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Determinants of urban labour earnings in Tanzania, 2000/01-06

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by

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Abstract

This paper presents analysis of urban areas in the Tanzania Integrated Labour Force Survey (ILFS) for 2000/01 and 2006 and the Urban Household Worker Survey (UHWS) for 2004, 2005 and 2006. The main aims are to estimate returns to education and to identify, conditioned on education and labour market experience, earnings differentials by gender and across sectors (public, private and informal). We confirm the general pattern that returns to education are increasing in level and years of education but note differences across sector of employment and the earnings distribution. Public sector workers (who tend to be more educated with longer tenure) and the self-employed with employees (small and micro enterprises) have the highest earnings whereas informal sector (self-employed without employees) and private sector wage earners have similar earnings on average (except for wage earners in large firms who have considerably higher earnings). Post-primary education is important in determining selection into wage employment, especially for the public sector. Allowing for selection, education has no additional effect on public sector wages, returns to education are concave for the self-employed but non-concave for the private wage sector. Quantile regressions reveal differential returns to education across the earnings distribution: primary and secondary education are inequality-reducing (more beneficial to those on lower earnings) whereas tertiary education is inequality-increasing.

JEL Classifications: J6, J62, J69
Keywords: Labour Earnings, Returns to Education, Urban Labour, Tanzania

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Outline

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1 Introduction

In developing countries, urban labour markets are generally recognised as having two distinct sectors, a regulated/protected formal sector and an unregulated/unprotected informal sector (Pradhan and van Soest, 1995). The informal sector (self-employment) absorbs the many job seekers who are unable to secure employment in the stagnant formal wage sector. In Tanzania, the self-employed outnumber wage employees by almost two to one in the urban labour market and it is the fastest growing segment of the labour force across rural and urban areas, typical of most countries in sub-Saharan Africa. Among the enormous challenges that face governments in countries such as Tanzania is the need to identify development strategies that can generate new employment and income opportunities to reduce unemployment and under-employment, especially youth unemployment. An understanding of earnings determination in the informal sector is as a consequence vital to understanding the labour market and income determination/distribution in the country. The aim of this paper is to analyse labour market dynamics, in particular earnings differentials and activity/employment patterns, in urban areas of Tanzania during the period from 2000/01 to 2006.

Studies which analyse the determinants of earnings typically use the Mincerian earnings model to estimate the mean effect of schooling and other individual characteristic variables on earnings. In Tanzania, these studies include Soderbom *et al* (2006), Quinn and Teal (2008), Rankin *et al* (2010). Evidence from developed countries (Buchinsky 1994; Fitzenberger and Kurz 1998, Machado and Mata 2000) indicates that returns to skills and experience in the Mincerian model can differ across the earnings distribution, implying the usefulness of estimating determinants of earnings across quantiles of the conditional earnings distribution. We examine whether private returns to education for urban workers in Tanzania differ for low and high earners, allowing for selectivity, endogeneity and measurement error bias.

The Tanzania Integrated Labour Force Survey (ILFS) for 2000/01 and 2006, and the Urban Household Worker Survey (UHWS) for 2004, 2005 and 2006 provide information on earnings for the informal sector (self-employed with and without employees) and formal sector (public and private) with worker characteristics such as age, education, tenure (UHWS only), hours worked and migration status (ILFS only). This allows for comparison across sectors to shed more light on the importance of heterogeneity

in earnings determination. The UHWS has a modest sample size with a small panel element, and includes some useful information such as parent's education and job history. The ILFS has a larger sample but no panel element, omits variables that can be used as instruments for unobserved ability (e.g. parent's education) and the categories for sector employment (main activity) alter between the two waves. Using both surveys permits extended analysis to check robustness of the main findings.

The structure of the paper is as follows. Section 2 provides a brief literature review, concentrating on studies for Tanzania. Section 3 briefly outlines the specification and econometric methods and Section 4 briefly outlines the data sources with some descriptive statistics. Section 5 presents and discusses the results for both ILFS (detailed results are in Appendix B) and UHWS and Section 6 concludes.

2 Literature Review

Soderbom *et al* (2006) used repeated cross-section surveys for Tanzanian and Kenyan manufacturing sectors; the data for Kenya covered 1993-1995 and 2000 and the data for Tanzania covered 1993-1999 and 2001. The study used the control function approach to instrument for unobserved ability (suggesting that OLS estimates were upward biased. The conclusion from the study was contrary to the conventional view of concavity between earnings and education: the marginal return to education is found to be increasing with education in both Tanzania and Kenya, an indication of a convex earnings function with education.

Quinn and Teal (2008) used three rounds (2004, 2005 and 2006) of the UHWS to examine determinants of earnings and earnings growth, pooling all three rounds for an OLS estimation of earnings equation. Results indicate a significant convex effect of education on earnings, with substantial heterogeneity between and within sectors. These results are shown to be robust to control of endogenous education with instruments (parent's education and occupation). Rankin *et al* (2010) pool the 2004 and 2005 rounds of the UHWS to investigate how the role of formal education and time spent in the labour market explain labour market outcomes of urban workers (using a similar survey for Ghana to compare with Tanzania; see also Twumasi-Baffour, 2013a). The study adopted the standard Mincerian earnings function and controlled for endogenous education with instruments (including distance to the nearest primary school at age 6, distance to nearest

secondary at age 16, mother's education, father's education and dummy variables to indicate whether mother and/or father had a formal sector employment) for self employment, public sector and private sector (further categorised by number of employees into small and large firms). After controlling for selection bias the paper concludes there are convex returns to education in self employment but concave returns to education in large firms, and no significant effect of education in the public sector.

Studies that have utilised quantile regression method within the Mincerian framework include Buchinsky (1994), who finds that returns to education in the US increase considerably over the quantiles of the conditional distribution of wages. Mwabu and Schultz (1996) obtain a similar pattern of results for South African men.

3 Empirical Methods

The basic assumption is that an individual's earnings reflect labour productivity and that investment in human capital in the form of foregone earnings in the past pays off in the form of higher wages in the future (Card 1998). Mincer (1974) provides the theoretical model from which the following wage equation is derived:

$$\log w_i = \beta_0 X_i + \beta_1 \mathrm{S_i} + \beta_2 x_i + \beta_3 x_i^2 + \mathrm{u_i} \qquad (1)$$

where w_i is an earnings measure for individual i such as earnings per hour, week or month; S_i represents a measure of schooling (human capital acquired); and x_i is an experience measure (typically years since leaving school or tenure for human capital acquired on the job). The vector X_i is a set of other variables assumed to affect earnings and u_i is the disturbance term which captures all factors other than schooling and labour market experience that affect individual earnings. The error term is assumed to be normally distributed and uncorrelated with the human capital variables as well as between individuals and across time in panel data analysis. Education, age and/or experience are included as a quadratic term to capture the concavity of the earnings profile. The derivation of the empirical model by Mincer implies that, under certain assumptions (such as no tuition cost), β_1 can be considered the private financial return to schooling and proportionate effect on wages of an increment in S.

To control for unobserved ability in the earnings equation, we adopt a two-stage control function approach that Card (2001) shows to be more robust than 2SLS where

slope parameters potentially co-vary with the unobserved factors in the model. Even with constant slope parameters 2SLS will result in relatively imprecise parameter estimates given that the model is non-linear in the endogenous variable. Consequently, at the first stage, a regression of education on a set of instruments is run and the residuals are estimated. The residuals capture all unobserved factors that affect education and are used in a second stage earnings regression as a control for ability. This procedure produces consistent parameter estimates, when conditions for identification and independence of instrumental variables are met (Blundell and Powell, 2001). This requires valid exclusion restrictions (variables correlated with schooling but uncorrelated with the earnings residual). The UHWS provides information on the distance in kilometres to the nearest primary school at age six and to secondary school at age sixteen of respondents in addition to parent's education, and occupations. Such supply side measures of education like distance to school can be reasonably argued to be correlated with education and not with ability (Card, 2001). Many studies on earning have used such supply side measures of education as instruments for education; others have used family background variables as instruments.

While OLS captures the effect of education of an individual at mean earnings, quantile regression looks at the returns across parts of the earnings distribution (for example bottom or top quartiles). In essence, the focus is the quantile treatment effects of education on earnings rather than on the average treatment effect. Given a set of explanatory variables, quantile regression estimates the dependent variable conditional on the selected quantile. The estimation of the model at different quantiles enables us to trace the entire conditional distribution of earnings given a set of regressors. Afterwards, comparing the estimated returns across the whole earnings distribution, we can infer the extent to which education exacerbates or reduces underlying inequalities. In particular, how schooling, individual characteristics, sector of employment and firm size affect earnings at different points of the conditional distribution of earnings. An additional advantage of employing this estimation method is that the regression coefficient vector is not sensitive to outlying values of the dependent variable, as the quantile regression objective function is a weighted sum of absolute deviations.

Provided error terms are homoscedastic, Koenker and Bassett (1982) and Rogers (1992) show that this method is adequate to calculate the variance–covariance matrix. Rogers (1992) shows that in the presence of heteroscedastic errors this method understates

the standard errors. We consequently use bootstrapped estimator of standard errors as suggested by Rogers to cater for any such under estimated standard errors. This method however requires that there is adequate dispersion of the independent variables over the earnings distribution to enable identification of coefficients for each quartile (or decile). The Tanzanian surveys appear satisfactory in this regard.

Given that labour force data are truncated on the basis of the wage/earnings variable due to self-selection into the various employment sectors, allocation into employment sectors and the resultant earnings is not entirely random (implying biased OLS estimates). To correct for selectivity in the earnings model we adopt the Heckman two-stage procedure, and first estimate a probit model for the probability of sorting into the various sectors relative to being unemployed to estimate the inverse Mills ratios (selection terms), which are then inserted in the earnings equations at the second stage. Covariates in the probit model include education, age, sex, marital status and a dummy variable for whether the individual has children or not to fulfil the exclusion restriction. The method for addressing selectivity using the UWHS is detailed in Twumasi-Baffour (2013b).

4 Data Sources and Description

This study draws on the Integrated Labour Force Survey (ILFS), conducted in 2000/01 and 2006, and the Urban Household Worker Survey (UHWS) for 2004, 2005 and 2006. We use the two surveys on urban Tanzania to assess if they yield comparable inferences on determinants of education and returns to education. This section briefly describes core features of the data; further detail on the ILFS is in an appendix available on request and further detail on the UWHS can be found in Twumasi-Baffour (2013a).

4.1 Integrated Labour Force Survey

The ILFS is comparable to the UHWS sample in covering the same six urban regions (Dar es Salaam, Tanga, Morogoro, Arusha, Iringa and Mwanza). The urban sample for the 2000/01 ILFS is 2,334 households, and the urban sample for the 2006 ILFS is 3,862 households. As age is included to capture work experience (given the absence of a tenure variable) we restrict our sample to individuals aged 15 years and older and create a measure of 'potential years experience' by deducting '6 + years of education' from actual age. On average for 2000/01 and 2006 the adjusted age is around 16 years. Education is

measured as a continuous variable (number of years spent in school) and as a categorical variable: those who did not complete primary, primary, secondary, post secondary and tertiary education. The majority have primary education (65% and 69% for 2000/01 and 2006 respectively), followed by secondary education (22% and 14% respectively) and post secondary plus further education (4% and 2% respectively); less than one per cent have tertiary education. As there is no tenure variable in ILFS data, we utilise the adjusted age, migration and work status variables (Appendix A provides details). Females account for 52 and 61 per cent of the sample in 2000/01 and 2006 respectively. Average male earnings are 130 per cent of overall mean earnings, compared to 58 per cent for females. Income for females has increased more than for males (68 per cent compared to 16 per cent). Youths (age 15-25 years) account for 42% in 2000/01 and 45% in 2006; adults (age 26-65 years) account for around half of entire population and tend to earn considerably more than youths.

Table 1: Employment and Mean Earnings by Main Activity, ILFS 2000/01 -2006

Status of employment	*Employment (%)*				*Mean Earnings (TShs)*		% Change
	2000/01		*2006*		*2000/01*	*2006*	
	%	N	%	N			
Wage employees	39.5	1,860	19.7	1,674	102,019	131,248	29
Self employed with employees	6.8	322	3.3	277	249,883	200,915	(20)
Self employed without employees	34.4	1,619	21.4	1,819	51,763	94,787	83
Unpaid family helper (non-agricultural)	3.5	164	8.6	729			
Unpaid family helper (agricultural)			7.4	629			
On own farm or shamba	15.8	742	39.8	3,389	41,399	58,323	41
Urban Sample	100	4,707		8,517	92,348	116,694	

Source: Derived from ILFS.

Notes: Figures in parentheses indicate negative values (percentage decline). N refers to sample number.

Table 1 summarises data on sector employment shares and mean earnings for the two survey years. The 2006 sample is much larger than that for 2000/01 and there are notable differences in the composition: more than half the 2006 sample reported their main sector of employment as agriculture (own farm) or unpaid compared to less than 20% in 2000/01, and the absolute increase in numbers in these sectors is almost 4000 individuals (similar to increase in total sample size). The share of those in formal (wage) or informal

(self employed) sectors therefore fell considerably, and the number of wage and self employed with employees actually fell. This makes comparison between the two surveys difficult as one cannot tell if changes (in sector employment shares or mean earnings) reflect population changes or the different sample. Mean wages appear to have increased by 29%; average self-employed earnings rose dramatically by 83% except for those with employees, whose earnings fell by 20%. If these earnings are accurate for the population it would be consistent with increased numbers of self employed without employees compared to employers and those in wage employment (although the latter categories still have higher earnings).

Table 2: Employment and Mean Earnings by Sector of Employment, UHWS 2004-06

Employment Sector	***Sample***		***Female***		***Male***	
	% share	**Mean ($)**	**% share**	**Mean ($)**	**% share**	**Mean ($)**
Public	7.30	134.66	7.19	131.56	7.39	140.54
Private	16.45	57.71	10.84	48.36	23.23	62.95
Self employed	42.39	36.89	40.98	27.72	43.74	46.99
Unemployed	33.86		40.98		25.64	
Total (N, mean)	1,465	52.90	793	44.14	663	61.33

Notes: Calculated from UHWS for 2004, 2005 and 2006; wages converted to $US to facilitate pooling and comparison.

4.2 Urban Household Workers Survey

The core features of the UHWS data are summarised in Table 2 for individuals pooled over 2004 to 2006. The informal sector (self employed) accounts for over 40% of the sample, followed by the private wage sector (16%) and the public sector (7%), with a third of the sample declared as unemployed. Females account for over half the sample and are considerably more likely to be unemployed and far less likely to be in private wage employment (11% compared to 23% for males). Males have significantly higher average earnings than females, especially if self employed or in the private wage sector (the differential is least in the public sector). Although the sector employment shares are not directly comparable to the ILFS, the pattern of relative earnings is similar: highest in the public sector and lowest for the self employed. Full detail on the UWHS can be found in Twumasi-Baffour (2013a).

5. Results and Discussion

This section presents results using both surveys to identify the returns to education and labour market experience (job tenure for UHWS; age, work and migration status for the ILFS), and conditioned on these factors the earnings differentials by gender and sector of employment, and across the earnings distribution. Full tables of results are in Appendix B and here we mostly report summary tables focussing on the core education variables.

5.1 Integrated Labour Forces Survey Results

Preliminary results using the ILFS with an OLS estimator are summarised in Table 3, for years of education and level of education, comparing 2000/01, 2006 and 2006 for youths (age 15-35) only. Sector of employment is defined as the (main) economic activity in which an individual spent most of his/her time. The 2000/01 and 2006 ILFS are estimated separately given the difficulty of deflating earnings and the apparent change in the survey frame (as seen from the sample composition in Table 1). We also estimated including years of education squared; although the results were not inconsistent with the estimates reported below, the size of the coefficient on the squared term (positive and significant) was implausible (see Appendix Tables B2 and B6). Table 3 column (1) pools all individuals (the whole sample), columns (2) and (3) separate formal sector (private and public wage employees) and informal sector (self-employed with and without employees) respectively.

A number of patterns are evident (in most cases the reference category is not completed primary). First, there is a slight decline in returns to years of education between 2000 and 2006, primarily in the formal sector, most likely because an increasing share of workers have completed primary (for which returns become quite low). Second, there is a marked increase in returns for higher levels of education, especially in the formal sector, although returns decline for most levels of education. For the formal sector, the suggestion is that all workers are becoming more educated and the growing supply of educated workers is dampening wage premia. The distinction between post-secondary and tertiary does not seem to be important in either the formal or informal sector (the differences in coefficients are generally small and the numbers with tertiary completed are small). This may be because post-secondary includes vocational training while tertiary may include training for teachers and nurses (important to get public sector jobs but does not necessarily deliver a wage premium). Finally, the situation for youths in 2006 is different,

reflecting increasing cohort levels of education: post-secondary or tertiary education (combined in this sample given low numbers) is almost essential to earn a premium in the informal sector, while those with lower levels of education earn much less in the formal sector. Overall, there are considerable gains from education, especially beyond primary.

Table 3: Determinants of Log Earnings – Coefficients on Education for ILFS

2000/01	*Pooled Sample*	*Formal Sector*	*Informal Sector*
	(1)	*(2)*	*(3)*
Education years	0.147***	0.173***	0.113***
	(0.005)	(0.006)	(0.009)
Primary	0.637**	0.677**	0.583*
	(0.276)	(0.295)	(0.241)
Secondary	1.326**	1.240**	1.073**
	(0.577)	(0.416)	(0.544)
Post-Secondary	1.815**	1.637***	1.551**
	(0.579)	(0.420)	(0.654)
Tertiary	2.302***	1.779***	1.554**
	(0.612)	(0.480)	(0.513)
2006			
Education (years)	0.126***	0.151***	0.110***
	(0.006)	(0.007)	(0.011)
Primary	0.599*	0.283*	0.505*
	(0.300)	(0.150)	(0.287)
Secondary	1.152***	0.949**	1.060**
	(0.325)	(0.451)	(0.393)
Post-Secondary	1.775***	1.603**	1.467***
	(0.332)	(0.753)	(0.424)
Tertiary	1.803***	1.596**	1.583**
	(0.347)	(0.758)	(0.546)
2006 (youths)			
Education (years)	0.167***	0.195***	0.127***
	(0.018)	(0.019)	(0.030)
Primary	0.442	-2.308***	0.216
	(0.563)	(0.324)	(0.668)
Secondary	1.181**	-1.457***	0.744
	(0.573)	(0.317)	(0.698)
Post-Secondary/Tertiary	2.582***	omitted	1.816**
	(0.638)		(0.829)

Notes: Extracted from full regression results in Appendix Tables B1, B3, B5, B7, B9 and B11. For levels of education 'not completed primary' is the reference category except for youths in formal sector in 2006 (as almost no observations are in that category). For the 2006 youths, post-secondary and tertiary are combined given low numbers (this is the omitted category for the formal sector). Figures in parentheses are t-ratios: *** denotes significant at 1 per cent level, ** 5 per cent and * 10 per cent.

Other variables are included in the regressions (see Appendix B) and results are largely in line with Quinn and Teal (2008) and Rankin, Sandefur and Teal (2010). Age and gender (male = 1) have the expected signs, with earnings increasing in age (at a decreasing rate) and males earning significantly more, about 30% in the formal sector and 60% in the informal sector. Sector of employment is also very important: public sector wages are much higher than private sector wages for formal employment (and only in 2006 do private sector wages appear to be higher for employees of larger firms), while self-employed with employees have the highest earnings, far higher than own account workers in the informal sector. As we do not have a tenure variable, we include a number of variables to capture characteristics that may reflect job experience, notably migration status and full-time or various types of part-time employment (as defined in Appendix A). Although most variables are significant in a regression, there are only a few consistent results (Tables B1-B3 and B5-B7). Compared to those who migrated without a job, non-migrants have lower earnings in the informal sector, those who recently transferred for a job have lower earnings in the formal sector (other job transfers have lower earnings in the informal sector but only in 2000/01), and education migrants have lower earnings in the formal sector in 2000/01 only. Full-time employment confers higher earnings, especially in the informal sector and in 2006.

Youths in 2006 appear to have slightly higher earnings in the formal sector compared to the whole sample, and notably higher informal sector earnings, although none of the job experience proxy variables are significant (Tables B9-B11). Again in 2006, returns to years of education appear higher for females than males, and formal (especially public) and informal sector employment increases female earnings compared to employment in agriculture by much more than male earnings are increased (Tables B12 and B15). Returns to levels of education are very different for males compared to females in 2006 (Tables B14 and B17). In the formal sector, earnings are much higher for males with post-secondary or tertiary education whereas these are insignificant for females and only primary or secondary reduce earnings compared to not having completed education. In contrast, in the informal sector female earnings increase significantly with level of education whereas the effect is only significant for males with post-secondary. Although these results may appear counter-intuitive the explanation may reflect the importance of education to secure formal sector, especially public, employment rather than on earnings once in the sector (see below). This may be especially relevant for females as public sector employment seems particularly beneficial for them.

Table 4: Log Earnings Quantile Regressions ILFS 2000/01

	0.1	**0.25**	**0.5**	**0.75**	**0.9**
Age	0.043***	0.047***	0.045***	0.035***	0.029***
	(0.009)	(0.004)	(0.006)	(0.004)	(0.007)
Age^2	-0.047***	-0.059***	-0.052***	-0.035***	-0.023
	(0.013)	(0.007)	(0.011)	(0.008)	(0.012)
Education (years)	0.119***	0.127***	0.154***	0.163***	0.181***
	(0.006)	(0.008)	(0.008)	(0.009)	(0.009)
Male	0.532***	0.421***	0.431***	0.422***	0.504***
	(0.062)	(0.055)	(0.029)	(0.043)	(0.045)
Public	1.011***	0.795***	0.767***	0.773***	0.518***
	(0.180)	(0.052)	(0.076)	(0.053)	(0.118)
Private	0.539**	0.245***	0.199**	0.243***	0.246
	(0.176)	(0.043)	(0.084)	(0.054)	(0.133)
Self with employee	0.767***	0.714***	0.977***	1.231***	1.515***
	(0.203)	(0.125)	(0.100)	(0.104)	(0.178)
Self without employee	0.270	0.169**	0.281***	0.391***	0.419***
	(0.183)	(0.057)	(0.065)	(0.059)	(0.097)
*FirmSize*Private*	0.108	0.132**	0.141**	0.025	-0.166**
	(0.101)	(0.061)	(0.043)	(0.054)	(0.072)
Non–Migrant	-0.147**	-0.106**	-0.046	-0.079	-0.186**
	(0.059)	(0.043)	(0.034)	(0.046)	(0.063)
Job Transfer	-0.051	-0.034	-0.042	-0.093**	-0.221**
	(0.075)	(0.049)	(0.043)	(0.037)	(0.106)
Education Migrant	-0.097	-0.180***	-0.136***	-0.218**	-0.221**
	(0.067)	(0.053)	(0.041)	(0.068)	(0.094)
Full Time Employment	0.306***	0.317***	0.323***	0.320***	0.295
	(0.086)	(0.079)	(0.093)	(0.084)	(0.160)
Temporary Employment	-0.129	-0.089	-0.234**	-0.243**	-0.134
	(0.134)	(0.106)	(0.101)	(0.101)	(0.176)
Constant	6.798***	7.011***	8.351***	8.935***	9.221***
	(0.602)	(0.826)	(0.855)	(0.222)	(0.393)
R^2/Pseudo R^2	0.25	0.27	0.27	0.29	0.30
N	3667	3667	3667	3667	3667

Notes: Significance levels as in Table 3. Derived from Appendix Table B4; full set of migrant and period of employment variables were included but only significant results reported here. The Age^2 variable is divided by 100 to reduce decimal places in the reported coefficient.

Quantile Regression Results

We present quantile regression estimates of the earnings function in Tables 4 (2000/01) and 5 (2006) to capture differentials across the distribution of earnings, considering the 0.1, 0.25, 0.5, 0.75 and 0.9 quantiles. Returns to education tend to be highest for those with the highest earnings; this is confirmed by estimates using the levels of education (available on request). The pattern has changed over time. In 2000/01, the increase is

monotonic with an additional year of education increasing earnings by 12% for the lowest earnings decile, 15% at the median and 18% for the highest earnings decile. However, in 2006 the profile is fairly flat around 12% up to the median and then rises to 15% for the top decile. This suggests that over time education is reducing the inequality of earnings, consistent with increasing levels of education in the population.

Table 5: Log Earnings Quantile Regressions ILFS 2006

	0.1	**0.25**	**0.5**	**0.75**	**0.9**
Age	0.058***	0.056***	0.048***	0.046***	0.050***
	(0.006)	(0.009)	(0.005)	(0.006)	(0.010)
Age^2/100	-0.085***	-0.080***	-0.062***	-0.051***	-0.056***
	(0.012)	(0.018)	(0.011)	(0.011)	(0.017)
Education (years)	0.125***	0.119***	0.112***	0.132***	0.149***
	(0.013)	(0.006)	(0.006)	(0.008)	(0.017)
Male	0.529***	0.448***	0.403***	0.442***	0.513***
	(0.063)	(0.031)	(0.027)	(0.039)	(0.048)
Public	1.604***	1.325***	1.045***	0.796***	0.721***
	(0.151)	(0.109)	(0.074)	(0.119)	(0.132)
Private	0.928***	0.718***	0.504***	0.270**	0.102
	(0.133)	(0.095)	(0.049)	(0.106)	(0.075)
Self with employee	1.411***	1.259***	1.160***	1.118***	1.079***
	(0.170)	(0.119)	(0.101)	(0.174)	(0.193)
Self without employee	0.706***	0.552***	0.511***	0.414***	0.463***
	(0.123)	(0.101)	(0.055)	(0.111)	(0.091)
*FirmSize*Private*	0.410***	0.345***	0.265***	0.140***	0.149
	(0.065)	(0.065)	(0.044)	(0.042)	(0.084)
Recent Job Transfer	-0.179**	-0.159**	-0.186**	-0.257***	-0.129
	(0.075)	(0.072)	(0.065)	(0.064)	(0.124)
Full Time Employment	0.488**	0.307***	0.258**	0.219**	0.280**
	(0.151)	(0.092)	(0.087)	(0.089)	(0.104)
Causal Employment	0.403	0.590**	0.911***	1.194**	1.011**
	(0.521)	(0.291)	(0.247)	(0.414)	(0.399)
Constant	6.197***	6.960***	7.496***	7.713***	8.133***
	(0.530)	(0.341)	(0.281)	(0.466)	(0.445)
R^2/Pseudo R^2	0.26	0.26	0.24	0.22	0.22
N	3620	3620	3620	3620	3620

Notes: As in Table 4 except derived from Appendix Table B8.

The earnings distribution appears to vary across sectors. The premium of formal sector employment, compared to agriculture (the omitted category), declines over the distribution of earnings. The public sector premium remains high, especially for those below the median, and increases in 2006. The benefit of private wage employment is lower, incrases considerable in 2006 up to the median, and diminishes with earnings (and is eliminated for the top quantile). In the informal sector the premium increases

with earnings in 2000/01 but by 2006 it tends to decrease over the distribution, consistently for those with employees. Men in the sample earn about 40% more than women, rising to about 50% at both extremes of the distribution. Being in full time employment is most beneficial for those lower in the earnings distribution, whereas casual employment is only beneficial for those towards the top (consistent with our earlier observation that there may be particular good but temporary opportunities). The migration variables are mostly insignificant.

Correcting for Selectivity

The previous estimates have not controlled for the effect of education on the sector of employment. If a particular level of education is required to secure a job in a particular sector that pays more the effect of education on earnings may be over- estimated. More generally, if level of education increases the likelihood of securing a job in a higher paying sector we need to control for this. The first step is to estimate a selection equation including education variables and other characteristics that may influence the observed sector of employment (some but not all of which may be included as determinants of earnings).

Table 6: Average partial effects from multinomial logit model (ILFS)

	2000		2006	
	Formal	**Informal**	**Formal**	**Informal**
Age	0.002*	0.006***	0.005***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)
Male	0.077***	-0.007	0.108***	-0.017
	(0.016)	(0.016)	(0.012)	(0.013)
Married	-0.049***	0.043**	0.053***	-0.011
	(0.017)	(0.017)	(0.013)	(0.013)
No primary	-0.138***	0.050	0.864	1.524
	(0.035)	(0.032)	(1.935)	(3.002)
Secondary	0.151***	-0.165***	0.116***	-0.111***
	(0.016)	(0.017)	(0.013)	(0.016)
Post-Secondary	0.224***	-0.223***	0.205***	-0.235***
	(0.032)	(0.038)	(0.026)	(0.037)
Tertiary	1.286	0.464	0.304***	-0.383***
	(4.976)	(0.756)	(0.050)	(0.082)
Migrant	0.224***	-0.142***	0.120***	-0.014
	(0.015)	(0.018)	(0.012)	(0.014)
Household Head	0.051***	0.036*	0.170***	0.238***
	(0.019)	(0.019)	(0.015)	(0.017)
Dar es Salaam	0.119***	0.071***	0.057***	0.027**
	(0.014)	(0.014)	(0.012)	(0.012)
N	4447		5972	

Notes: Significance as in Table 3. Reference category for level of education is primary. 'Not working' category also included in multinomial logit (results, not reported, were as expected).

Table 7: Selection Corrected Earnings, Level of Education ILFS

	2000		2006	
	Formal	**Informal**	**Formal**	**Informal**
Age	0.058***	0.003	0.055***	0.016
	(0.009)	(0.021)	(0.010)	(0.013)
Age^2	-0.066***	-0.010	-0.058***	-0.027
	(0.020)	(0.035)	(0.018)	(0.025)
Male	0.176*	0.516***	0.213***	0.480***
	(0.093)	(0.091)	(0.091)	(0.068)
Primary	1.307***	0.481	0.073	1.005
	(0.311)	(0.752)	(0.653)	(1.115)
Secondary	0.705**	1.222	0.634	1.600
	(0.300)	(0.783)	(0.655)	(1.121)
Post-secondary	0.331	1.622	1.191	2.240**
	(0.292	(1.203)	(0.650)	(1.140)
Tertiary	0.0001	0.002	1.147	2.589**
	(0.191)	(0.190)	(0.667)	(1.168)
Public	0.511***		0.530***	-
	(0.113)		(0.112)	
Private	0.146		0.002	-
	(0.110)		(0.098)	
Self with employees	-	0.677***	-	0.668***
		(0.214)		(0.105)
Self without employees	-	-0.280	-	-0.070
		(0.176)		(0.076)
Firm size	0.094	-	0.324***	-
	(0.093)		(0.049)	
Recent Job Transfer	0.158***	0.215	-0.193***	-0.217*
	(0.060)	(0.309)	(0.068)	(0.117)
Full Time Employment	0.056	-0.177	0.332**	0.364***
	(0.353)	(0.249)	(0.135)	(0.124)
Selection correction term (λ)	0.610**	1.090**	0.334**	0.485***
	(0.249)	(0.521)	(0.140)	(0.160)
Constant	11.511***	10.344***	9.393***	7.821***
	(0.433)	(0.985)	(0.940)	(1.411)
N	4447		5972	

Notes: Significance as in Table 3. Other migrant and period of employment variables were included in the regression but not reported in the table as they were insignificant or significant on only one regression, see Appendix Tables B18 and B19.

Table 6 reports the partial effects of variables determining whether a worker is observed in the formal or informal sector from a multinomial logit model that also included those observed to be not working. The principal result is that education is very important. Primary education (the omitted category) is sufficient for being in the informal sector; higher levels of education reduce the probability. For the formal sector, however, education beyond primary is important, especially in 2006 when the likelihood of being observed in the formal sector increases steadily with the level of employment. It is evident that more education

workers aim for formal sector jobs and the likelihood of securing such jobs increases with education. It can also be seen that males and migrants are more likely to be employed in the formal sector.

Table 7 reports the earnings equation corrected for selection in sector of employment. This has a pronounced effect on estimated returns to education, especially in the formal sector. For wage employees, there is a marked premium (about 50%) for being employed in the public sector. Once the effect of education on being in the formal sector is allowed for, returns to education are eliminated in 2006; in 2000/01 there were large returns to primary and secondary. This is consistent with education, especially secondary and above, being important for entry to the sector, in particular the sector. Conditional on being in the sector, by 2006 the level of education confers no additional earnings benefit. The situation is different for the informal sector as by 2006 there were large returns to post-secondary and tertiary education. The male-female differential is much higher for the informal sector, perhaps because more educated females can enter the formal sector. Full-time employment is clearly beneficial, although only in 2006.

5.2 Urban Household Worker Survey Results

As we do not expect significant changes in earnings within a relatively short time span, earnings functions are estimated for the three UHWS waves in a pooled cross section. In addition to the difference in sample compared to the larger ILFS, additional variables in the UHWS permit us to explore the determinants of selection into higher earning jobs more thoroughly and, as we show, this affects findings.

Table 8 provides OLS results for the earnings equation (similar results with years of schooling are in Twumasi-Baffour, 2013a, Table A3). The earnings function is specified for the total sample without occupational variables (pooled 1) and with occupational controls (pooled 2). Control variables include tenure and tenure squared, educational level variables and gender (male = 1). To evaluate the impact of enterprise characteristics on earnings, firm size (number of workers) and dummies (private wage and self-employed, with public sector omitted) for sector of employment are introduced in the pooled (2) model. Location dummy is also used to control for differences in earning opportunities by location. The coefficients on education are not returns in its strictest sense but the gross earnings premium from an extra year or level of education and not ‘return’ to education

since it does not take into consideration the cost of education. We consequently interpret our results with this caveat in mind.

Table 8: Earnings function estimates, UHWS

	Self	Private	Public	Pooled (1)	Pooled (2)
Log of hours	0.579***	0.193	0.828**	0.469***	0.457***
	(0.140)	(0.152)	(0.398)	(0.104)	(0.105)
Tenure	0.006	0.085***	0.058***	0.049***	0.035***
	(0.016)	(0.024)	(0.019)	(0.013)	(0.013)
Tenure^2	0.000	-0.001**	-0.001***	-0.001*	-0.000
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Primary	0.444***	0.915**	0.059	0.651***	0.535***
	(0.169)	(0.365)	(0.230)	(0.150)	(0.147)
Secondary	0.669***	1.549***	0.631***	1.292***	0.953***
	(0.184)	(0.369)	(0.157)	(0.155)	(0.154)
Tertiary	1.113**	1.914***	0.676***	1.986***	1.218***
	(0.464)	(0.437)	(0.236)	(0.228)	(0.233)
Sex	0.124	-0.195	0.047	0.021	0.030
	(0.111)	(0.170)	(0.172)	(0.087)	(0.084)
Firm size		0.713***			0.511***
		(0.164)			(0.122)
Private					-0.759***
					(0.121)
Self					-1.102***
					(0.128)
Dar es Salaam	0.465***	0.074	0.505***	0.402***	0.434***
	(0.122)	(0.190)	(0.169)	(0.100)	(0.095)
Year dummies	Yes	Yes	Yes	Yes	Yes
Constant	5.855***	7.271***	5.864**	6.050***	7.270***
	(0.789)	(0.942)	(2.252)	(0.596)	(0.602)
R^2	0.123	0.305	0.312	0.189	0.278
Sample size	610	238	105	953	953

Notes: Dependent variable is the logarithm of monthly earnings. Robust standard errors in parenthesis; significance levels are as in Table 3.

Results in Table 8 indicate that the premiums associated with the different levels of education are positive, significant and increasing in the level of education in the pooled models, and particularly so for the private wage and self-employment sectors. The public sector seems different: a minimum of secondary education is required for a return above not completing primary and there is only minimal benefit of additional tertiary education. This is consistent with a public sector comprising low skill and low wage workers (such as porters, cleaners and drivers) and higher skilled, more educated officials and health or education professionals with higher earnings.

On average, attainment of an additional level of education relative to no education leads to higher earnings increasing in the level of education, similar to the ILFS results and Quinn and Teal (2008). Returns to tenure increase at about 5% per annum in the wage employment but at a decreasing rate, i.e. they are concave (as found for age in the ILFS). Within the private sector, individuals who work in large firms enjoy an earnings premium of 71% on average. Overall, workers in private and self-employment earn less relative to their counterparts in the public sector, and living in Dar es Salaam is associated with a significant earnings premium (except in the private sector – this may explain the negative coefficient on 'recent job transfer' migrants observed above).

Table 9: Selectivity Corrected Earnings Equation Estimates, UHWS

	Self	**Private**	**Public**
Log of hours	1.017***	-0.269	0.171
	(0.145)	(0.603)	(0.486)
Tenure	0.025	0.022	0.038
	(0.017)	(0.058)	(0.042)
Tenure^2	0.000	0.000	-0.001
	(0.001)	(0.002)	(0.001)
Primary	0.660***	2.633**	0.032
	(0.147)	(1.188)	(0.363)
Secondary	1.172***	3.511***	0.462
	(0.169)	(1.273)	(0.503)
Tertiary	0.630***	4.461***	0.341
	(0.228)	(1.199)	(0.497)
Sex	0.447***	-0.018	0.105
	(0.092)	(0.347)	(0.318)
Firm size	-	0.848***	-
		(0.288)	
Dare Salaam	0.138	0.316	0.750***
	(0.088)	(0.328)	(0.266)
Selection correction term	0.014	-0.385	0.035
	0.225	(0.582)	(0.544)
Year dummies	Yes	Yes	Yes
Constant	-4.013***	-0.850	2.760
	0.817	(3.335)	(3.578)

Notes: Dependent variable is the log of monthly earnings. Bootstrap standard errors in parenthesis *** p<0.01, ** p<0.05, * p<0.1. Regressions include two year dummies to control for any time specific effects but not included for brevity. Result obtained via Stata Selmlog command.

Twumasi Baffour (2013b, Table 9) shows that education is important in selection into sector of employment (based on the multinomial logit model). Specifically, having at least secondary education significantly increases the probability of public sector employment whereas primary education is insignificant (consistent with results in Table 6 above); only tertiary education increases the probability of a private wage job. In contrast, primary and secondary education reduce the probability of being unemployed, whereas secondary and especially tertiary education reduce the probability of being self-employed.

Results with selectivity correction are reported in Table 9 (weighted least squares are applied in the second stage regression to account for heteroskedasticity present in the model due to selectivity and standard errors are bootstrapped to account for the two stage procedure). Although the selection correction term is not significant in all three sectors (so selection bias is not an issue), returns to education are altered. No evidence is found for educational premiums in the public sector (similar to Rankin, Sandefur and Teal, 2010): a minimum of secondary education is important for skilled public jobs but there is no additional effect of education on earnings (again consistent with distinct skill level jobs in the sector).

The convex relationship between education and earnings is only evident in the private sector; for the self employed returns are greatest for secondary education but similar for primary and tertiary (suggested that the higher educated accept informal sector employment unwillingly, perhaps while waiting to get wage employment). Being male only increases earnings in self employment and the large firm effect in the private sector is observed.

Table 10 reports the quantile regression results. Hours of work have a greater effect on earnings for those lower in the distribution (consistent with opportunities for particularly rewarding casual employment observed for the ILFS), whereas tenure and being male are only important higher in the distribution. Residence in Dar es Salaam is associated with an earnings premium at all quantiles, diminishing with higher earnings. Earnings in the private sector or self-employment relative to the public sector are lower throughout but the differential declines as we move up the conditional earnings distribution. This is also true for working in large firms for private sector wages. All educational levels relative to no education increase earnings along the conditional earnings distribution: the effect declines for primary and secondary but increases for tertiary as we move up the distribution. The evidence of a convex relationship between earnings and education levels

is only found at the median and upper quartile of the earnings distribution. We obtain additional support from the *F*-test statistics; the null hypothesis of equality of education level coefficients across quantiles is rejected for higher against lower quantiles.

Table 10: Quantile Regression Estimates, UWHS

	OLS	25%	50%	75%
Log of hours	0.457***	0.571***	0.357**	0.248***
	(0.105)	(0.202)	(0.144)	(0.075)
Tenure	0.035***	0.040	0.035*	0.030**
	(0.013)	(0.027)	(0.019)	(0.012)
Tenure^2	-0.000	-0.001	-0.001	-0.000
	(0.000)	(0.001)	(0.000)	(0.000)
Primary	0.535***	0.679**	0.397**	0.252**
	(0.147)	(0.296)	(0.200)	(0.100)
Secondary	0.953***	1.024***	0.693***	0.669***
	(0.154)	(0.321)	(0.179)	(0.131)
Tertiary	1.218***	0.794**	0.894**	1.275***
	(0.233)	(0.351)	(0.363)	(0.234)
Sex	0.030	-0.019	0.179*	0.147***
	(0.084)	(0.163)	(0.092)	(0.057)
Firm size	0.511***	0.513***	0.463***	0.295**
	(0.122)	(0.173)	(0.103)	(0.138)
Private	-0.759***	-0.838***	-0.677***	-0.458***
	(0.121)	(0.178)	(0.112)	(0.115)
Self	-1.102***	-1.540***	-0.967***	-0.747***
	(0.128)	(0.242)	(0.132)	(0.153)
Dares Salaam	0.434***	0.442***	0.417***	0.300***
	(0.095)	(0.151)	(0.088)	(0.096)
Constant	6.924***	6.691***	8.126***	9.249***
	(0.600)	(1.000)	(0.779)	(0.433)
R^2/*Pseudo* R^2	0.278	0.176	0.169	0.202
Observations	953	953	953	953
Testing equality of education coefficients: F-Stat (Prob>F)				
Primary 25% (1, 953)			3.27 (0.0741)	8.27
				(0.042)
Primary 50%				0.90
				(0.342)
Secondary 25%			3.82 (0.051)	2.35
				(0.126)
Secondary 50%				0.02
				(0.884)
Tertiary 25%			0.11 (0.737)	1.40
				(0.238)
Tertiary 50%				2.61
				(0.107)

Notes: Dependent variable is the logarithm of monthly earnings. Bootstrap standard errors in parenthesis *** p<0.01, ** p<0.05, * p<0.1. The F-stat tests the null hypothesis of equal coefficients (probability of rejecting the null in parenthesis). Regressions include two year dummies to control for time specific effects but not included for brevity.

6 Summary and Conclusion

This paper estimates determinants of earnings in self-employment (informal) and formal wage sectors for urban workers in Tanzania over 2000/01 to 2006, using a large sample from the ILFS (but with limited ability to control for selection into sector of employment) and a smaller but richer UHWS sample (facilitating control for selection). Although there is evidence that returns to education increase with years and level of education in a non-diminishing manner, this is not consistent across sectors of employment so it may be premature to conclude that returns to education are convex. As there are relatively few observations with the highest level (tertiary) or years of education returns may be imprecisely estimated for these workers so it is safer to conclude that returns to education are not concave in general. Indeed, it seems to vary across sectors: if returns are non-concave it may only be for private wage employment; controlling for selection, returns appear concave for the self employed and absent in the public sector (education is important to secure a higher skilled public sector job).

Using the ILFS data, an additional year of education on average increases earnings by 13% (15% in wage sectors and 11% for the self-employed). The level of education shows more differences: for wage earners, primary yields a small benefit and secondary yields the highest return (it falls slightly thereafter), whereas for the self employed although the benefit of primary is greater than for wage earners, returns are increasing for all levels of education (but lower than for wage earners). However, once the effect of education on being in the formal sector is allowed for, by 2006 the level of education confers no additional earnings benefit. In the informal sector, where education is not important for selection, by 2006 there were large returns to post-secondary and tertiary education. Quantile regressions suggest that over time education is reducing the inequality of earnings, consistent with increasing levels of education in the population.

The UHWS provides more insight: returns increase in the level of education for the private wage and self-employment sectors, but in the public sector primary education has no effect, there is a benefit from secondary education and only minimal additional benefit from tertiary education. Controlling for selection, the convex relationship is only evident in the private sector; for the self employed returns are greatest for secondary education but similar for primary and tertiary, whereas education has no effect on earnings in the public sector. Education is important in being selected into wage employment, especially in the

public sector where a minimum of secondary education appears important for skilled public jobs but there is no additional effect of education on earnings. This is consistent with a public sector comprising two separate groups - low skill and low wage manual workers and higher skilled, more educated officials and service professionals with higher earnings. For some in the latter category, post-secondary qualifications are necessary for public sector employment (most obviously in education and health) but wages are not high given the years of education.

Returns to tenure in the UHWS increase at about 5% per annum in wage employment but at a decreasing rate, i.e. they are concave (as found for number of years since completing education in the ILFS). Within the private sector, workers in large firms enjoy a considerable earnings premium (from 33% to 80% in different estimates). Overall, workers in private and self employment earn less relative to their counterparts in the public sector, and living in Dar es Salaam is associated with a significant earnings premium (a possible exception is the private sector). Males have higher earnings, especially for the self employed (informal sector).

Returns to education vary across the earnings distribution and tend to be highest for those with the highest earnings. For the UHWS, all educational levels increase earnings along the conditional earnings distribution: the effect declines for primary and secondary but increases for tertiary as we move up the distribution. A convex relationship between earnings and education levels is only found at the median and upper quartile of the earnings distribution. It is likely that amongst urban workers in Tanzania, those with low ability (earnings) gain most from primary and secondary education so these levels of education are inequality reducing (reducing the earnings differences between low and high ability individuals). Tertiary education, in contrast, may be inequality-increasing as the returns increase as we move up the earnings distribution, at least outside the public sector.

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Appendix A: Proxy Tenure Variables in ILFS

As we do not have an actual tenure variable in ILFS, we include variables that incorporate features related to tenure; taken together these are expected to account for job tenure effects. The variables include the adjusted age variable (as defined, to measure potential years in workforce), migration and work status. Migration status is constructed from migration variables measured as duration of residence (DR) in the urban area: since birth (coded 1), less than one year (coded 2), one to three years (coded 3), three to five years (coded 4) and five or more years (coded 5). We also include reasons for migration (RM): job transfer (coded 1), arranged job (coded 2), looking for better agricultural land (coded 3), business opportunities (coded 4), looking for paid work (coded 5), join spouse/family (coded 6) and attending school/training (coded 7). As this is not a continuous variable we construct dummies (coded 1, as defined below, coded 0 otherwise). Non-migrant (NM) (coded 1) if DR is coded 1; recent job transfer (RJT) (coded 1) if DR is coded 2 or 3 and RM is coded 1 or 2; job transfer (JT) (coded 1) if DR is coded 4 or 5 and RM is coded 1 or 2; education migrant (EM) (coded 1) if DR does not equal to non-migrant and RM is coded 7; and migrant (M) (coded 1) for all others.

Work Status is constructed based on months worked; again as this is not a continuous variable we construct dummies (coded 1 as defined below, coded 0 otherwise). Full time employment (FTE) is coded 1 if an individual work all weeks every month in the last 12 months; sporadic employment (PTE1) is coded 1 if worked all month in more than six months; temporary employment (PTE2) is coded 1 if work part of the month and available for work or work part of month and not available for work for more than six months; casual (PTE3) is coded 1 if worked all month or part of the month in less than six months; and unemployed (U) is coded 1 if no work at all whether or not available for work.

Appendix B: Detailed Regression Results

General Notes for all Appendix B tables

For ILFS, employment is classified according to Main Economic Activity

The omitted sector of employment is (paid) Agriculture. The 'others' category comprises employees in cooperatives, NGOs, religious and international organisations.
The omitted migration category is unclassified migrant.
The omitted period of employment is unclassified work status.
The omitted level of education is 'primary uncompleted'

Table B3: *Job Transfer, Education Migrant* and *Temporary Employment* included in regression but omitted from table as insignificant.

Table B3: *Recent Job Transfer*, *Sporadic* and *Casual Employment* included in regression but omitted from table as insignificant.

Table B1: Determinants of Earnings– Years of Education for 2000/01ILFS

	Pooled Sample ***(1)***	***Formal Sector*** ***(2)***	***Informal Sector*** ***(3)***
Age	0.038***	0.057***	0.020**
	(0.004)	(0.005)	(0.006)
Age^2/100	-0.042***	-0.067***	-0.019**
	(0.008)	(0.010)	(0.009)
Education years	0.147***	0.173***	0.113***
	(0.005)	(0.006)	(0.009)
Male	0.472***	0.335***	0.574***
	(0.029)	(0.036)	(0.043)
Public	0.797***	0.515***	
	(0.072)	(0.062)	
Private	0.288***	0.166**	
	(0.064)	(0.055)	
Self with Employee	1.068***		1.016***
	(0.079)		(0.086)
Self without Employee	0.295***		0.155*
	(0.063)		(0.069)
Others	0.258*		0.065
	(0.104)		(0.189)
*FirmSize*Private*	0.047	-0.017	
	(0.051)	(0.048)	
Non–Migrant	-0.097**	-0.074	-0.117**
	(0.032)	(0.042)	(0.047)
Recent Job Transfer	-0.048	-0.108**	0.100
	(0.054)	(0.054)	(0.113)
Job Transfer	-0.087	-0.043	-0.249**
	(0.049)	(0.050)	(0.101)
Education Migrant	-0.160***	-0.207***	-0.002
	(0.046)	(0.049)	(0.086)
Full Time Employment	0.335***	0.202	0.365***
	(0.071)	(0.121)	(0.091)
Sporadic Employment	-0.006	0.075	-0.003
	(0.075)	(0.115)	(0.100)
Temporary Employment	-0.167**	-0.228	-0.104
	(0.074)	(0.121)	(0.098)
Causal Employment	-0.081	1.265	-0.347
	(0.335)	(0.688)	(0.409)
Constant	8.311***	6.844***	9.075***
	(0.347)	(0.698)	(0.430)
R^2/Pseudo R^2	0.445	0.581	0.328
N	3667	1807	1901

Table B2: Determinants of Earnings – Education Squared for 2000/01 ILFS

	Pooled Sample ***(1)***	***Formal Sector*** ***(2)***	***Informal Sector*** ***(3)***
Age	0.039***	0.059***	0.020**
	(0.004)	(0.005)	(0.006)
Age^2/100	-0.046***	-0.074***	-0.019*
	(0.008)	(0.010)	(0.010)
Education	0.040	0.014	0.102**
	(0.031)	(0.041)	(0.048)
Education^2/100	0.560***	0.805***	0.059**
	(0.163)	(0.205)	(0.022)
Male	0.473***	0.329***	0.574***
	(0.029)	(0.036)	(0.043)
Public	0.795***	0.521***	
	(0.072)	(0.061)	
Private	0.297***	0.175**	
	(0.064)	(0.055)	
Self with employee	1.081***		1.017***
	(0.079)		(0.086)
Self without employee	0.303***		0.157**
	(0.063)		(0.070)
Others	0.255**		0.065
	(0.103)		(0.190)
*FirmSize*Private*	0.044	-0.023	
	(0.051)	(0.048)	
Non–Migrant	-0.100**	-0.077	-0.118**
	(0.032)	(0.041)	(0.047)
Recent Job Transfer	-0.044	-0.097	0.099
	(0.054)	(0.054)	(0.113)
Job Transfer	-0.096	-0.055	-0.249**
	(0.049)	(0.050)	(0.101)
Education Migrant	-0.168***	-0.225***	-0.003
	(0.046)	(0.049)	(0.086)
Full Time Employment	0.340***	0.222	0.365***
	(0.071)	(0.121)	(0.091)
Sporadic Employment	-0.008	0.053	-0.003
	(0.075)	(0.115)	(0.100)
Temporary Employment	-0.168*	-0.236**	-0.104
	(0.074)	(0.120)	(0.098)
Causal Employment	-0.096	1.226	-0.349
	(0.335)	(0.685)	(0.410)
Constant	8.777***	7.602***	9.120***
	(0.373)	(0.722)	(0.473)
R^2/Pseudo R^2	0.447	0.585	0.328
N	3667	1807	1901

Table B3: Determinants of Earnings – level of Education for 2000/01 ILFS

	Pooled Sample (1)	***Formal Sector (2)***	***Informal Sector (3)***
Age	0.042***	-0.016***	0.022***
	(0.004)	(0.004)	(0.006)
Age^2/100	-0.057***	0.025***	-0.031**
	(0.008)	(0.007)	(0.011)
Male	0.482***	-0.143***	0.589***
	(0.029)	(0.032)	(0.044)
Primary	0.637**	0.677**	0.583*
	(0.276)	(0.295)	(0.241)
Secondary	1.326**	1.240**	1.073**
	(0.577)	(0.416)	(0.544)
Post Secondary	1.815**	1.637***	1.551**
	(0.579)	(0.420)	(0.654)
Tertiary	2.302***	1.779***	1.554**
	(0.612)	(0.480)	(0.513)
Public	0.852***	0.725***	
	(0.072)	(0.057)	
Private	0.325***	0.229***	
	(0.065)	(0.043)	
Self with employee	1.125***		1.052***
	(0.079)		(0.087)
Self without employee	0.319***		0.161***
	(0.064)		(0.070)
Others	0.286**		0.065
	(0.104)		(0.191)
*FirmSize*Private*	0.033	-0.095	
	(0.051)	(0.066)	
Non–Migrant	-0.109***	-0.186***	-0.134**
	(0.033)	(0.039)	(0.048)
Job Transfer	-0.076	0.005	-0.219**
	(0.050)	(0.056)	(0.102)
Education Migrant	-0.173***	0.071	-0.010
	(0.047)	(0.051)	(0.087)
Full Time Employment	0.359***	0.091	0.376***
	(0.072)	(0.078)	(0.092)
Temporary Employment	-0.180**	-0.250***	-0.110
	(0.075)	(0.067)	(0.099)
Constant	8.702***	10.570***	9.301***
	(0.673)	(0.554)	(0.771)
R^2/Pseudo R^2	0.436	0.171	0.317
N	3667	4549	1901

Table B4: Quantile Regression Estimates for ILFS 2000/01

	OLS	**0.1**	**0.25**	**0.5**	**0.75**	**0.9**
Age	0.038*** (0.004)	0.043*** (0.009)	0.047*** (0.004)	0.045*** (0.006)	0.035*** (0.004)	0.029*** (0.007)
Age^2/100	-0.042*** (0.008)	-0.047*** (0.013)	-0.059*** (0.007)	-0.052*** (0.011)	-0.035*** (0.008)	-0.023 (0.012)
Education (years)	0.147*** (0.005)	0.119*** (0.006)	0.127*** (0.008)	0.154*** (0.008)	0.163*** (0.009)	0.181*** (0.009)
Male	0.472*** (0.029)	0.532*** (0.062)	0.421*** (0.055)	0.431*** (0.029)	0.422*** (0.043)	0.504*** (0.045)
Public	0.797*** (0.072)	1.011*** (0.180)	0.795*** (0.052)	0.767*** (0.076)	0.773*** (0.053)	0.518*** (0.118)
Private	0.288*** (0.064)	0.539** (0.176)	0.245*** (0.043)	0.199** (0.084)	0.243*** (0.054)	0.246 (0.133)
Self with employee	1.068*** (0.079)	0.767*** (0.203)	0.714*** (0.125)	0.977*** (0.100)	1.231*** (0.104)	1.515*** (0.178)
Self without employee	0.295*** (0.063)	0.270 (0.183)	0.169** (0.057)	0.281*** (0.065)	0.391*** (0.059)	0.419*** (0.097)
Others	0.258** (0.104)	0.353 (0.276)	0.126 (0.127)	0.271** (0.111)	0.352** (0.176)	0.243 (0.218)
*FirmSize*Private*	0.047 (0.051)	0.108 (0.101)	0.132** (0.061)	0.141** (0.043)	0.025 (0.054)	-0.166** (0.072)
Non–Migrant	-0.097** (0.032)	-0.147** (0.059)	-0.106** (0.043)	-0.046 (0.034)	-0.079 (0.046)	-0.186** (0.063)
Recent Job Transfer	-0.048 (0.054)	-0.094 (0.062)	-0.109 (0.072)	-0.076 (0.055)	-0.048 (0.055)	0.085 (0.095)
Job Transfer	-0.087 (0.049)	-0.051 (0.075)	-0.034 (0.049)	-0.042 (0.043)	-0.093** (0.037)	-0.221** (0.106)
Education Migrant	-0.160*** (0.046)	-0.097 (0.067)	-0.180*** (0.053)	-0.136*** (0.041)	-0.218** (0.068)	-0.221** (0.094)
Full Time Employment	0.335*** (0.071)	0.306*** (0.086)	0.317*** (0.079)	0.323*** (0.093)	0.320*** (0.084)	0.295 (0.160)
Sporadic Employment	-0.006 (0.075)	0.073 (0.120)	0.041 (0.126)	0.048 (0.081)	-0.022 (0.094)	-0.070 (0.141)
Temporary Employment	-0.167** (0.074)	-0.129 (0.134)	-0.089 (0.106)	-0.234** (0.101)	-0.243** (0.101)	-0.134 (0.176)
Causal Employment	-0.081 (0.335)	0.464 (0.642)	0.831 (0.798)	-0.228 (0.868)	-0.245 (0.247)	-0.160 (0.273)
Constant	8.311*** (0.347)	6.798*** (0.602)	7.011*** (0.826)	8.351*** (0.855)	8.935*** (0.222)	9.221*** (0.393)
R^2/Pseudo R^2	0.45	0.25	0.27	0.27	0.29	0.30
N	3667	3667	3667	3667	3667	3667

Table B5: Determinants of Earnings – Years Education 2006 ILFS

	Pooled Sample (1)	***Formal Sector (2)***	***Informal Sector (3)***
Age	0.052***	0.049***	0.047***
	(0.005)	(0.006)	(0.007)
Age^2	-0.068***	-0.040***	-0.076***
	(0.009)	(0.011)	(0.014)
Education (years)	0.126***	0.151***	0.110***
	(0.006)	(0.007)	(0.011)
Male	0.480***	0.373***	0.599***
	(0.032)	(0.041)	(0.046)
Public	1.030***	0.729***	
	(0.076)	(0.070)	
Private	0.459***	0.227***	
	(0.059)	(0.056)	
SE with employees	1.182***		0.907***
	(0.084)		(0.091)
SE without employees	0.498***		0.184***
	(0.054)		(0.054)
Others	0.454***		0.278**
	(0.083)		(0.129)
*FirmSize*Private*	0.269***	0.326***	
	(0.051)	(0.046)	
Non–Migrant	-0.066	-0.001	-0.179***
	(0.037)	(0.047)	(0.053)
Recent Job Transfer	-0.204***	-0.181**	-0.173
	(0.061)	(0.066)	(0.104)
Job Transfer	0.056	0.048	-0.015
	(0.053)	(0.058)	(0.089)
Education Migrant	-0.003	0.024	-0.004
	(0.047)	(0.053)	(0.075)
Full Time Employment	0.336***	0.337**	0.385***
	(0.082)	(0.117)	(0.112)
Sporadic Employment	0.178**	0.255**	0.176
	(0.073)	(0.112)	(0.096)
Temporary Employment	0.032	0.006	-0.008
	(0.077)	(0.116)	(0.103)
Causal Employment	0.829**	0.550	1.684
	(0.409)	(0.381)	(1.018)
Constant	7.341***	7.530***	7.006***
	(0.419)	(0.397)	(1.026)
R^2/*Pseudo* R^2	0.383	0.547	0.249
N	3620	1620	2055

Table B6: Determinants of Earnings –Education-squared for 2006 ILFS

	Pooled Sample ***(1)***	***Formal Sector*** ***(2)***	***Informal Sector*** ***(3)***
Age	0.053***	0.050***	0.048***
	(0.005)	(0.006)	(0.007)
$Age^2/100$	-0.072***	-0.044***	-0.080***
	(0.009)	(0.011)	(0.014)
Education	0.033	0.042	0.044
	(0.028)	(0.038)	(0.042)
$Education^2/100$	0.513***	0.567**	0.394**
	(0.152)	(0.192)	(0.141)
Male	0.482***	0.371***	0.599***
	(0.032)	(0.041)	(0.046)
Public	1.006***	0.728***	
	(0.076)	(0.070)	
Private	0.464***	0.240***	
	(0.059)	(0.056)	
SE with employees	1.184***		0.902***
	(0.084)		(0.091)
SE without employees	0.503***		0.188***
	(0.054)		(0.054)
Others	0.452***		0.276**
	(0.083)		(0.129)
*FirmSize*Private*	0.261***	0.325***	
	(0.051)	(0.046)	
Non–Migrant	-0.065	-0.002	-0.176***
	(0.037)	(0.047)	(0.053)
Recent Job Transfer	-0.197**	-0.175**	-0.167
	(0.060)	(0.066)	(0.104)
Job Transfer	0.057	0.048	-0.013
	(0.053)	(0.058)	(0.089)
Education Migrant	-0.001	0.027	-0.002
	(0.047)	(0.053)	(0.075)
Full Time Employment	0.334***	0.348**	0.380***
	(0.082)	(0.117)	(0.112)
Sporadic Employment	0.180**	0.264**	0.173*
	(0.073)	(0.112)	(0.086)
Temporary Employment	0.029	0.008	-0.011
	(0.077)	(0.115)	(0.103)
Causal Employment	0.862**	0.601	1.673
	(0.409)	(0.381)	(1.018)
Constant	7.684***	7.931***	7.266***
	(0.430)	(0.419)	(1.038)
R^2/Pseudo R^2	0.39	0.55	0.25
N	3620	1620	2055

Table B7: Determinants of Earnings – Level of Education for 2006 ILFS

	Pooled Sample (1)	***Formal Sector (2)***	***Informal Sector (3)***
Age	0.055***	0.052***	0.051***
	(0.005)	(0.006)	(0.007)
$Age^2/100$	-0.080***	-0.051***	-0.090***
	(0.009)	(0.011)	(0.014)
Male	0.484***	0.358***	0.612***
	(0.032)	(0.041)	(0.046)
Primary	0.599*	0.283*	0.505*
	(0.300)	(0.150)	(0.287)
Secondary	1.152***	0.949**	1.060**
	(0.325)	(0.451)	(0.393)
Post Secondary	1.775***	1.603**	1.467***
	(0.332)	(0.753)	(0.424)
Tertiary	1.803***	1.596**	1.583**
	(0.347)	(0.758)	(0.546)
Public	1.059***	0.756***	
	(0.076)	(0.070)	
Private	0.499***	0.252***	
	(0.060)	(0.057)	
SE with employees	1.212***		0.907***
	(0.084)		(0.092)
SE without employees	0.523***		0.187***
	(0.054)		(0.054)
Others	0.481***		0.272**
	(0.083)		(0.130)
*FirmSize*Private*	0.266***	0.330***	
	(0.051)	(0.047)	
Non–Migrant	-0.070	-0.013	-0.181***
	(0.037)	(0.047)	(0.053)
Recent Job Transfer	-0.197**	-0.165**	-0.176
	(0.061)	(0.066)	(0.104)
Full Time Employment	0.336***	0.388**	0.367**
	(0.082)	(0.118)	(0.112)
Sporadic Employment	0.179**	0.276**	0.170
	(0.073)	(0.112)	(0.097)
Causal Employment	0.957**	0.720	1.648
	(0.411)	(0.383)	(1.022)
Constant	7.424***	8.039***	7.254***
	(0.529)	(0.847)	(1.099)
R^2/Pseudo R^2	0.380	0.544	0.243
N	3620	1620	2055

Table B8: Quantile Regression Estimates for ILFS 2006

	OLS	**0.1**	**0.25**	**0.5**	**0.75**	**0.9**
Age	0.052***	0.058***	0.056***	0.048***	0.046***	0.050***
	(0.005)	(0.006)	(0.009)	(0.005)	(0.006)	(0.010)
Age^2/100	-0.068***	-0.085***	-0.080***	-0.062***	-0.051***	-0.056***
	(0.009)	(0.012)	(0.018)	(0.011)	(0.011)	(0.017)
Education (years)	0.126***	0.125***	0.119***	0.112***	0.132***	0.149***
	(0.006)	(0.013)	(0.006)	(0.006)	(0.008)	(0.017)
Male	0.480***	0.529***	0.448***	0.403***	0.442***	0.513***
	(0.032)	(0.063)	(0.031)	(0.027)	(0.039)	(0.048)
Public	1.030***	1.604***	1.325***	1.045***	0.796***	0.721***
	(0.076)	(0.151)	(0.109)	(0.074)	(0.119)	(0.132)
Private	0.459***	0.928***	0.718***	0.504***	0.270**	0.102
	(0.059)	(0.133)	(0.095)	(0.049)	(0.106)	(0.075)
Self with employee	1.182***	1.411***	1.259***	1.160***	1.118***	1.079***
	(0.084)	(0.170)	(0.119)	(0.101)	(0.174)	(0.193)
Self without employee	0.498***	0.706***	0.552***	0.511***	0.414***	0.463***
	(0.054)	(0.123)	(0.101)	(0.055)	(0.111)	(0.091)
Others	0.454***	0.625**	0.429**	0.452**	0.461**	0.423**
	(0.083)	(0.203)	(0.142)	(0.145)	(0.179)	(0.198)
*FirmSize*Private*	0.269***	0.410***	0.345***	0.265***	0.140***	0.149
	(0.051)	(0.065)	(0.065)	(0.044)	(0.042)	(0.084)
Non–Migrant	-0.066	-0.051	-0.043	-0.069	-0.019	0.017
	(0.037)	(0.043)	(0.043)	(0.038)	(0.040)	(0.063)
Recent Job Transfer	-0.204***	-0.179**	-0.159**	-0.186**	-0.257***	-0.129
	(0.061)	(0.075)	(0.072)	(0.065)	(0.064)	(0.124)
Job Transfer	0.056	0.030	0.025	0.019	0.109	0.139
	(0.053)	(0.068)	(0.064)	(0.059)	(0.057)	(0.075)
Education Migrant	-0.003	0.005	-0.007	-0.054	-0.011	-0.029
	(0.047)	(0.067)	(0.056)	(0.055)	(0.042)	(0.109)
Full Time Employment	0.336***	0.488**	0.307***	0.258**	0.219**	0.280**
	(0.082)	(0.151)	(0.092)	(0.087)	(0.089)	(0.104)
Sporadic Employment	0.178**	0.287	0.084	0.065	-0.010	0.083
	(0.073)	(0.160)	(0.124)	(0.053)	(0.070)	(0.121)
Temporary Employment	0.032	0.074	0.025	0.041	-0.005	0.057
	(0.077)	(0.144)	(0.083)	(0.080)	(0.086)	(0.132)
Causal Employment	0.829**	0.403	0.590**	0.911***	1.194**	1.011**
	(0.409)	(0.521)	(0.291)	(0.247)	(0.414)	(0.399)
Constant	7.341***	6.197***	6.960***	7.496***	7.713***	8.133***
	(0.419)	(0.530)	(0.341)	(0.281)	(0.466)	(0.445)
R^2/Pseudo R^2	0.383	0.26	0.26	0.24	0.22	0.22
N	3620	3620	3620	3620	3620	3620

Table B9: Determinants of Earnings – Years Education 2006 ILFS -YOUTH

	Pooled	**Formal**	**Informal**
Age	0.065	0.090	0.061
	(0.045)	(0.053)	(0.073)
Age^2/100	0.048	-0.136	0.023
	(0.279)	(0.340)	(0.437)
Education	0.167***	0.195***	0.127***
	(0.018)	(0.019)	(0.030)
Male	0.530***	0.346***	0.684***
	(0.060)	(0.070)	(0.095)
Public	0.851***	0.783***	
	(0.206)	(0.171)	
Private	0.373***	0.251**	
	(0.096)	(0.083)	
Self with employee	1.205***		1.066***
	(0.211)		(0.259)
Self with employee	0.578***		0.309**
	(0.094)		(0.112)
Others	0.422**		0.375
	(0.132)		(0.210)
*FirmSize*Private*	0.375***	0.543***	
	(0.104)	(0.087)	
Non–Migrant [b]	-0.074	0.030	-0.211
	(0.081)	(0.088)	(0.133)
Recent Job Transfer	-0.339**	-0.215	-0.320
	(0.114)	(0.114)	(0.232)
Job Transfer	-0.033	-0.038	-0.047
	(0.107)	(0.113)	(0.183)
Education Migrant	0.134	0.079	0.162
	(0.098)	(0.103)	(0.167)
Full Time Employment [c]	0.121	0.195	0.054
	(0.134)	(0.149)	(0.217)
Sporadic Employment	0.142	0.222	0.132
	(0.123)	(0.154)	(0.183)
Temporary Employment	-0.198	0.005	-0.415*
	(0.132)	(0.153)	(0.207)
Causal Employment	0.700	0.428	1.496
	(0.471)	(0.428)	(1.084)
Constant	7.157***	7.131***	7.045***
	(0.535)	(0.518)	(1.152)
r^2/Pseudo r^2	0.287	0.423	0.231
N	990	490	517

Table B10: Determinants of Earnings –Education-squared for 2006 ILFS-YOUTH

	Pooled	Formal	Informal
Age	0.098**	0.108**	0.094
	(0.049)	(0.054)	(0.081)
Age^2/100	-0.160	-0.247	-0.180
	(0.300)	(0.346)	(0.488)
Education	0.050	0.073	0.038
	(0.064)	(0.077)	(0.099)
Education^2/100	0.743	0.741	0.584
	(0.393)	(0.453)	(0.621)
Male	0.534***	0.352***	0.684***
	(0.060)	(0.070)	(0.095)
Public	0.765***	0.736***	
	(0.211)	(0.173)	
Private	0.367***	0.267**	
	(0.096)	(0.084)	
Self with employee	1.171***		1.045***
	(0.211)		(0.260)
Self with employee	0.580***		0.315**
	(0.094)		(0.112)
Others	0.405**		0.373
	(0.132)		(0.210)
*FirmSize*Private*	0.369***	0.539***	
	(0.104)	(0.087)	
Non–Migrant [b]	-0.074	0.027	-0.210
	(0.080)	(0.088)	(0.133)
Recent Job Transfer	-0.333**	-0.213	-0.314
	(0.114)	(0.114)	(0.233)
Job Transfer	-0.021	-0.026	-0.033
	(0.107)	(0.113)	(0.183)
Education Migrant	0.137	0.086	0.159
	(0.098)	(0.103)	(0.167)
Full Time Employment [c]	0.120	0.208	0.038
	(0.133)	(0.149)	(0.218)
Sporadic Employment	0.132	0.226	0.115
	(0.123)	(0.153)	(0.183)
Temporary Employment	-0.194	0.019	-0.419*
	(0.132)	(0.153)	(0.207)
Causal Employment	0.713	0.447	1.474
	(0.470)	(0.427)	(1.084)
Constant	7.461***	7.490***	7.277***
	(0.558)	(0.562)	(1.178)
r^2/Pseudo r^2	0.290	0.427	0.232
N	990	490	517

Table B11: Determinants of Earnings – Level of Education for 2006 ILFS -YOUTH

	Pooled	**Formal**	**Informal**
Age	0.125**	0.108*	0.135
	(0.049)	(0.055)	(0.081)
Age^2/100	-0.402	-0.333	-0.487
	(0.302)	(0.351)	(0.482)
Male	0.526***	0.337***	0.686***
	(0.061)	(0.071)	(0.096)
Primary [d]	0.442	-2.308***	0.216
	(0.563)	(0.324)	(0.668)
Secondary	1.181**	-1.457***	0.744
	(0.573)	(0.317)	(0.698)
Post Secondary	2.582***		1.816**
	(0.638)		(0.829)
Public	0.827***	0.805***	
	(0.212)	(0.176)	
Private	0.391***	0.310***	
	(0.097)	(0.085)	
Self with employee	1.130***		1.029***
	(0.214)		(0.263)
Self with employee	0.614***		0.335**
	(0.095)		(0.113)
Others	0.403**		0.389
	(0.133)		(0.212)
*FirmSize*Private*	0.410***	0.587***	
	(0.105)	(0.089)	
Non–Migrant [b]	-0.097	0.010	-0.241
	(0.081)	(0.090)	(0.134)
Recent Job Transfer	-0.331**	-0.231*	-0.303
	(0.115)	(0.116)	(0.234)
Job Transfer	-0.008	0.005	-0.028
	(0.108)	(0.115)	(0.185)
Education Migrant	0.128	0.091	0.146
	(0.099)	(0.105)	(0.168)
Full Time Employment [c]	0.152	0.271	0.027
	(0.135)	(0.151)	(0.219)
Sporadic Employment	0.143	0.245	0.117
	(0.124)	(0.156)	(0.184)
Temporary Employment	-0.162	0.038	-0.408
	(0.133)	(0.156)	(0.209)
Causal Employment	0.815	0.551	1.479
	(0.474)	(0.436)	(1.091)
Constant	7.520***	10.507***	7.493***
	(0.757)	(0.569)	(1.295)
r^2/Pseudo r^2	0.278	0.403	0.225
N	990.000	490.000	517.000

Table B12: Determinants of Earnings –Education (years) for 2006 ILFS - Male

	Pooled	Formal	Informal
Age	0.053***	0.050***	0.050***
	(0.006)	(0.007)	(0.010)
Age^2/100	-0.067***	-0.043**	-0.078***
	(0.011)	(0.013)	(0.017)
Education	0.116***	0.139***	0.097***
	(0.008)	(0.008)	(0.014)
Public	0.817***	0.542***	
	(0.104)	(0.086)	
Private	0.409***	0.169**	
	(0.083)	(0.068)	
Self with employee	1.055***		0.690***
	(0.109)		(0.115)
Self with employee	0.442***		0.019
	(0.082)		(0.077)
Others	0.341**		-0.106
	(0.120)		(0.240)
*FirmSize*Private*	0.201***	0.253***	
	(0.057)	(0.054)	
Non–Migrant [b]	-0.016	-0.005	-0.111
	(0.047)	(0.057)	(0.075)
Recent Job Transfer	-0.281***	-0.186**	-0.344**
	(0.073)	(0.080)	(0.133)
Job Transfer	0.121	0.102	0.019
	(0.065)	(0.070)	(0.119)
Education Migrant	0.041	0.041	0.030
	(0.058)	(0.065)	(0.100)
Full Time Employment [c]	0.400**	0.321**	0.521**
	(0.122)	(0.148)	(0.195)
Sporadic Employment	0.248**	0.271**	0.284
	(0.106)	(0.136)	(0.159)
Temporary Employment	0.016	-0.070	-0.017
	(0.114)	(0.145)	(0.174)
Causal Employment	0.838*	0.598	1.538
	(0.397)	(0.382)	(1.001)
Constant	7.844***	8.050***	7.784***
	(0.414)	(0.407)	(1.021)
r^2/Pseudo r^2	0.322	0.479	0.181
N	2045	1076	1005

Table B13: Determinant of Earnings –Education^2 for 2006 ILFS - Male

	Pooled	Formal	Informal
Age	0.055***	0.052***	0.051***
	(0.006)	(0.007)	(0.010)
Age^2/100	-0.072***	-0.049***	-0.080***
	(0.011)	(0.013)	(0.017)
Education	-0.007	0.001	0.060
	(0.039)	(0.045)	(0.063)
Education^2/100	0.659**	0.713**	0.214
	(0.203)	(0.231)	(0.350)
Public	0.796***	0.537***	
	(0.104)	(0.085)	
Private	0.415***	0.182**	
	(0.083)	(0.068)	
Self with employee	1.063***		0.691***
	(0.109)		(0.115)
Self with employee	0.450***		0.022
	(0.082)		(0.078)
Others	0.340**		-0.106
	(0.120)		(0.240)
*FirmSize*Private*	0.195***	0.251***	
	(0.057)	(0.054)	
Non–Migrant [b]	-0.017	-0.007	-0.110
	(0.047)	(0.056)	(0.075)
Recent Job Transfer	-0.276***	-0.185**	-0.343**
	(0.073)	(0.080)	(0.133)
Job Transfer	0.125	0.108	0.021
	(0.064)	(0.070)	(0.119)
Education Migrant	0.040	0.042	0.031
	(0.058)	(0.065)	(0.100)
Full Time Employment [c]	0.410***	0.330*	0.524**
	(0.122)	(0.148)	(0.195)
Sporadic Employment	0.262*	0.292*	0.285
	(0.106)	(0.135)	(0.159)
Temporary Employment	0.015	-0.078	-0.016
	(0.113)	(0.144)	(0.174)
Causal Employment	0.876*	0.658	1.531
	(0.396)	(0.381)	(1.002)
Constant	8.308***	8.562***	7.938***
	(0.437)	(0.437)	(1.051)
r^2/Pseudo r^2	0.325	0.484	0.182
N	2045	1076	1005

Table B14: Determinants of Earnings –Education Levels for 2006 ILFS – Male

	Pooled	Formal	Informal
Age	0.056***	0.054***	0.053***
	(0.006)	(0.007)	(0.010)
Age^2/100	-0.077***	-0.055***	-0.087***
	(0.011)	(0.013)	(0.017)
Primary [d]	0.291	0.259	0.464
	(0.504)	(0.742)	(0.710)
Secondary	0.735	0.802	0.918
	(0.505)	(0.744)	(0.714)
Post Secondary	1.377**	1.491**	1.298*
	(0.511)	(0.747)	(0.600)
Tertiary	1.591**	1.635*	1.284
	(0.526)	(0.755)	(0.838)
Public	0.825***	0.558***	
	(0.104)	(0.086)	
Private	0.443***	0.199**	
	(0.084)	(0.068)	
Self with employee	1.091***		0.689***
	(0.110)		(0.116)
Self with employee	0.469***		0.016
	(0.082)		(0.078)
Others	0.361**		-0.125
	(0.120)		(0.241)
*FirmSize*Private*	0.201***	0.256***	
	(0.057)	(0.054)	
Non–Migrant [b]	-0.027	-0.022	-0.123
	(0.047)	(0.057)	(0.076)
Recent Job Transfer	-0.279***	-0.182*	-0.347**
	(0.073)	(0.080)	(0.134)
Job Transfer	0.138*	0.126	0.033
	(0.065)	(0.070)	(0.119)
Education Migrant	0.025	0.022	0.025
	(0.058)	(0.065)	(0.101)
Full Time Employment [c]	0.428***	0.367*	0.541**
	(0.123)	(0.148)	(0.196)
Sporadic Employment	0.271*	0.310*	0.296
	(0.106)	(0.136)	(0.160)
Temporary Employment	0.016	-0.077	-0.013
	(0.114)	(0.145)	(0.175)
Causal Employment	0.942*	0.751*	1.487
	(0.397)	(0.383)	(1.007)
Constant	8.191***	8.516***	8.002***
	(0.652)	(0.843)	(1.240)
r^2/Pseudo r^2	0.321	0.479	0.174
N	2045	1076	1005

Table B15: Determinants of Earnings –Education (years) for 2006 ILFS - Female

	Pooled	Formal	Informal
Age	0.055***	0.041***	0.046***
	(0.008)	(0.011)	(0.011)
Age^2/100	-0.080***	-0.029	-0.075***
	(0.017)	(0.023)	(0.022)
Education	0.138***	0.173***	0.123***
	(0.012)	(0.013)	(0.017)
Public	1.208***	1.007***	
	(0.120)	(0.121)	
Private	0.438***	0.357***	
	(0.091)	(0.099)	
Self with employee	1.304***		1.161***
	(0.139)		(0.151)
Self with employee	0.505***		0.301***
	(0.074)		(0.075)
Others	0.513***		0.479**
	(0.117)		(0.157)
*FirmSize*Private*	0.448***	0.486***	
	(0.107)	(0.091)	
Non–Migrant [b]	-0.127**	-0.002	-0.225**
	(0.058)	(0.083)	(0.075)
Recent Job Transfer	-0.092	-0.214	0.147
	(0.105)	(0.116)	(0.170)
Job Transfer	0.007	0.015	0.010
	(0.090)	(0.103)	(0.136)
Education Migrant	-0.082	0.004	-0.091
	(0.079)	(0.091)	(0.116)
Full Time Employment [c]	0.270**	0.331	0.304**
	(0.112)	(0.194)	(0.138)
Sporadic Employment	0.119	0.223	0.131
	(0.103)	(0.199)	(0.123)
Temporary Employment	0.036	0.130	-0.001
	(0.108)	(0.197)	(0.130)
Causal Employment	0.000	0.000	0.000
	(.)	(.)	(.)
Constant	8.138***	7.798***	8.607***
	(0.179)	(0.256)	(0.239)
r^2/Pseudo r^2	0.345	0.619	0.175
N	1575	544	1050

Table B16: Determinants of Log Earnings –Education^2 for 2006 ILFS - Female

	Pooled	Formal	Informal
Age	0.057***	0.041***	0.049***
	(0.008)	(0.011)	(0.012)
Age^2/100	-0.087***	-0.029	-0.085***
	(0.017)	(0.023)	(0.023)
Education	0.044	0.109	0.004
	(0.043)	(0.068)	(0.058)
Education^2/100	0.541**	0.326	0.765**
	(0.200)	(0.344)	(0.358)
Public	1.162***	1.011***	
	(0.122)	(0.121)	
Private	0.445***	0.366***	
	(0.091)	(0.100)	
Self with employee	1.294***		1.132***
	(0.139)		(0.151)
Self with employee	0.508***		0.302***
	(0.074)		(0.075)
Others	0.505***		0.470**
	(0.117)		(0.157)
*FirmSize*Private*	0.430***	0.486***	
	(0.108)	(0.091)	
Non–Migrant [b]	-0.124*	-0.001	-0.219**
	(0.058)	(0.083)	(0.075)
Recent Job Transfer	-0.081	-0.205	0.159
	(0.105)	(0.117)	(0.170)
Job Transfer	0.006	0.009	0.013
	(0.090)	(0.103)	(0.136)
Education Migrant	-0.077	0.008	-0.095
	(0.079)	(0.091)	(0.116)
Full Time Employment [c]	0.264**	0.337	0.289**
	(0.112)	(0.194)	(0.138)
Sporadic Employment	0.116	0.217	0.125
	(0.103)	(0.199)	(0.122)
Temporary Employment	0.034	0.133	-0.007
	(0.108)	(0.197)	(0.130)
Causal Employment	0.000	0.000	0.000
	(.)	(.)	(.)
Constant	8.496***	8.060***	9.024***
	(0.238)	(0.376)	(0.308)
r^2/Pseudo r^2	0.348	0.620	0.178
N	1575	544	1050

Table B17: Determinants of Earnings –Education Levels for 2006 ILFS –Female

	Pooled	Formal	Informal
Age	0.061***	0.041***	0.054***
	(0.008)	(0.011)	(0.011)
Age^2/100	-0.101***	-0.030	-0.100***
	(0.017)	(0.023)	(0.022)
Primary [d]	0.659	-1.231***	0.518
	(0.428)	(0.192)	(0.468)
Secondary	1.366**	-0.386**	1.193**
	(0.435)	(0.189)	(0.481)
Post Secondary	2.073***	0.299	1.881**
	(0.455)	(0.215)	(0.595)
Tertiary	1.680***		2.045*
	(0.484)		(0.873)
Public	1.220***	1.028***	
	(0.120)	(0.121)	
Private	0.486***	0.368***	
	(0.091)	(0.100)	
Self with employee	1.320***		1.144***
	(0.139)		(0.152)
Self with employee	0.526***		0.306***
	(0.074)		(0.076)
Others	0.538***		0.482**
	(0.117)		(0.158)
*FirmSize*Private*	0.427***	0.493***	
	(0.108)	(0.091)	
Non–Migrant [b]	-0.116*	0.001	-0.216**
	(0.058)	(0.083)	(0.075)
Recent Job Transfer	-0.074	-0.164	0.133
	(0.106)	(0.117)	(0.170)
Job Transfer	0.036	0.035	0.036
	(0.091)	(0.104)	(0.137)
Education Migrant	-0.096	-0.024	-0.098
	(0.079)	(0.093)	(0.117)
Full Time Employment [c]	0.243**	0.371	0.262**
	(0.112)	(0.195)	(0.138)
Sporadic Employment	0.101	0.187	0.115
	(0.103)	(0.199)	(0.123)
Temporary Employment	0.024	0.120	-0.023
	(0.108)	(0.198)	(0.131)
Causal Employment	0.000	0.000	0.000
	(.)	(.)	(.)
Constant	8.355***	10.163***	8.878***
	(0.459)	(0.291)	(0.511)
r^2/Pseudo r^2	0.345	0.618	0.173
N	1575	544	1050

Table B18 Selection corrected earnings equation; 2006 (N = 5972)

	Paid-employment	**Self-employment**
Age	0.055*** (0.010)	0.016 (0.013)
Age^2/100	-0.058*** (0.018)	-0.027 (0.025)
Male	0.213*** (0.091)	0.480*** (0.068)
Primary [d]	0.073 (0.653)	1.005 (1.115)
Secondary	0.634 (0.655)	1.600 (1.121)
Post Secondary	1.191 (0.650)	2.240** (1.140)
Tertiary	1.147 (0.667)	2.589** (1.168)
Public [a]	0.530*** (0.112)	-
Private	0.002 (0.098)	-
SE with employees	-	0.668*** (0.105)
SE without employees	-	-0.070 (0.076)
Others	-	-0.291 (0.240)
*FirmSize*Private*	0.324*** (0.049)	-
Non–Migrant [b]	0.055 (0.057)	-0.069 (0.071)
Recent Job Transfer	-0.193*** (0.068)	-0.217* (0.117)
Job Transfer	0.006 (0.057)	0.131 (0.099)
Education Migrant	-0.043 (0.062)	0.029 (0.097)
Full Time Employment [c]	0.332** (0.135)	0.364*** (0.124)
Sporadic Employment	0.253* (0.149)	0.113 (0.120)
Temporary Employment	0.117 (0.176)	0.102 (0.119)
Causal Employment	0.359 (0.410)	1.717** (0.886)
Selection correction term (λ)	0.334** (0.140)	0.485*** (0.160)
Constant	9.393*** (0.940)	7.821*** (1.411)
N		

Table B19 Selection corrected earnings equation; 2000

	Paid-employment	**Self-employment**
Age	0.058***	0.003
	(0.009)	(0.021)
Age^2/100	-0.066***	-0.010
	(0.020)	(0.035)
Male	0.176*	0.516***
	(0.093)	(0.091)
Primary [d]	1.307***	0.481
	(0.311)	(0.752)
Secondary	0.705**	1.222
	(0.300)	(0.783)
Post Secondary	0.331	1.622
	(0.292	(1.203)
Tertiary	0.0001	0.002
	(0.191)	(0.190)
Public [a]	0.511***	
	(0.113)	
Private	0.146	
	(0.110)	
SE with employees	-	0.677***
		(0.214)
SE without employees	-	-0.280
		(0.176)
Others	-	-0.086
		(0.570)
*FirmSize*Private*	0.094	-
	(0.093)	
Non–Migrant [b]	0.057	-0.009
	(0.096)	(0.086)
Recent Job Transfer	0.158***	0.215
	(0.060)	(0.309)
Job Transfer	0.197***	0.146
	(0.080)	(0.262)
Education Migrant	0.411***	0.344
	(0.091)	(0.328)
Full Time Employment [c]	0.056	-0.177
	(0.353)	(0.249)
Sporadic Employment	0.091	0.303
	(0.254)	(0.218)
Temporary Employment	0.156	0.378
	(0.350)	(0.246)
Causal Employment	0.184	0.295
	(0.487)	(0.671)
Selection correction term (λ)	0.610**	1.090**
	(0.249)	(0.521)
Constant	11.511***	10.344***
	(0.433)	(0.985)
N	4447	