The Gender impact in Earnings Inequality: Evidence from Sri Lanka

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Abstract

This paper estimates an earnings function for Sri Lanka, followed by a decomposition analysis of male-female earnings suggest that the gender disparity in earnings largely represents 'discrimination' against women. The findings showed that irrespective of their "inferior" labour market attributes, men had average earnings that were considerably higher than the female average and that this could be attributed entirely to discrimination in favour of male earners.

Keywords: Inequality, Earnings, Gender, Sri Lanka

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1.   Introduction

Despite the high levels of human development, the civil war has affected Sri Lanka's economic growth significantly. Sri Lanka embarked on the liberalisation policies since late 1970s, and this led to an increase in economic growth; however, this was not reflected on the distribution of income, which remained more or less unchanged (Dunham and Jayasuriya, 2000). In developing countries, Kuznets (1955) has identified the shift of population from traditional to modern activities as an important reason for inverted U relationship between inequality and development and found that developing countries had relatively greater inequality than developed countries. The variations in inequality reflect real differences across countries in participation in the modern sectors of the economy and indicate the importance of urbanisation and industrialisation in determining the extent of inequality. However, a recent work reveals reduced inequality trends in Latin America, which may be due to the narrowing of the earnings gap between skilled and to the poor (López-Calva and Claudia, 2010).

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In India, the distribution of income and the process of development based on a cross country analysis support the increase in relative inequality in the early stages of development followed by a decline in the later stages which is attributed to factors such as changes in inter-sectoral shifts in the structure of production, educational attainment and labour skills (Ahluwalia, 1976). In China, studies have highlighted powerful divergences in earnings among its provinces as well (Knight, Li and Zhao, 2001). It is also noted that in China, signs of wage discrimination against minorities and women are strong and the productive characteristics of workers are rewarded in the labour market (Knight and Song, 2003). The decomposition analysis of the rapid increase in mean earnings showed that unskilled market wage rose very little in real terms, the impetus came from the rising returns to education and the growing gap between the local private sector and other ownership factors. According to Cunningham and Jacobson (2003) the policies that attempt to equalise earnings-related characteristics across the population are more effective than any other type of targeting. However, the issues on trends in poverty and inequality receive a range of empirical results, mainly due to the ambiguous concepts, data problems, and the adequacy of income measures to gauge welfare and its distribution (Nelson, 1998). Some of the recent evidence shows that poverty has been reduced successfully and sustainably, where governments used policy interventions to facilitate employment centred structural transformations of their economies (UNRISD, 2010).

In Section 2 of this paper, we estimate an earnings function for Sri Lanka based on the Consumer Finances and Socio Economic Survey that excluded war-affected districts. Section 3 addresses the question of how greater equality by gender and race/ethnicity in distribution of earnings would affect earnings inequality. Section 4 summarises the main findings of the study.

This study builds on earlier work on the decomposition of income inequality in Sri Lanka (Glewwe, 1986; 1988). These studies showed that in the wake of the Sri Lankan government's implementation of policies in 1977 to remove governmental controls on the economy and to provide incentives for investment, inequality has increased. In this context, this study takes a fresh look at income inequality in Sri Lanka, based on a new data set.

2.   Earnings Function for Sri Lanka

2.1   Basic Features of the Survey

The total earnings of the 7,826 earners in the Survey (i.e. persons with positive earnings) were defined as the sum of their earnings from their primary and subsidiary occupations. Table 1 (in Appendix) shows some of the salient features with respect to the earners in the Survey such as the average earnings were the lowest for Tamils.

The second feature is the gap in male-female earnings: males earned, on average, 41 per cent more than females. 86 per cent of Sinhalese earners lived in rural areas while 80 per cent of Tamil earners lived on tea estates; the most urbanised ethnic group was the Muslims, one-third of whom lived in urban areas. The place of residence, which was home

to one out of five of Muslim earners, while only 3 per cent of the Sinhalese earners and 7 per cent of Tamil earners lived in the Colombo Municipal Area.

The table also reveals that the proportion of earners with higher educational qualifications was very low for Tamils (7 per cent) and the highest for the Sinhalese (44 per cent). The magnitude of high percentage of school drop outs among Tamils will be more significant if we include Tamil heartlands such as 'Jaffna' in the sample which has the highest school drop-out rates in the country (World Bank, 2000). In many of these areas, children have interrupted schooling due to displacement of families by the conflict and children are also lured (forcibly or not) to join the civil war.

2.2 Estimating an Earning Function

The earnings equations were estimated, first, over all the 7,826 earners; then, separately for male and female, earners; and lastly, separately for the Sinhalese earners, the Tamil earners and the Muslim earners (see, Table 2 in Appendix).

The estimation results point to the fact that *ceteris paribus* a move from the estates sector to the rural sector and urban sector would increase earnings by 30 and 40 per cent respectively. The fact that an overwhelming majority of Tamil earners worked on estates, provides an explanation for the lowest earnings of Tamils, compared to Sinhalese and Muslims. The effect of residence on earnings also made it felt through the various zones.

Earnings increased with the number of days worked in the week. The average numbers of weekly working days were, in terms of ethnicity, 4.9 for Sinhalese earners, 5.1 for Tamil and 5.0 for Muslim earners and, in terms of gender, 4.8 for men and 5.0 for women. Although an increase in age and in years of experience added to earnings, the effect of age was stronger than the effect of work experience. The results showed that a high education qualification, compared to no schooling, raised earnings by 33 per cent and this effect was stronger for male than for female earners (34 against 29 per cent) and stronger for Sinhalese than for Tamil earners (37 against 30 per cent). In employment, the earnings equation showed that working in the public sector and in the organised private sector added, on average, 10-11 per cent to earnings offered in the unorganised private sector.

Despite the details in table 1, the estimation results show that there was no 'ethnic effect' *per se* on earnings in Sri Lanka. After other non-ethnic factors had been controlled for, the coefficients on the Tamil and Muslim dummy variables were not significantly different from zero, whether in the all earners, male earners or female earners equations. The most important of the non-ethnic factors were controlling for the urban/rural/estates sectors and for education effects. Firstly, the vast majority of Tamil earners worked on estates were average earnings (485 rupees per week) were considerably lower than in the rural (854 rupees per week) or urban (1,250 rupees per week) sectors. Secondly, relatively few Tamil earners - compared to Sinhalese and Muslim earners - had high educational qualifications when such qualifications offered a considerable earnings premium.

3.   The Decomposition of Male-Female Earnings

We are using the Oaxaca (1973) and Blinder (1973) decomposition methodology to examine the issue of gender difference in earnings represents 'discrimination' against women. The male and female earnings equations may be written as:

$$\log(W_F) = \mathbf{X}'_\mathbf{F}\boldsymbol{\beta}_\mathbf{F} \text{ and } \log(W_M) = \mathbf{X}'_\mathbf{M}\boldsymbol{\beta}_\mathbf{M} \tag{1}$$

where: W_F and W_M are, respectively, female and male earnings; $\mathbf{X}_\mathbf{F}$ and $\mathbf{X}_\mathbf{M}$ are vectors, respectively, of observations on explanatory variables for female and male earnings; $\boldsymbol{\beta}_\mathbf{F}$ and $\boldsymbol{\beta}_\mathbf{M}$ are coefficient vectors for the female and male earnings equations.

Alternatively, equation (1) may be written as:

$$\log(W_M) - \log(W_F) = \mathbf{X}_\mathbf{M}'\boldsymbol{\beta}_\mathbf{M} - \mathbf{X}_\mathbf{F}'\boldsymbol{\beta}_\mathbf{F} = (\boldsymbol{\beta}_\mathbf{M} - \boldsymbol{\beta}_\mathbf{F})'\mathbf{X}_\mathbf{F} + (\mathbf{X}_\mathbf{M} - \mathbf{X}_\mathbf{F})'\boldsymbol{\beta}_\mathbf{M} \tag{2}$$

or as:

$$\log(W_M) - \log(W_F) = \mathbf{X}_\mathbf{M}'\boldsymbol{\beta}_\mathbf{M} - \mathbf{X}_\mathbf{F}'\boldsymbol{\beta}_\mathbf{F} = (\boldsymbol{\beta}_\mathbf{M} - \boldsymbol{\beta}_\mathbf{F})'\mathbf{X}_\mathbf{M} + (\mathbf{X}_\mathbf{M} - \mathbf{X}_\mathbf{F})'\boldsymbol{\beta}_\mathbf{F} \tag{3}$$

The first term in equations (2) and (3) - which may be interpreted as the 'discrimination' component - measures the (log) difference in male and female earnings resulting from differences in their respective coefficient vectors ($\boldsymbol{\beta}_\mathbf{M}$-$\boldsymbol{\beta}_\mathbf{F}$): in equation (2) these differences are evaluated at $\mathbf{X}_\mathbf{F}$, the observations relating to the female attribute vector; in equation (3) they are evaluated at $\mathbf{X}_\mathbf{M}$, the observations for the male attribute vector. The second term in equations (2) and (3), above, measures the (log) difference in male and female earnings resulting from differences in their respective attribute vectors ($\mathbf{X}_\mathbf{M}$-$\mathbf{X}_\mathbf{F}$): in equation (2) these differences are evaluated using $\boldsymbol{\beta}_\mathbf{M}$, the male coefficient vector; in equation (3) they are evaluated using $\boldsymbol{\beta}_\mathbf{F}$, the female coefficient vector.

The observed difference between men and women in the logarithm of their earnings - $\log(earn^M / earn^F)$ - was 0.279 for all earners (See Table 3 in Appendix). Consequently, average male earnings were 28 per cent higher than average female earnings[1]. When, for all earners, female attributes were evaluated at male coefficients ('women were treated as men'), the log difference in earnings was predicted to be 0.314 which is higher than the observed sample difference. In other words, if women were treated 'fairly' - in that their earnings attributes were evaluated using male coefficients - then the average log earnings of women (6.551) would *exceed* that observed for men (6.516). However, the superior female attributes were translated into earnings using coefficients which were markedly inferior to those used for converting male attributes into earnings. As a result, female earners - notwithstanding their superior attributes - had average earnings which were considerably lower than the male average and this could be attributed *entirely* to discrimination against women earners.

A similar conclusion emerges when 'men were treated as women'. If male earnings attributes were evaluated at female coefficients then average log earnings for men (6.08) would be *lower* than that observed for women (6.237). To put it differently, men in the

Sri Lankan Survey had *inferior* earnings attributes compared to women. However, these inferior male attributes were translated into earnings using coefficients which were markedly superior to those used for converting female attributes into earnings. As a result, male earners - notwithstanding their inferior attributes - had average earnings which were considerably higher than the female average and, as has been argued, this fact could be attributed *entirely* to discrimination in favour of male earners.

4. Conclusions

This study estimated an earnings function for Sri Lanka, which explains the significant positive effects of urbanisation and education on earnings. Following this, the decomposition exercise of male-female earnings indicates the extent to which the gender disparity in earnings represents 'discrimination' against women. These findings provide greater insights into the misconception of the perceived notion of no significant gender inequality either in access to health and education services, or in economic welfare and income poverty levels (World Bank, 2000). The evidences showed that irrespective of inferior attributes, men had average earnings that were considerably higher than the female average that attributed *entirely* to discrimination in favour of male earners. The ethnic and gender imbalances in earnings raise wider policy questions that need to be addressed adequately in development strategies.

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Appendix

Table 1: The Socio-Economic Position of Earners in Sri Lanka, by Ethnicity

	Sinhalese	*Tamil*	*Muslim*	*All Earners*
Number in sample	6,514	1,041	271	7,826
% of Total sample	83	13	4	100
Average earnings total (rupees)	913	571	919	868
Average earnngs (male)	994	647	956	955
Average earnngs (female)	727	480	682	679
%Rural	86	9	63	75
%Urban	13	11	34	14
%Estate	1	80	3	11
% female	30	46	14	32
Average age (yrs)	37	37	36	37
Zone of residence:				
Zone 1	47	14	20	42
Zone 2	13	2	12	12
Zone 3	37	77	46	42
Zone 4	3	7	22	4
Marital Status:				
% Married	67	71	70	67
% Single/widowed/divorced	33	29	30	33
Educational attainment:				
High (passed year 10 or above)	44	7	34	39
Moderate (passed up to year 10)	50	66	61	53
Low (no schooling)	6	27	5	8
Nature of Employment:				
% Regular employees	38	62	21	41
% Casual or Contract employees	62	38	79	59
Occupation:				
Professional, Managerial or Technical	11	3	12	10
Clerical	12	1	9	10
Sales	4	4	20	5
Service	8	5	11	8
Production	65	87	48	67
Sector of Employment:				
Public	13	11	34	14
Organised Private Sector	86	9	63	75
Unorganised Private Sector	1	80	3	11

Notes to Table 1:

Total earnings: sum of earnings from employment in primary and subsidiary occupations. *However, for all earners, earnings from subsidiary occupations were zero*.

Zone: Zone 1 (Colombo, Gampaha, Kalutara, Galle, Matara); Zone 2 (Hambantota, Monergala, ampara, Polonnarwa, Anuradhapura, Puttalam); Zone 3 (Kandy, Matale, Nuwara-Eliya, Badulla, Ratnapura, Kegalle, Kurunegala); Zone 4 (Colombo Municipal Area).

Table 2: Earnings Functions for Sri Lanka

	All Earners	*Male Earners*	*Female Earners*	*Sinhalese Earners*	*Tamil Earners*	*Muslim Earners*
Urban	0.400	0.513	0.262	0.371	0.077	0.667
	(8.1)	(8.1)	(3.5)	(3.8)	(0.9)	(2.1)
Rural	0.303	0.417	0.153	0.257	0.284	0.596
	(6.6)	(7.0)	(2.3)	(2.7)	(4.0)	(2.1)
Sex	-0.350	-	-	-0.394	-0.078	-0.392
	(22.1)			(22.1)	(2.4)	(2.9)
Age (years)	0.030	0.037	0.020	0.030	0.028	0.056
	(8.3)	(8.1)	(3.5)	(7.4)	(3.5)	(2.7)
Age sq	-0.0004	-0.0005	-0.0003	-0.0004	-0.0003	-0.0007
	(9.5)	(8.7)	(4.2)	(8.6)	(3.3)	(3.0)
Married	0.175	0.231	0.030	0.177	0.088	0.152
	(9.4)	(8.9)	(1.2)	(8.5)	(2.1)	(1.2)
Experience (years)	0.006	0.003	0.006	0.007	-0.0003	0.004
	(5.8)	(2.6)	(3.4)	(6.0)	(0.1)	(0.5)
Regular employee	0.340	0.308	0.399	0.374	0.127	0.544
	(16.2)	(11.1)	(13.4)	(15.8)	(2.9)	(3.4)
Days worked in week	0.133	0.145	0.109	0.131	0.159	0.105
	(30.4)	(26.6)	(15.5)	(27.2)	(15.1)	(3.6)
Tamil	-0.040	-0.045	-0.031	-	-	-
	(1.0)	(0.9)	(0.5)			
Muslim	0.024	0.005	-0.027	-	-	-
	(0.6)	(0.1)	(0.3)			
Zone 1	-0.002	-0.010	-0.015	0.052	-0.315	-0.047
	(0.1)	(0.1)	(0.2)	(1.1)	(3.2)	(0.3)
Zone 2	-0.174	-0.199	-0.122	-0.113	-0.336	-0.399
	(3.9)	(3.6)	(1.6)	(2.1)	(2.1)	(2.1)
Zone 3	-0.221	-0.256	-0.182	-0.161	-0.481	-0.334
	(5.3)	(5.0)	(2.6)	(3.2)	(4.8)	(2.0)
Higher education	0.328	0.342	0.293	0.371	0.296	0.130
	(10.6)	(8.2)	(6.4)	(9.7)	(3.4)	(0.6)
Middle education	0.136	0.152	0.117	0.176	0.136	0.116
	(5.1)	(4.0)	(3.2)	(5.1)	(3.7)	(0.6)
Clerical	-0.309	-0.349	-0.211	-0.319	-0.351	-0.376
	(10.0)	(8.2)	(4.9)	(9.9)	(2.1)	(1.9)

Sales	-0.396	-0.405	-0.480	-0.409	-0.678	-0.312
	(9.5)	(7.9)	(6.0)	(8.8)	(4.9)	(1.5)
Service	-0.489	-0.453	-0.490	-0.482	-0.899	-0.535
	(13.9)	(10.1)	(7.7)	(12.7)	(6.6)	(2.5)
Production	-0.444	-0.458	-0.410	-0.448	-0.578	-0.442
	(15.3)	(11.7)	(9.1)	(14.5)	(4.6)	(2.3)
Public Sector	0.098	-0.002	0.334	0.082	0.098	-0.175
	(3.8)	(0.1)	(7.9)	(2.9)	(1.5)	(0.9)
Organised Private Sector	0.108	0.043	0.237	0.118	0.067	0.085
	(5.0)	(1.5)	(7.2)	(4.9)	(1.2)	(0.6)
Intercept	5.391	4.756	5.055	5.392	5.512	5.046
	(51.1)	(36.8)	(30.9)	(37.9)	(23.6)	(8.4)

Notes to Table 2:

Dependent variable is log(total earnings); figures in parentheses are t-values.

Explanatory variables as defined in Table 1.

Reference categories: male; single; casual or contract employee; Sinhalese; zone 4; low educational attainment; professional, managerial, technical occupation; unorganised private sector.

Notes to the equations:

All earners equation: 7,826 observations; R^2 (adj)= 0.433.

Male earners equation: 5,338 observations; R^2 (adj)= 0.397.

Female earners equation: 2,488 observations; R^2 (adj)= 0.512.

Sinhalese earners equation: 6,514 observations; R^2 (adj)= 0.437.

Tamil earners equation: 1,041 observations; R^2 (adj)= 0.348.

Muslim earners equation: 271 observations; R^2 (adj)= 0.296.

Table 3: The Decomposition of Differences in Earnings Between Males and Females

	All Earners				
Sample Average	*Women Treated as Men*			*Men Treated as Women*	
$\log(earn^M / earn^F)$	$X_F'\hat{\beta}_M - X_F'\hat{\beta}_F$	$X_M'\hat{\beta}_M - X_F'\hat{\beta}_M$		$X_M'\hat{\beta}_M - X_M'\hat{\beta}_F$	$X_M'\hat{\beta}_F - X_F'\hat{\beta}_F$
6.516-6.237=0.279	6.551-6.237 = 0.314	6.516-6.551 = -0.035		6.516-6.08 = 0.436	6.08-6.237 = -0.157

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[i]   earn^M/earn^F=exp(0.279)=1.276