as the jobs they held. In the first instance the results indicate that persons who have always been unmarried tend to earn a lower wage. Divorced/widowed persons and married persons tend to earn the highest wages. Hellerstein, Neumark, and Troske (1996) looking at plant level data in the US find that never-married workers are less productive than workers who have ever been married and are correspondingly paid less. Much of the empirical work though is focused on the idea that there is a marriage wage premium for men. Ahituv and Lerman (2005) found that in the US marriage was associated with an increase in earnings of 20 per cent for men, while unmarried men were low income earners. Cornaglia and Feldman (2011) also find a similar result in that married professional baseball players tend to earn 16-20 per cent more than their unmarried counterparts. According to Bardasi and Taylor (2005), who find that in the UK married men earn a marriage wage premium, it is possible that employers use marriage as an indicator that the employee would be loyal and dependable.

In the area of careers those persons who are Legislators, Senior Officials and Managers (the baseline category) earn significantly higher wages than most other categories of workers, with the exception of persons designated as professionals. For example persons in the agricultural sector earn 84.2 per cent less than Legislators, Senior Officials and Managers. Mounsey and Polius (2011) find that in Trinidad and Tobago there is the existence of long term inter-industry wage differentials, they note that some industries pay as much as 52 per cent more than average for a given occupation, while others sometimes pay 25 per cent below average.

Notably the factors investigated are a limited set of variables that determine a person's salary. Other determinants that are investigated in the literature include the industry in which one is employed, the age of the firm, whether the person is a permanent or contract employee, and the level of experience of the worker.

4. Conclusions

The investigation into the determinants of wages at the individual level using HBS data found that there was a gender pay gap in Trinidad and Tobago with women earning significantly less than men. This suggests the need for the development of a wage equality policy, particularly in light of the popular perception that from an academic standpoint, women are doing better than men. Further the results suggest that investment in education will lead to increased wage earning capacity. Supplementing the argument for investing in education is the literature which suggests that training, both in-house and externally, by firms can empower their employees to work more productively. Finally the results indicate that persons in certain job categories earn significantly higher wages than others.

This paper makes an initial foray into the labour market in Trinidad and Tobago, and sought to build on previously studies conducted. However to effectively analyze the functioning and efficiency of the labour market there is need for comprehensive statistics that cover not only numerous variables but also cover a long time period. Expansion of the available datasets to include variables such as unit labour cost, hourly wage by sector and trade union density would prove to be useful for future researchers.

References

- Ahituv, Avner, and Robert I. Lerman. "How Do Marital Status, Wage Rates, and Work Commitment Interact?" *IZA Discussion Paper No. 1688*. Bonn: Institute for the Study of Labor, July 2005.
- Bardasi, Elena, and Mark Taylor. "Marriage and Wages." *Working Papers of the Institute for Social and Economic Research, paper 2005-1*. Colchester: University of Essex, February 2005.
- Bellony, Annela, Alejandro Hoyos, and Hugo Ñopo. "Gender Earnings Gaps in the Caribbean : Evidence from Barbados and Jamaica." *IDB Working Paper Series No. 210*. Washington D.C.: Inter-American Development Bank, August 2010.
- Cassells, Rebecca, Yogi Vidyattama, Riyana Miranti, and Justine McNamara. "The Impact of a sustained Gender Wage Gap on the Australian economy." National Centre for Social and Economic Modelling, University of Canberra, November 2009.
- Conti, Gabriella. "Training, Productivity and Wages in Italy." *Labour Economics*, no. 12 (2005): 557–576.
- Cornaglia, Francesca, and Naomi E. Feldman. "Productivity, Wages, and Marriage: The Case of Major League Baseball." *CEP Discussion Paper No 1081*. London: Centre for Economic Performance, September 2011.
- Craigwell, Roland, Sebastien Mathouraparsad, and Alain Maurin. "Unemployment Hysteresis in the English-Speaking Caribbean: Evidence from Non-Linear Models." *International Research Journal of Finance and Economics*, no. 78 (2011): 137-157.
- Dearden, Lorraine, Howard Reed, and John Van Reenen. "The Impact of Training on Productivity and Wages: Evidence from British Panel Data." London: LSE Research Online, May 2006.
- Downes, Andrew S. "An Economic Analysis of Unemployment in Trinidad and Tobago." *Working Paper No.389*. Washington D.C.: Inter-American Development Bank, 1998.
- European Commission. "Report on the Progress on Equality Between Women and Men in 2010." *Commission Staff Working Paper SEC(2011) 193 final*. European Commission, 2011.
- Fairris, David, Gurleen Popli, and Eduardo Zepeda. "Minimum Wages and the Wage Structure in Mexico." *Review of Social Economy LXVI*, no. 2 (June 2008): 181-208.
- Hellerstein, Judith K., David Neumark, and Kenneth R. Troske. "Wages, Productivity, and Worker Characteristics: Evidence From Plant-Level Production Functions and Wage Equations." *NBER Working Paper Serices No. 5626*. National Bureau of Economic Research, June 1996.
- International Labour Office. "Global Wage Report 2010/2011: Wage Policies in Times of Crisis." Geneva: ILO, 2010.
- International Labour Organization. *Global Wages Report 2008/2009: Minimum Wages and Collective Bargaining: Towards Policy Coherence*. Geneva: International Labour Organization, 2008.
- International Labour Organization. ILO Database on Conditions of Work and Employment Laws. ILO, Geneva. Available at: <http://www.ilo.org/dyn/travail>.

International Monetary Fund. IMF World Economic Database. IMF, Washington D.C.. Available at: <http://www.imf.org/external/pubs/ft/weo/2012/01/weodata/index.aspx>.

López-Acevedo, Gladys. "Wages and Productivity in Mexican Manufacturing." *World Bank Policy Research Working Paper 2964*. Washington D.C.: World Bank, January 2003.

Mahabir, Reshma Keyra Primus, Vishana Jagessar, Delvin Cox and Crystal Neptune "Price Setting Behaviour in Firms: The Case of Trinidad and Tobago" *Central Bank of Trinidad and Tobago Working Papers, No. 09/2012*. September 2012.

Mounsey, Allister, and Tracy Polius. "Trinidad and Tobago: Inter-industry wage differentials." *Cepal Review*, no. 105 (2011): 53-71.

Myck, Michal. "Wages and Ageing: Is There Evidence for the "Inverse-U" Profile?" *IZA Discussion Paper No. 2983*. Bonn: Institute for the Study of Labor, August 2007.

Organization for Economic Cooperation and Development. OECD Statistics Database. OECD, Paris. Available at <http://stats.oecd.org/>.

Olsen, R.N., and A. Coppin. "The Determinants of Gender Differences in Income in Trinidad and Tobago." *Journal of Development Studies* 37, no. 5 (2001): 31-56.

Roopnarine, Karen, and Dindial Ramrattan. "Female labour force participation: the case of Trinidad and Tobago." *World Journal of Entrepreneurship, Management and Sustainable Development* 8, no. 2/3 (2012): 183 - 193.

Stone, Susan, and Ricardo Cavazos Cepeda. "Wage Implications of Trade Liberalisation: Evidence for Effective Policy Formation." *OECD Trade Policy Working Papers No. 122*. OECD Publishing, 2011.

Strobl, Eric, and Frank Walsh. "The Impact of Minimum Wages on Hours and Employment Revisited." *CORE Discussion Paper 2004/23*. Belgium: Université Catholique de Louvain, May 2004.

The Central Statistical Office of Trinidad and Tobago. *Labour Force Report*. Port of Spain: The Government of Trinidad and Tobago, Various Years.

—. CSO Statistics Database. CSO, Port of Spain. Available at <http://www.cso.gov.tt/home>.

—. *Trinidad and Tobago Human Development Atlas 2012*. Port of Spain: The Government of Trinidad and Tobago, 2012.

The Industrial Court of Trinidad and Tobago. *The Industrial Court Database. 2012. unpublished*.

Appendix 1: Estimation Results

Source	SS	df	MS			
Model	1180.22773	21	56.2013204	Number of obs = 8380		
Residual	2768.00449	8358	.331180245	F(21, 8358) = 169.70		
				Prob > F = 0.0000		
				R-squared = 0.2989		
				Adj R-squared = 0.2972		
Total	3948.23221	8379	.471205659	Root MSE = .57548		

lwages	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
2.gender	-.3528812	.0142609	-24.74	0.000	-.3808361	-.3249262
age	.0049185	.0006302	7.80	0.000	.003683	.0061539
marital_un~s						
2	.1625131	.0281824	5.77	0.000	.1072685	.2177576
3	.1400454	.0254824	5.50	0.000	.0900934	.1899973
4	.1904924	.0171906	11.08	0.000	.1567946	.2241901
5	.1448777	.0198335	7.30	0.000	.1059992	.1837563
9	.0124586	.0995845	0.13	0.900	-.1827517	.2076689
education						
2	.2009055	.1742074	1.15	0.249	-.1405842	.5423953
3	.0757892	.1096871	0.69	0.490	-.1392247	.2908031
4	.3204934	.1096759	2.92	0.003	.1055015	.5354853
5	.8029128	.1122061	7.16	0.000	.5829611	1.022865
7	.506765	.11238	4.51	0.000	.2864725	.7270576
9	.2505022	.1887413	1.33	0.184	-.1194775	.6204818
jobcode_re~p						
2	.0673677	.0383551	1.76	0.079	-.0078178	.1425532
3	-.0643779	.0317166	-2.03	0.042	-.1265503	-.0022055
4	-.1770667	.0325861	-5.43	0.000	-.2409437	-.1131898
5	-.2930253	.031005	-9.45	0.000	-.3538027	-.2322478
6	-.8419693	.0502887	-16.74	0.000	-.9405476	-.743391
7	-.390738	.0310146	-12.60	0.000	-.4515342	-.3299417
8	-.272457	.0332886	-8.18	0.000	-.3377108	-.2072031
9	-.5643004	.0293527	-19.22	0.000	-.621839	-.5067619
_cons	8.213261	.1163831	70.57	0.000	7.985121	8.441401