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Exploring Gender Wage Gaps in Sri Lanka: A Quantile Regression Approach

Dilani Gunawardena



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Dilani Gunewardena*
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Abstract

This paper analyses changes in gender wage gaps throughout the wage distribution in Sri Lanka using individual data from the Quarterly Labour Force Surveys (QLFS) and a quantile regression approach for the 1996-2004 period. The analysis is conducted separately for the public and private sectors. Results on unconditional wage gaps show that the mean gender wage gap hides large variation in the gap across the distribution, and that these gaps are very different in the public and private sectors. A unique feature is that unconditional wage gaps throughout the wage distribution in the public sector favour women. Quantile regression techniques are used to control for individual characteristics, and quantile regression decomposition methods are used to analyse the size and components of the gaps over the entire conditional wage distribution. Conditional wage gaps are significantly larger than unconditional wage gaps, and the female advantage in the public sector raw wage distribution gives way to a significant male advantage in the conditional wage distribution, when occupation, industry and part-time status are controlled for. Conditional wage gaps are smaller, and public sector wage gaps in the upper part of the distribution remain negative, when these choice variables are excluded from the regressors, which is consistent with the notion that females select into occupations where their characteristics are rewarded better, and is not consistent with the concept of occupational segregation. There is evidence of a sticky floor in both sectors, and little evidence to support the existence of a glass ceiling in either of the sectors.

Keywords: gender gap, glass ceilings, sticky floors, quantile regression, public sector

JEL Classification: J16, J31, J71

* Department of Economics and Statistics, University of Peradeniya, Sri Lanka. E-mail: dilenig@pdn.ac.lk. Address: Department of Economics and Statistics, Faculty of Arts, University of Peradeniya, Peradeniya 20400, Sri Lanka. Phone: + (94) 81-2392622. The support of the PEP Research Network is gratefully acknowledged. I am grateful to the Department of Economics, University of Warwick for their hospitality during a PEP-sponsored study visit from 24th April to May 14th, 2005. My thanks to Prof. Wiji Arulampalam for extensive comments and suggestions provided during this study visit. For helpful comments, I thank Robin Naylor, Jeffrey Round, and Ian Walker, participants at a workshop held at the University of Warwick, Summer 2006. I thank Mark Bryan for permission to adapt his software program for estimating counterfactual distributions, and the Department of Census and Statistics, Sri Lanka for access to the Quarterly Labour Force Data. The contributions of Shobana Rajendran, Darshi Abeyrathna, Kamani Rajakaruna and Amalie Ellagala to preliminary work on this paper are gratefully acknowledged. I thank participants at the Sixth annual Cenwor Research Symposium, held in Colombo, Sri Lanka in March 2006, at the Seminar on Gender under Economic Reforms in Jaipur, India in Feb 2006, and at the 4th PEP Research Network General Meeting, held in June 2005, in Colombo, Sri Lanka, in particular, Evan Due, Swarna Jayaweera, Nanak Kakwani, Swapna Mukhopadhyay, Fabio Soares, and Jasmine Suministrado, for helpful comments on preliminary drafts of this paper.

Contents

1. Introduction.....	1
2. Sri Lankan background.....	2
3. Conceptual framework.....	7
4. Data description	10
5. Empirical results	15
6. Conclusions, policy implications, limitations of the study and future work	20
Selected References	20
Appendix Tables	33

INDEX OF FIGURES

Figure 1: Kernel density functions, pooled, public and private, 1996/7 and 2003/2004	29
Figure 2: Gender wage gap due to differences in coefficients evaluated at men's characteristics: 1996/97 and 2003/2004.....	31
Figure 3: Gender wage gap due to differences in coefficients evaluated at men's characteristics: 1996/97 and 2003/2004.....	32

INDEX OF TABLES

Table 1: Decomposition of the Gender Wage Gap in Sri Lanka, 1985-2000.....	24
Table 2: Mean wages and sectoral and gender break-down of sample.....	25
Table 3: Descriptive Statistics, Public and Private Sectors, 1996/97	26
Table 4: Descriptive Statistics, Public and Private Sectors, 2003/2004	27
Table 5: Raw gap, estimated wage gap and percentage raw gap explained by differences in coefficients	28

EXPLORING GENDER WAGE DIFFERENTIALS IN SRI LANKA:

A QUANTILE REGRESSION APPROACH

Dilani Gunewardena

1. INTRODUCTION

Among Sri Lanka's achievements in living standards are several that impinge in a very positive way on the status of women: higher life expectancy for women since the late 1960s, low maternal mortality, parity in primary school enrolments, and higher female secondary school enrolment.¹ Gender equality is enshrined in the 1978 constitution as a fundamental right, and Sri Lanka has ratified the Convention on the elimination of all forms of discrimination against women (CEDAW). Existing studies indicate that the mean gender wage gap is quite small and that a large proportion of it is due to 'discrimination' measured as differences in returns to characteristics (Aturupane 1997, Gunewardena 2002, Ajwad and Kurukulasuriya 2002). However, no evidence is available on whether the size of the wage gap varies across the distribution, nor on whether the contribution of 'discrimination' to the raw wage gap varies across the distribution.

Recent research, employing quantile regression has shown that earnings generating characteristics such as education have different effects upon individuals at different points of the wage distribution (Buchinsky 1994, Gonzales and Miles 2001, and Nielsen and Rosholm 2001).

Several studies have extended the use of quantile regressions to counterfactual analysis (Mueller 1998, Garcia *et al.* 2001, Fortin and Lemieux 2000, Gosling *et al.* 2000, Machado and Mata 2005). Recent applications of quantile regression analysis and counterfactual decompositions to Europe and transition countries have shown that

¹ This reflects the current educational enrolment in Sri Lanka. Current female enrolment is as high as male enrolment in primary education, and higher than male enrolment in secondary education. Female enrollment in tertiary education however, is only 69% of male enrollment which is lower than in many medium human development index countries (UNDP 2000).

for some countries, the gender wage gap, conditional on covariates, is greater at the top of the distribution, consistent with the existence of ‘glass ceilings’ while in other countries, the pay gap widens at the bottom of the distribution, consistent with the existence of ‘sticky floors’ (Albrecht *et al.* 2003, Arulampalam *et al.* 2005, de la Rica *et al.* 2005).

This study uses the Machado and Mata (2005) method which has also been used to explore the existence of glass ceilings and floors in Europe (Arulampalam *et al.* 2005) and in transition economies (Ganguli and Terell 2005). Although it has been used to explore the nature of the public-private wage premium in developing countries (Hyder and Reilly 2005) it has not been applied in the context of gender wage gaps in developing countries.

This paper examines whether the Sri Lankan labour market is characterized by ‘sticky floors’ and/or ‘glass ceilings’, using quantile regression analysis and applies the Machado-Mata (2005) extension of the conventional Blinder-Oaxaca (1973) decomposition of the gender wage gap to Sri Lankan quarterly labour force data for the 1996-2004 period. The analysis is conducted separately for the public and private sectors. Quantile regression techniques are used to control for individual characteristics, and quantile regression decomposition methods are used to analyse the size and components of the gaps over the entire conditional wage distribution.

The paper is structured as follows. Section 2 provides background on female labour market characteristics in Sri Lanka. Section 3 describes standard methods of decomposing earnings differentials and the use of counterfactual distributions within the quantile regression approach. Section 4 describes the data and section 5 presents results. Section 6 concludes.

2. SRI LANKAN BACKGROUND

Females in Sri Lanka enjoy higher life expectancy than males, high literacy in comparison to similar countries, parity in primary school enrolments, and higher secondary school enrolments than males. Some of these favourable indicators were

achieved almost four decades ago.² However, it is only more recently that female labour force participation and female employment have risen to levels even moderately approaching those of men. Their labour force participation rate increased from 21.8 percent in 1946 to 37.3 percent in 1990 and this was accompanied by a shift from a late broad-peak pattern (peaking at age 45-59 in the 1940s and 1950s) to an early peak pattern (ages 20-29) since 1971 (Kiribanda 1997).

Much of the early expansion (until the late 1970s) in female labour force participation is attributed to female labour supply factors of rising literacy and educational attainment (Kiribanda 1981) as well as to the expansion of the services sector “dominated by teaching, health care, clerical and finance related occupations [which] provided more and new types of employment considered acceptable to women” (Kiribanda 1997). It should be noted that the state sector dominated all of these areas, and thus, much of this early impetus to female employment came from the public sector.

However, until the mid 1980s, female labour force expansion was also accompanied by rising unemployment. Female unemployment rates from the censuses of 1971 and 1981 were over 30 percent. With the liberalisation of the economy in 1977, GDP growth rates rose sharply in the 1980s, and labour force participation rates rose concomitantly, growing at 4.1 percent in the first half of the decade and 3.3 percent in the second half of the decade—the highest observed since 1946. The bulk of this growth came from the phenomenal increases in female labour participation—9.8 and 6.0 percent in each period compared to male growth rates of 1.7 and 1.8 (Kiribanda 1997). Unlike in previous decades, these growth rates in labour force participation were also accompanied by the highest ever growth rates in female employment—13 percent per year in the early 1980s, compared to an overall 5 percent per year in the same period. This increase is attributed to the “surge in job opportunities for women, following the establishment of a large number of export-oriented industries in the country’s Free Trade Zones and elsewhere”, as well as to the settlement of several thousands of families in newly opened agricultural lands following the completion of

² Female life expectancy overtook male life expectancy in the late 1960s, female literacy was as high as 83 percent in 1981.

the Mahaweli River Diversion Scheme (Kiribanda 1997). Other significant factors are the opening of opportunities for labour migration, mainly to countries in the Middle East and the increase in home based activities that has taken place in export industries in the last few years (Jayaweera *et al.* 2000).

What is apparent from these patterns of female employment are that “employment opportunities for women” in the early era were in either the public sector or the formal private sector, and therefore within a formal structure of wages and salaries. Disparity in wages was unlikely unless the actual jobs done by men and women were different. Any gender discrimination in these jobs would be subtle, taking the form of segregation within broad occupational categories, or of women not being promoted—or choosing not to be promoted. These were jobs that were available to women with education, and some mobility, as many of them would be in the urban centres of the country, and would place those women who obtained these jobs in the upper part of the wage distribution.

However, one could argue that the distribution of “female” jobs in the early era was bi-modal. A large proportion of the employed female population at the time was working in agriculture—either in tea or rubber plantation estates, as labourers/unskilled workers, or in the paddy sector, mainly as unpaid family workers. These sectors continued to have higher than average female labour force participation rates, although they have been falling at a faster rate than in other sectors (CFS 2003/2004). About 40 percent of female employment in the middle of the 1990s was in agriculture, although a shift from agriculture to services is evident by the mid-2000s (CFS 2003/4).

The second wave of “female jobs” that were created by the opening of the economy, were mainly in the Sri Lankan private sector (formal and informal) –or in private households overseas. To a large extent wages in these jobs would be unregulated. Goonesekere (1998) points out that while the gender equality clause in the Constitution (Article 12) confers a fundamental right to be treated without discrimination in any State action, it is considered to cover only the public sector, unless the State has a responsibility under law to regulate private sector activity. Despite the latter clause, there has been no agreement on this, and “no case has yet

been decided to support such an action against management in the private sector” (Goonsekere 1998).

Many of the “female” employment opportunities created since the 1980s were those typically found in the lower end of the distribution, and did not necessarily require a high level of education, though all of them are characterized by the need for mobility (jobs in the export industries are in the urban centers, agricultural employment in settler areas involved the mobility of the entire household, and jobs overseas required international migration). Appendix Table A2 shows that although over 70 percent of employment in BOI (export oriented) industries was female, these were concentrated in semi-skilled, unskilled and trainee positions, while less than one third of supervisory (technical) and a little over one fourth of administrative positions were filled by women (BOI 1996). Similarly, the vast majority of female migrant workers overseas are in jobs at the lower end of the wage distribution (Appendix Table A1).³ The number of (typically low-income) females temporarily migrating to work as domestic workers (housemaids) is larger than the total number of males migrating in any category (Sri Lanka Bureau of Foreign Employment 2002).

There is evidence that many of the newer jobs are not covered by anti-discriminatory regulations. Guneratne (2002) points out that white collar jobs in the private sector are not covered by regulations, and although minimum wages that do not discriminate between males and females in blue-collar jobs are set by Wages Boards set up under the Wages Board Ordinance (Chapter 165), a study in the Export Processing Zones has cited differential wages among male and female workers for the same task. Moreover, in the tobacco and cinnamon trades, discriminatory wages are applied to men and women at present (Guneratne 2002).

Jayaweera *et al.* (2000) note that while the Wages Boards cover workers in subcontracted industries, there is a wide discrepancy in the law and the reality. Although Wages Boards determine remuneration and working hours which extend also to contract-labour, weak enforcement and indifference at all levels expose

³ Note that information on their wages is not available in the QLFS and they are thus not included in this analysis.

workers directly to market forces. Women are especially vulnerable, as they constitute the majority of workers in the semi-formal and informal sectors of the economy (Jayaweera *et al.* 2000). In their study of those engaged in the coir industry and in agricultural work among Mahaweli settlers, Jayaweera and Sanmugam (1998) note that the working conditions of the coir workers are unsatisfactory and they do not have the legal protection given to those in the formal sectors. They are not covered by laws and regulations regarding minimum age of employment, working hours, occupational health and safety, guarantees of minimum wages or equal remuneration for equal work.

Despite the improvement in aggregate labour market conditions for females in the 1980s and 1990s, there is also evidence of stagnating real wages. For example, in a study of agricultural wages in the Central Province, Gunatilaka (2003) found that (female) real wages in the tea sector in Kandy and Nuwara Eliya districts and in the paddy sector in the Matale and Nuwara Eliya districts stagnated, and increased only in the paddy sector in the Kandy district. Moreover, there was little evidence of wage and labour movements in one market affecting wages in the other, leading Gunatilaka to conclude that there was considerable spatial market segmentation, which could be attributed to “high travel costs, lack of information about casual employment opportunities in neighbouring districts, or institutional barriers. On the other hand, especially where female workers are concerned, family ties and responsibilities, as well as issues of safety may constrain the distance that they can travel in search of work.” (Gunatilaka 2003). Interestingly, Gunatilaka (2003) finds evidence of integration across occupations/labour markets within districts, but segmentation between districts. Workers in the tea sector in Nuwara Eliya who are paid less than those in the tea sector in Kandy, do not move to Kandy. On the other hand, there was evidence that rising masonry wages for unskilled males influenced female wages in the paddy sector. Evidence from other parts of the country indicates that the “shortage” of male labour supply in rural areas (because of recruitment into the army) has led to a well-documented substitution of females in hitherto male agricultural tasks, which involve using agricultural machinery, such as tractors (Manuratne 199?).

The favourable labour market conditions of the 1980s appear to have stabilised in the 1990s. Labour force participation rates declined marginally to around 31 percent in

the 1996-2004 period (see Appendix Table A3). Although female unemployment rates declined continuously in the 1990s, they have gradually increased since 2001 (Appendix Table A3).⁴

Appendix Table A3 indicates that the proportion of females who are employees has remained roughly constant, though fluctuating, over the period. However, the proportion of female public sector employees has declined from being about a quarter of all employed females (including self-employed and unpaid family workers) to being a quarter of all female employees. The proportion of unpaid family workers has declined, which is indicative of the increased opportunities for paid work outside of the home that have become available to women in Sri Lanka over the last twenty years.

3. CONCEPTUAL FRAMEWORK

The conventional method of measuring discrimination developed independently by Blinder (1973) and Oaxaca (1973) assumes that in the absence of discrimination, the estimated effects of individuals' observed characteristics are identical for each group. The estimated wage gap can be decomposed as follows

Equation 1:

$$\ln w^m - \ln w^f = \mathbf{X}^{*f}(\boldsymbol{\beta}^m - \boldsymbol{\beta}^f) + (\mathbf{X}^{*m} - \mathbf{X}^{*f})\boldsymbol{\beta}^m \quad (1)$$

where w is a measure of earnings such as the hourly wage; \mathbf{X} is a vector of earnings characteristics for the i th individual and $\boldsymbol{\beta}$ is a vector of coefficients and the asterisks on the \mathbf{X} vectors denote *mean* characteristics. The first term on the right hand side is the portion due to differences in coefficients ($\boldsymbol{\beta}^m - \boldsymbol{\beta}^f$), evaluated at the same set of average earnings-generating characteristics (\mathbf{X}^{*f}), in this case the female, and the second term the portion of the gap attributed to differences in average earnings-generating characteristics ($\mathbf{X}^{*m} - \mathbf{X}^{*f}$).⁵

⁴ Note however, that despite the rapid increase in female employment in the 1980s and 1990s, the female unemployment rate has remained twice as high as the male unemployment rate, from the mid 1980s (21 percent, compared with 11 percent for males) through the 1990s to the current time and unemployment rates for highly educated women are more than double those for similarly educated men (Appendix Table A3).

⁵ Although Blinder(1973) and others have attempted detailed decompositions, (decomposing the contribution of individual variables or groups of variables to the overall wage gap), the problem of

The decomposition may also be expressed in terms of average male characteristics (\mathbf{X}^m) as follows

Equation 2

$$\ln w^m - \ln w^f = \mathbf{X}^{*m} (\boldsymbol{\beta}^m - \boldsymbol{\beta}^f) + (\mathbf{X}^{*m} - \mathbf{X}^{*f}) \boldsymbol{\beta}^f \quad (2)$$

Equation 1 and

Equation 2 may be written in several alternative ways depending on the assumptions made about the “true” wage structure in the absence of discrimination. Neumark (1988) points out that the two specifications derive from distinct theoretical assumptions about the underlying discriminatory behaviour. Using the male wage structure as the underlying (discrimination-free) structure implies that women are actively discriminated *against*, while the assumption that the female wage structure is the ‘true’ structure implies that all discrimination is “in *favour of men*”. Reimers (1983) and Cotton (1988) proposed reference wages structures that are weighted averages of the empirical wage structures of males and females.⁶ Neumark (1988) proposed using a weighting matrix derived from the Becker (1971) model of discriminatory tastes, which Oaxaca and Ransom (1994) show is identical to their solution when the weighting matrix $\boldsymbol{\Omega}$ is defined as $(\mathbf{X}^f \mathbf{X}^f)^{-1} (\mathbf{X}^m \mathbf{X}^m)$ where \mathbf{X} and \mathbf{X}^m are the matrices of characteristics in the pooled sample and in group m respectively.

The conventional decomposition method focuses only on the average wage gap, which is consistent with the conventional empirical approach of estimating Mincerian wage equations by least squares methods, which provide estimates of the effects of covariates on the *mean* of the conditional wage distribution.

However, the effects of covariates can differ along the wage distribution. Quantile regression analysis introduced by Koenker and Basset (1978) is more flexible than OLS and allows one to study the effects of a covariate on the whole conditional

identification in the presence of dummy variables, where the coefficients on the dummy variables are not invariant to the choice of reference category (Jones 1984, Oaxaca and Ransom 1994) remained an intractable problem until Yun’s solution (2003, 2005). An application of Yun’s method to Sri Lankan data is given in preliminary work by us (Gunewardena *et al.* 2006).

⁶ Reimers (1983) proposed equal weights for male and female structures, Cotton (1988) proposed weights equal to the relative group size.

distribution of the dependent variable. In contrast to OLS, the QR is less sensitive to outliers, and is more efficient than OLS when the error term is non-normal, and may have better properties than OLS in the presence of heteroscedasticity (Deaton 1997).

Quantile regressions are a natural extension of classical least squares estimation of conditional mean models to the estimation of an ensemble of models for conditional quantile functions—of which the central special case is the median regression estimator that minimizes a sum of absolute errors (Koenker and Hallock 2000). As in ordinary least squares regression, where the mean of the distribution of the dependent variable, say log wage of worker i , y_i is modeled conditional on the regressors X_i , where X_i is a vector of covariates representing individual characteristics, quantile regressions yield models for different percentiles of the distribution. The θ th quantile of y_i conditional on X_i is given by

Equation 3

$$Q_\theta (y_i|X_i) = X_i\beta_\theta, \theta \in (0,1) \quad (3)$$

where the coefficient β_θ is the slope of the quantile line giving the effects of changes in X on the θ th conditional quantile of y .

As shown by Koenker and Basset (1978), the quantile regression estimator of β_θ solves the following minimization problem

Equation 4

$$\beta_\theta = \operatorname{argmin} \left[\sum_{i: y_i \geq X_i \beta} \theta |y_i - X_i \beta| + \sum_{i: y_i < X_i \beta} (1 - \theta) |y_i - X_i \beta| \right] \quad (4)$$

Coefficients of quantile regressions are interpreted in the usual way.

Machado and Mata (2005) propose a decomposition procedure that combines a quantile regression and bootstrap approach. Formally, it involves 4 steps.

1. Generate a random sample of size n from a $U[0,1]$: u_1, \dots, u_n .
2. Estimate n male and female coefficients separately from male and female samples: $\beta_{ui}^m, \beta_{ui}^f; i=1, \dots, n$.

3. Generate for each sample, a random sample of size n , with replacement, from the covariates of X , denoted by $\{X_i^m\}_{i=1}^n$ and $\{X_i^f\}_{i=1}^n$
4. $\{X_i^m \beta^m\}_{i=1}^n$ and $\{X_i^f \beta^f\}_{i=1}^n$ are random sample of size n from the marginal wage distributions of y consistent with the linear model defined by (3).
5. Generate a random sample of the counterfactual distribution $\{X_i^m \beta^f\}_{i=1}^n$ is a random sample from the wage distribution that would have prevailed among females if all covariates had been distributed as in the male distribution.

In order to simplify the comparison with the Blinder-Oaxaca decomposition, we will decompose the quantiles of the wage distribution

Equation 5

$$Q_\theta(y^m) - Q_\theta(y^f) = [Q_\theta(X_i^m \beta^m) - Q_\theta(X_i^m \beta^f)] + [Q_\theta(X_i^m \beta^f) - Q_\theta(X_i^f \beta^f)] + residual \quad (5)$$

where the first term is the contribution of the coefficients, and the second term is the contribution of the covariates to the difference between the θ th quantile of the male wage distribution and the θ th quantile of the female wage distribution. The residual term comprises the simulation errors which disappear with more simulations, the sampling errors which disappears with more observations, and the specification error induced by estimating linear quantile regression. We assume that the linear quadratic model is correctly specified (Melly 2005).

4. DATA DESCRIPTION

The data used in this study are from the Quarterly Labour Force Surveys (QLFS) conducted by the Department of Census and Statistics.⁷ The survey covers the whole island, except the Northern and Eastern provinces which are the two most severely affected by the armed conflict with the separatist LTTE movement.⁸ The survey schedule is administered to approximately 4000 housing units per quarter. The sample

⁷ Links to the QLFS survey schedule and recent Annual Reports are available at <http://www.statistics.gov.lk/samplesurvey/index.htm>

⁸ The 2003 survey included the Eastern province and the 2004 survey includes both provinces except Mullaitivu and Killinochchi districts in the Northern province; for comparability households in the Northern and Eastern provinces are excluded from the 2003 and 2004 samples.

is selected using a two-step stratified random sampling procedure with no rotation, and a new random sample is drawn each quarter.⁹

This study focuses on changes from the beginning to the end of the 1996-2004 period.¹⁰ We select two periods: for the first (beginning) period unit records from the 3rd and 4th quarters of the 1996 QLFS were combined with all four quarters of the 1997 QLFS while for the second (ending) period records from all quarters of 2003 were combined with the 1st and 2nd quarters of 2004.¹¹

The sample is selected to include all individuals between the ages of 18 and 58, who were employees in their main occupation of work, who were “usually employed” in the previous 12 months,¹² and who had worked at least one hour in the week prior to when the survey was administered.¹³ We exclude agricultural workers and any individuals who are currently attending a school or educational institution, as well as any who usually work less than 20 or more than 70 hours a week.¹⁴ We also drop households in the 2003/2004 samples that are from the Northern and Eastern provinces, in order to maintain comparability with the 1996/97 sample.¹⁵ Finally, our sample contains only those individuals with nonmissing observations on all the regressors. The selected sample comprises a total of 9,834 individuals in the first period and 10,594 individuals in the second period.

The sectoral and gender breakdown of the sample size and mean wages are given in Table 2. Thirty seven percent in 1996/97 and 33 percent in 2003/04 of the total

⁹ Note that the QLFS is not a panel.

¹⁰ The choice of time period is constrained by the availability of data. Although Sri Lankan labour force data has been collected in quarterly surveys from 1990, the sampling frame and questionnaire were changed, making surveys conducted before the 3rd quarter in 1996 incomparable with those conducted after.

¹¹ Since the sub-samples of observations in 1996 and 2004 are approximately half the size of the other annual sub-samples, they were combined with the annual samples of 1997 and 2003.

¹² Defined (by the DCS) as those who worked for 26 weeks or more during the previous 12 months.

¹³ The latter definition corresponds to the DCS definition of those currently employed.

¹⁴ These restrictions are imposed to limit the sample to workers with labour force attachment, and to address any potential problems of misreporting, especially of hours worked. As a result of the relatively high lower bound on hours worked, the sample may underrepresent part time workers.

¹⁵ See footnote 8.

sample of employees were public sector employees, while the corresponding percentages in the female sample were 43 percent and 41 percent for 1996/97 and 2003/04 respectively.

We conduct the analysis separately for public and private sectors. Gender earnings differentials could differ between these sectors for a variety of reasons. Compliance with equal pay legislation is more likely in the public sector, and wage structures and promotion schemes are less likely to leave room for individual variation. Parity is typically observed in public sector (Tansel 2004). On the other hand, the public sector is subject to political constraints and not to profit constraints, and any (tastes for) discrimination more likely to persist. Alternatively, whether public sector wage premiums (if any) are enjoyed by males or females may be determined by the respective strength of their voice within the public sector.

The definition of earnings underlying the gender wage gap used throughout this paper is *the log of hourly wages from the main occupation* where hourly wages is calculated as earnings in the last month from the main occupation divided by the hours usually worked (at the main occupation) in a month calculated as 30/7 times hours usually worked in a given week.¹⁶ Nominal values are converted to real terms using the Sri Lanka Consumer Price Index (SLCPI) with a base period of 1995-1997.¹⁷

Schooling is defined into 7 categories following an ISCED-based¹⁸ categorisation: no schooling (reference category), sub-primary, completed primary, completed lower secondary, completed O/L, completed A/L and post-secondary; experience is years of experience in the current occupation; age is included separately and is measured in years. Formal and informal training are included as dummy variables, with no training as the reference category. Also included are dummy variables for marital status (1 if currently married), part-time status (defined as usually working less than 35 hours a

¹⁶ Although the questionnaire includes a question on the rupee value of compensation in kind, this information is not coded into the raw data tapes. Although roughly 7 percent of the sample said they engaged in a secondary occupation, only 1/10th of that number reported any earnings from it.

¹⁷ The SLCPI is the price index officially used in updating the poverty line, and is based on a national consumption basket and includes price information from all districts of the country, unlike the previously used Colombo Consumer's Price Index (CCPI).

¹⁸ ISCED stands for International Standard Classification of Education. For details see http://www.unesco.org/education/information/nfsunesco/doc/isced_1997.htm

week) and ethnicity (Tamil, Moor and other, with Sinhala as the reference category). Regional dummy variables were included for each province, with the Western province as the reference. Seven major categories of occupations (ISCO88) are also included. The reference category of senior officials and professionals corresponds to high skilled white-collar jobs while the second and third categories of technicians and associate professionals and clerks correspond to low-skilled white collar jobs. The last four categories are typically low-skilled occupations: sales and service workers, craft and related workers and plant and machine operators, and those in elementary occupations. Four industrial groups are included. They are (1) mining and construction (reference group), (2) manufacturing, (3) electricity water and gas, wholesale and retail trade, and the hospitality industries of hotels and restaurants and the infrastructure (transport, communication) and finance sector (4) services, including health, education and defence.

Summary statistics of the data are presented by sector and year in Table 2, Table 3 and Table 4. Mean wages in 2003/2004 show a small but significant increase in both sectors, and in the pooled sample, for both males and females. For each year and sex, public sector wages are significantly higher than in the private sector.

The overall wage gap results in 1996/7 indicate a small female advantage, significant at the 10% level and in 2003/04 male and female mean wages are not significantly different (Table 2). However, disaggregation by sector reveals that the female advantage is entirely in the public sector: mean female hourly wages at Rs. 29 are approximately 17 percent higher than mean male wages in the public sector in 1996/7, in 2003/2004 the female advantage decreases to 12 percent. In the private sector, mean female wages at Rs. 14 are 80 percent of male wages in both years.

Table 3 and Table 4 indicate that while males and females in the public sector are older than those in the private sector, the gender age gap is considerably (4 years) larger in the private sector. Similarly, the gender gap in occupational experience is much larger (75 percent) in the private sector. A greater percentage of females had A/Level and post-secondary education compared to males, in both sectors (and the proportion of females with post-secondary education in the private sector increases significantly between 1996 and 2004). Females have an advantage (40 percent higher

proportion) in formal training, mainly in the public sector, reflecting most likely, the training received by teachers (and, to a lesser extent, nurses). A smaller proportion of females are married than male, and the disparity is more evident in the private sector. Fewer females are employed in the mining and construction sector, and in the electricity water and gas, trade, hospitality, infrastructure and finance sectors, while a greater percentage of females are employed in private sector manufacturing and private and public sector services (mainly education and health). Females predominate in the professions (teachers, mainly) and in the occupational category of clerks, while a larger proportion of males are found in other occupational groups.¹⁹

Figure 1 provides a visual summary of pooled, public and private sector wage distributions in 1996/97 and 2003/04 while the first panel in Table 5 provides the magnitude of the raw gap for the same samples. The density functions in Figure 1 were estimated using an Epanechnikov kernel estimator. The first panel in Figure 1 shows the pooled distribution which indicates that male and female wage distributions are very different. The male distribution lies “within” the female distribution, and is characterised by a higher density function around the mode and a lower dispersion. At the lower quantiles of the distribution, males enjoy an earnings advantage over females, while at the 75th and 90th quantiles, the advantage is enjoyed by females (Table 5).²⁰ Thus, if one were to consider only the pooled distribution, and make conclusions from the raw wage distributions, it appears that there is a “sticky floor” and no “glass ceiling” for Sri Lankan female wage employees in this sample.

However, the second and third panels of Figure 1 indicate that this phenomenon is largely explained by the sectoral composition of the pooled wage distribution. The female public sector wage distribution lies almost entirely to the right of the corresponding male wage distribution, while the female private sector wage distribution lies to the left of the private sector male wage distribution.²¹

¹⁹ Appendix Table 5 provides Duncan indices of dissimilarity for the 1996-2004 period, calculated on a slightly larger sample of data (including the agriculture sector) from the QLFS. Appendix Table 6 provides the list of 39 categories on which the calculation was based.

²⁰ Wilcoxon rank-sum tests indicated that for all sectors and years, male and female distributions are significantly different from each other. Tests of differences between periods indicated that distributions were different except in the case of private sector females.

²¹ Note that the female advantage in the Sri Lankan raw wage distribution is an empirical

The visual picture is confirmed by the numbers given in Table 5, which indicate a negative wage gap throughout the public sector and a positive wage gap throughout the private sector. At the mean, female wages are 12-17 percent higher than male wages in the public sector, and 20 percent lower than male wages in the private sector.

Does the raw wage gap vary over the distribution? The variation of the raw wage gap is (unsurprisingly) greatest in the pooled distribution, where it ranges from a gap of 0.15 (log hourly wages) in 1996/97 and 0.22 in 2003/04 at the 10th quantile to a negative (female-favouring) gap of 0.15 in the 90th quantile in both periods. However, there is considerable variation in the sectoral raw gaps as well. Public sector raw wage gaps decline (become more negative or female-favouring) until about the median and then increase (become less negative), while private sector wage gaps display a more complex behaviour. In 1996/97, they fall initially (between the 10th and 25th quantiles), but rise thereafter (upto the 75th quantile) and then decrease (90th quantile). In 2003/04, they show the same pattern at the lower quantiles, rising between the 25th and 50th quantile, but then fall continuously thereafter (Table 5).

A more detailed visual depiction of the raw wage gap is given in Figure 2 and Figure 3 indicated by a dashed-dotted line (Note that the raw gaps shown in Figure 3 are the same as those shown in Figure 2). The raw gaps in the graph are calculated at every 5th quantile. The visual picture confirms the description above, but in the case of the private sector shows clearer evidence of a rising wage gap in the upper part of the wage distribution or “ceiling” (upto the 80th quantile) in 1996/97 and a fall in this part of the distribution, or the absence of a “ceiling” in 2003/04.

5. EMPIRICAL RESULTS

In order to decompose the differences in the raw wage distribution into differences in the coefficients (returns) and differences in attributes (characteristics), the Oaxaca and

rarity. While many studies indicate a smaller gender wage gap in the public sector, the only result that approaches this from a study of occupational wage gaps in East Germany, where predominantly “female” occupations pay more to both men and women (Jurajda and Harmgart 2004).

Blinder decomposition and the Machado and Mata decompositions are applied. Two specifications are used. In the first specification, the vector of regressors includes age and occupational experience (both in quadratic form), dummy variables for education (reference category is no schooling), whether any (formal/informal) training received (reference category is no training), ethnicity (reference category is Sinhala), marital status (reference category is not currently married), and region (7 provinces, reference is Western province). The second specification also included dummy variables for part-time status (reference category full-time), 7 occupational categories (reference category is senior officials and professionals) and 4 industrial categories (reference category is mining and construction).

We do not correct for selection into the labour force or into wage employment, nor for the endogeneity of sectoral choice or level of education. Although studies using similar datasets drawn from the Sri Lankan QLFS have found no evidence of sample selection bias into wage work (Rama 2003), there is nevertheless some cause for concern. Female labour force participation in Sri Lanka was about 31 percent in the reference period which is less than half that of males. Female unemployment is high, over twice that of males (Appendix Table A3). Female wage employment, however is approximately 60 percent of all female employment, and female public sector employment approximately 27 percent of female wage employment (Appendix Table A4). However, we consider issues of sample selection bias and potential endogeneity of sector choice and education to be outside the scope of this paper. We acknowledge that this is a more descriptive approach and note therefore, that the results should be interpreted with caution, i.e. they must be interpreted conditional on the selected sample.

The results are summarized in the second and third panels of Table 5 and presented graphically in Figure 2 and Figure 3.²² In Table 5, for each year, sample and model specification, the “estimated” wage gap gives the term $X_m (\beta_m - \beta_f)$ or the coefficients component of the wage gap decomposition, evaluated at male characteristics. For OLS, this is the standard Blinder-Oaxaca decomposition, evaluated at mean

²² The detailed regression results are not presented here due to lack of space. They are available upon request from the author.

characteristics. For the quantiles, the results are obtained using the Machado-Mata decomposition (2005). The figures in italics below each row give the contribution of this component to the raw gap, as a percentage. Note that the “estimated” wage gap in these results should be interpreted as the difference between the actual male wage distribution and the male wage distribution if males were paid like females. In Figure 2 and Figure 3, in addition to the point estimate of the “estimated” wage gap, the 95 percent confidence interval for the point estimate is also presented, and the raw gap is also presented for ease of comparison.

The results based on the specification which excludes controls for part-time status, occupation and industry (panel 2) are discussed first. The reason for focusing on these results is that part-time status, occupation and industry are choice variables that are all potentially endogenous to the existence of discrimination. At the same time, there is much empirical evidence that the locus of discrimination is in the tracking of females into low paying occupations and industries or part-time work, and that therefore any estimates that control for these factors would then underestimate discrimination.

The first column gives the Oaxaca-Blinder decomposition, and indicates that in all three samples, once characteristics are controlled for, there is a positive (male favouring) wage gap, which is smaller in the public sector than in the private sector. This is consistent with the literature (Arulampalam *et al.* 2005 for 15 European countries, Ganguli and Terrell 2005 for Ukraine). The figures in italics give the percentage of the gap that is due to discrimination (measured as the component of the gap due to differences in coefficients). This indicates that in the pooled sample, over 100 percent of the gap (in fact, 400 percent of it) is due to the existence of discrimination—in the absence of discrimination, females would earn more than males. These results are consistent with previous results for Sri Lanka (Ajwad and Kurukulasuriya 2002, Gunewardena 2002, Gunewardena *et al.* 2006) and similar (though the Sri Lankan magnitude is larger) to Blau and Kahn’s (1999) results for UK (1985-1994), New Zealand (1991-94), Bulgaria (1992-93), Israel (1993-94), Poland (1991-94) and Slovenia (1991-94); to Glinskaya and Mroz’s (1996) results for the Russian Federation (1994) and to Birdsall and Behrman’s (1991) results for Brazil (1970) and to Psacharopoulos and Tzannatos’ (1992) results for Chile (1987),

Honduras (1989), Jamaica (1989) and to Meng and Miller's (1995) results for China in 1985 and to Horton's (1996) results for the Philippines (1978 and 1988).²³

When the sample is disaggregated, 95-99 percent of the private sector gap is due to the difference in coefficients, which is similar to Blau and Kahn's (1999) results for Ireland (1988-90, 1993-94) the United States (1985-94), the Czech Republic (1992, 1994), the Democratic Republic of Germany (1990-93), Hungary (1988-94), the Russian Federation (1991-94) and to Montenegro's (1999) results for Chile (1996) and Psacharopoulos and Tzannatos' (1992) results for Venezuela (1989).

The second to sixth columns of Table 5 (panel 2) and in Figure 2 provide the results of the Machado-Mata decomposition and indicate that once characteristics are held constant, the estimated wage gap in the pooled and private sectors decreases, rather than rises over the wage distribution. Thus, the Sri Lankan pooled and private sector wage distributions could be described as being characterized by 'sticky' floors, rather than by glass ceilings.

Interestingly, despite controlling for characteristics, the 'estimated' wage gap in the public sector remains negative (female favouring) at the median and above. Thus, although the estimated wage gap is smaller (in absolute terms) than the raw wage gap, there is active discrimination against males in this part of the distribution. Note that this feature is not captured by the Blinder-Oaxaca decomposition. Note also, that this negative wage gap rises (becomes a smaller negative) at the highest part of the distribution, indicating a glass ceiling, but one that still favours women!

If one assumes that the residual in the Machado-Mata decomposition is asymptotically zero, then the rows in italics can be interpreted as the percentage of the raw gap accounted for by the coefficients component of the decomposition. In the pooled and private sector distributions, this component initially increases, indicating a "glass ceiling at the ground floor",²⁴ then decreases, rising again at the top. The negative contribution of this component to the gap at the top of the pooled distribution

²³ Cited in World Bank (2001).

²⁴ This term was used by de la Rica *et al.*

indicates that differences in characteristics are contributing more than 100 percent at this point. Note that the raw gap at this point is female-favouring, thus it is the low characteristics that are responsible for the raw gap against men. This is not the case in the public sector distribution, where low productive characteristics account for the male favouring gap at the bottom, and the female favouring gap at the top is due to discrimination. In the private sector, the discrimination component of the wage gap decreases throughout the distribution in the 1996/97 period, but fluctuates over the distribution in the 2003/04 period.

The results when including controls for part-time status, occupation and industry are now discussed (Table 5, panel 3 and Figure 3). The Oaxaca-Blinder decomposition based on OLS results (column 1) are similar to those without controls for the choice variables, except in magnitude. The estimated wage gap is now larger, indicating greater discrimination when occupation, industry and part-time status are controlled for. This contradicts the concept of occupational segregation where females are tracked into lower paying occupations and industries, but is consistent with the idea of females selecting into occupations, and industries and choosing hours of work that reward their characteristics better.

The Machado-Mata decomposition when choice variables are included in the quantile regression continue to indicate a sticky floor rather than a glass ceiling phenomenon in the pooled wage distribution (row 1 for both years and the first panel of Figure 3), where the estimated wage gap is larger. The public sector estimated wage gap is also larger, and now positive throughout the distribution, consistent with the explanation given above. Finally, despite some deviations, a broadly similar pattern is found in the private sector. However, at the 10th quantile in 1996/97 and in the highest quantile in 2003/04, the magnitude of the estimated gap was larger, when controls for choice variables were included among the regressors, indicating occupational segregation type situations at these points in the distribution.

The contribution of the coefficients to the observed raw gap have opposite signs in the public and private sectors, when controls for choice variables were included among the regressors. In the private sector, controlling for these variables results in a higher coefficients component (except at the 10th quantile in 1996/97 and the 90th quantile in

2003/04), the size of which falls throughout the distribution. In the public sector, the coefficients component is negative and falling absolutely throughout the distribution, indicating the larger contribution of characteristics to the raw wage gap (which is female-favouring).

6. CONCLUSIONS, POLICY IMPLICATIONS, LIMITATIONS OF THE STUDY AND FUTURE WORK

This paper analyses changes in gender wage gaps throughout the wage distribution in Sri Lanka using individual data from the Quarterly Labour Force Surveys (QLFS) and a quantile regression approach for the 1996-2004 period. The analysis is conducted separately for the public and private sectors. Results on unconditional wage gaps indicate that the mean gender wage gap hides large variation in the gap across the distribution, and that these gaps are very different in the public and private sectors. An empirical rarity is that unconditional wage gaps throughout the wage distribution in the public sector favour women. Quantile regression techniques are used to control for individual characteristics, and quantile regression decomposition methods are used to analyse the size and components of the gaps over the entire conditional wage distribution. Conditional wage gaps are significantly larger than unconditional wage gaps, and the female advantage in the public sector raw wage distribution gives way to a significant male advantage in the conditional wage distribution, when occupation, industry and part-time status are controlled for. Conditional wage gaps are smaller, and public sector wage gaps in the upper part of the distribution remain negative, when these choice variables are excluded from the regressors, which is consistent with the notion that females select into occupations where their characteristics are rewarded better, and is not consistent with the concept of occupational segregation. There is evidence of a sticky floor in both sectors, and little evidence to support the existence of a glass ceiling in either of the sectors.

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Table 1: Decomposition of the Gender Wage Gap in Sri Lanka, 1985-2000

Study	Data Source and Year	Sample size	Size of Gender Wage Gap	Baseline	Dependent variable, Specification	Unexplained	Explained	
Gunewardena 1996 and 2002	Labour Force and Socioeconomic survey 1985/86	Urban employees only OLS Sample, Males=4155, Females=1656;	32%	Female	Hourly Wages, OLS	104	-4	
					Hourly Wages, Fixed Effects	136	-36	
		Fixed Effects Sample, Males=1450, Females=548	35%	Female	Earnings, OLS	102	-2	
					Earnings, Fixed Effects	130	-30	
		Household Income and Expenditure Survey 1991	Urban employees only OLS Sample, Males=4120, Females=1744; Fixed Effects Sample, Males=1431, Females=578	25%	Female	Earnings, OLS	117	-17
						Earnings, Fixed Effects	130	-30
Aturupane 1997	Pooled data from Quarterly Labour Force Surveys of 1994	Males = 4882 Females=2169	14%	Male	Earnings	61	39	
				Female	Earnings	51	49	
Ajwad and Kurukulasuriya	Sri Lanka Integrated Survey 1999/2000	Males = 1184 Females = 763	16%	Male	Hourly Wages, Sinhalese	98	2	
				Female		102	-2	
		Males = 68 Females = 33	5%	Male	Hourly Wages, Tamil	380	-280	
				Female		-240	340	
		Males = 63 Females = 21	16%	Male	Hourly Wages Moor	279	-179	
				Female		-430	530	
		Males =25 Females=10	-54%	Male	Hourly Wages, Other	48	52	
				Female		-20	120	
	Males = 1184 Females = 763	15%	n.a.	Overall	n.a.	n.a.		

Table 2: Mean wages and sectoral and gender break-down of sample

	1996/97			2003/04		
	Male	Female	Total	Male	Female	Total
<i>Hourly wages (Mean)</i>						
Pooled	19.92	20.43	20.08	21.12	21.20	21.14
Public	25.02	29.22	26.54	27.75	30.93	28.99
Private	17.24	13.88	16.28	18.37	14.50	17.29
<i>Standard deviation of hourly wages</i>						
Pooled	14.32	17.07	15.23	16.66	15.35	16.26
Public	15.62	20.27	17.56	17.52	14.91	16.62
Private	12.79	10.09	12.18	15.48	11.60	14.61
Pooled	6,751	3,083	9,834	7,258	3,336	10,594
Public	2,320	1,317	3,637	2,129	1,360	3,489
Private	4,431	1,766	6,197	5,129	1,976	7,105

Table 3: Descriptive Statistics, Public and Private Sectors, 1996/97

Variable	Public				Private			
	Male		Female		Male		Female	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Hourly earnings (Rs.)	25.024	15.620	29.221	20.270	17.242	12.793	13.880	10.089
Log of hourly earnings	3.069	0.543	3.215	0.578	2.678	0.585	2.466	0.560
No schooling	0.007	0.085	0.005	0.073	0.021	0.144	0.039	0.194
Sub-primary	0.043	0.202	0.014	0.119	0.185	0.389	0.109	0.312
Completed Primary	0.108	0.311	0.021	0.144	0.230	0.421	0.142	0.349
Completed lower secondary	0.224	0.417	0.065	0.247	0.309	0.462	0.335	0.472
Completed GCE O/L	0.344	0.475	0.335	0.472	0.181	0.385	0.243	0.429
Completed GCE A/L	0.193	0.394	0.396	0.489	0.063	0.243	0.118	0.323
Post-secondary	0.081	0.274	0.163	0.370	0.011	0.104	0.012	0.111
Formal training	0.255	0.436	0.335	0.472	0.131	0.338	0.131	0.337
Informal training	0.033	0.178	0.010	0.099	0.100	0.300	0.043	0.203
No training	0.712	0.453	0.655	0.475	0.769	0.422	0.826	0.379
Age	38.138	9.602	37.014	8.995	34.203	10.261	29.706	9.299
Occupational experience	11.333	8.401	10.973	8.166	7.938	7.361	4.637	4.936
Part time status	0.083	0.276	0.298	0.457	0.043	0.204	0.050	0.219
Sinhala	0.936	0.245	0.927	0.260	0.804	0.397	0.874	0.332
Tamil	0.035	0.184	0.040	0.197	0.104	0.305	0.095	0.293
Moor	0.025	0.155	0.032	0.176	0.086	0.280	0.020	0.139
Other	0.005	0.069	0.001	0.028	0.007	0.085	0.011	0.106
Married	0.765	0.424	0.699	0.459	0.649	0.477	0.346	0.476
Western	0.356	0.479	0.337	0.473	0.454	0.498	0.498	0.500
Central	0.147	0.354	0.160	0.367	0.161	0.367	0.139	0.346
Southern	0.155	0.362	0.155	0.362	0.111	0.314	0.095	0.293
North Western	0.100	0.301	0.109	0.312	0.105	0.307	0.105	0.306
North Central	0.099	0.299	0.078	0.269	0.043	0.202	0.043	0.203
Uva	0.062	0.241	0.062	0.240	0.037	0.188	0.031	0.174
Sabaragamuwa	0.081	0.273	0.099	0.298	0.090	0.286	0.089	0.285
Mining and Construction	0.038	0.192	0.013	0.113	0.257	0.437	0.026	0.159
Manufacturing	0.033	0.179	0.021	0.144	0.259	0.438	0.677	0.468
Electricity, Gas & Water, Trade , Hospitality, Transport, Communication & Finance	0.269	0.444	0.116	0.321	0.349	0.477	0.126	0.332
Services	0.659	0.474	0.850	0.358	0.136	0.343	0.172	0.377
Senior Officials, Managers, Professionals	0.163	0.370	0.521	0.500	0.027	0.163	0.040	0.195
Technicians and Associate professionals	0.152	0.359	0.140	0.347	0.042	0.200	0.036	0.187
Clerks	0.151	0.358	0.244	0.429	0.061	0.240	0.114	0.318
Sales and Service Workers	0.196	0.397	0.028	0.165	0.143	0.350	0.065	0.247
Craft and Related Workers	0.073	0.260	0.019	0.137	0.320	0.466	0.456	0.498
Plant and Machine Operators and Assemblers	0.089	0.285	0.002	0.039	0.155	0.362	0.087	0.281
Elementary Occupations	0.176	0.381	0.047	0.212	0.252	0.434	0.202	0.402

Table 4: Descriptive Statistics, Public and Private Sectors, 2003/2004

Variable	Public				Private			
	Male		Female		Male		Female	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Hourly earnings (Rs.)	27.750	17.524	30.934	14.914	18.366	15.483	14.501	11.603
Log of hourly earnings	3.185	0.513	3.310	0.523	2.737	0.572	2.490	0.579
No schooling	0.004	0.061	0.005	0.072	0.024	0.153	0.036	0.187
Sub-primary	0.043	0.203	0.018	0.132	0.169	0.375	0.129	0.335
Completed Primary	0.078	0.269	0.015	0.123	0.216	0.412	0.135	0.342
Completed lower secondary	0.241	0.428	0.078	0.268	0.336	0.472	0.331	0.471
Completed GCE O/L	0.273	0.446	0.220	0.414	0.159	0.366	0.170	0.376
Completed GCE A/L	0.246	0.431	0.484	0.500	0.082	0.275	0.176	0.381
Post-secondary	0.114	0.317	0.180	0.384	0.014	0.117	0.022	0.148
Formal training	0.233	0.423	0.349	0.477	0.127	0.333	0.135	0.341
Informal training	0.017	0.129	0.013	0.111	0.067	0.250	0.035	0.185
No training	0.750	0.433	0.638	0.481	0.806	0.395	0.830	0.376
Age	39.981	9.363	39.404	8.861	34.658	10.627	31.899	10.506
Occupational experience	13.392	8.619	12.895	8.383	8.786	8.019	5.359	5.911
Part time status	0.087	0.282	0.271	0.444	0.058	0.234	0.065	0.246
Sinhala	0.936	0.245	0.928	0.259	0.825	0.380	0.882	0.323
Tamil	0.037	0.189	0.035	0.183	0.100	0.300	0.090	0.286
Moor	0.025	0.157	0.035	0.183	0.068	0.252	0.026	0.159
Other	0.001	0.038	0.003	0.054	0.008	0.087	0.003	0.055
Married	0.843	0.364	0.777	0.416	0.664	0.472	0.426	0.495
Western	0.279	0.449	0.253	0.435	0.352	0.478	0.381	0.486
Central	0.131	0.338	0.137	0.344	0.131	0.338	0.138	0.345
Southern	0.158	0.365	0.184	0.387	0.145	0.352	0.138	0.345
North Western	0.136	0.343	0.138	0.345	0.136	0.342	0.129	0.335
North Central	0.120	0.325	0.098	0.297	0.054	0.225	0.054	0.225
Uva	0.085	0.279	0.088	0.284	0.053	0.224	0.040	0.196
Sabaragamuwa	0.091	0.287	0.102	0.303	0.129	0.335	0.122	0.327
Mining and Construction	0.014	0.118	0.000	0.000	0.215	0.411	0.020	0.141
Manufacturing	0.022	0.147	0.021	0.142	0.251	0.434	0.614	0.487
Electricity, Gas & Water, Trade								
Hospitality, Transport, Communication & Finance Services	0.144	0.351	0.086	0.281	0.333	0.471	0.142	0.349
Senior Officials, Managers, Professionals	0.820	0.385	0.893	0.309	0.201	0.401	0.223	0.416
Technicians and Associate professionals	0.170	0.375	0.456	0.498	0.024	0.154	0.046	0.209
Clerks	0.192	0.394	0.204	0.403	0.056	0.229	0.066	0.249
Sales and Service Workers	0.131	0.338	0.213	0.409	0.053	0.225	0.106	0.308
Craft and Related Workers	0.189	0.392	0.040	0.195	0.089	0.284	0.081	0.274
Plant and Machine Operators and Assemblers	0.062	0.242	0.015	0.123	0.279	0.448	0.389	0.488
Elementary Occupations	0.068	0.251	0.005	0.072	0.136	0.343	0.057	0.232
	0.188	0.391	0.067	0.250	0.363	0.481	0.255	0.436

Table 5: Raw gap, estimated wage gap and percentage raw gap explained by differences in coefficients

Raw gap	Mean	10%	25%	50%	75%	90%
<i>1996/97</i>						
Pooled	0.026	0.152	0.102	0.122	-0.128	-0.145
Public	-0.146	0.000	-0.127	-0.237	-0.223	-0.104
Private	0.212	0.288	0.188	0.201	0.251	0.236
<i>2003/04</i>						
Pooled	0.044	0.221	0.167	0.074	-0.124	-0.149
Public	-0.125	-0.091	-0.172	-0.207	-0.188	-0.079
Private	0.247	0.311	0.258	0.262	0.250	0.225
<hr/>						
Estimated wage gap model 1	OLS	10%	25%	50%	75%	90%
<i>1996/97</i>						
Pooled	0.105	0.221	0.151	0.09	0.033	0.021
	<i>404</i>	<i>145</i>	<i>148</i>	<i>74</i>	<i>-26</i>	<i>-14</i>
Public	0.027	0.175	0.085	-0.034	-0.059	-0.034
	<i>-18</i>	<i>-</i>	<i>-67</i>	<i>14</i>	<i>26</i>	<i>33</i>
Private	0.201	0.329	0.24	0.198	0.176	0.122
	<i>95</i>	<i>114</i>	<i>128</i>	<i>99</i>	<i>70</i>	<i>52</i>
<i>2003/04</i>						
Pooled	0.151	0.249	0.197	0.147	0.085	0.048
	<i>343</i>	<i>113</i>	<i>118</i>	<i>199</i>	<i>-69</i>	<i>-32</i>
Public	0.006	0.146	0.016	-0.056	-0.074	-0.042
	<i>-5</i>	<i>-160</i>	<i>-9</i>	<i>27</i>	<i>39</i>	<i>53</i>
Private	0.244	0.293	0.268	0.249	0.22	0.222
	<i>99</i>	<i>94</i>	<i>104</i>	<i>95</i>	<i>88</i>	<i>99</i>
<hr/>						
Estimated wage gap model 2	OLS	10%	25%	50%	75%	90%
<i>1996/97</i>						
Pooled	0.18	0.259	0.225	0.188	0.148	0.116
	<i>692</i>	<i>170</i>	<i>221</i>	<i>154</i>	<i>-116</i>	<i>-80</i>
Public	0.097	0.26	0.201	0.093	0.041	0.045
	<i>-66</i>	<i>-</i>	<i>-158</i>	<i>-39</i>	<i>-18</i>	<i>-43</i>
Private	0.218	0.293	0.245	0.234	0.24	0.22
	<i>103</i>	<i>102</i>	<i>130</i>	<i>116</i>	<i>96</i>	<i>93</i>
<i>2003/04</i>						
Pooled	0.199	0.312	0.258	0.209	0.144	0.085
	<i>452</i>	<i>141</i>	<i>154</i>	<i>282</i>	<i>-116</i>	<i>-57</i>
Public	0.077	0.273	0.178	0.101	0.051	0.053
	<i>-62</i>	<i>-300</i>	<i>-103</i>	<i>-49</i>	<i>-27</i>	<i>-67</i>
Private	0.257	0.331	0.297	0.271	0.231	0.186
	<i>104</i>	<i>106</i>	<i>115</i>	<i>103</i>	<i>92</i>	<i>83</i>

Note: Estimated wage gaps are given by $X_m (\beta_m - \beta_f)$ or the coefficients component of the wage gap decomposition, evaluated at male characteristics. For OLS, this is the standard Blinder-Oaxaca decomposition, evaluated at mean characteristics. For the quantiles, the results are obtained using the Machado-Mata decomposition (2005). The figures in italics below each row give the contribution of this component to the raw gap, as a percentage. Note that the estimated wage gap in these results should be interpreted as the difference between the actual male wage distribution and the male wage distribution if males were paid like females. Estimated gaps are given for two model specifications. Both models included age, occupational experience, dummy variables for education, whether any (formal/informal) training received, ethnicity, marital status, region (7 provinces). Model 2 also included dummy variables for part-time status, 7 occupational categories and 4 industrial categories.

Figure 1: Kernel density functions, pooled, public and private, 1996/7 and 2003/2004

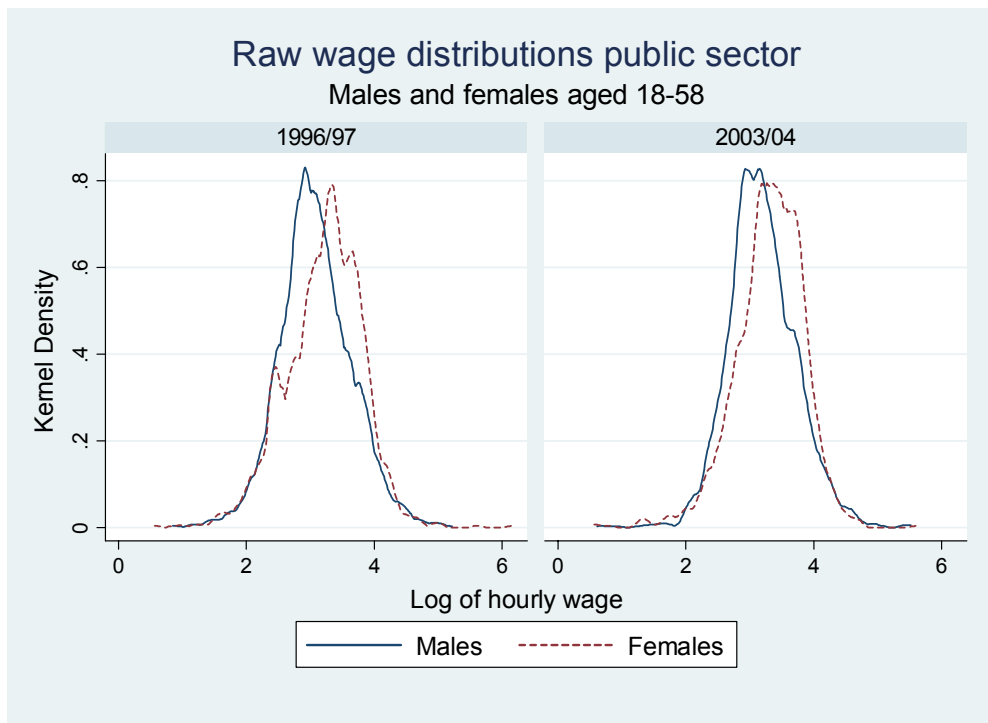
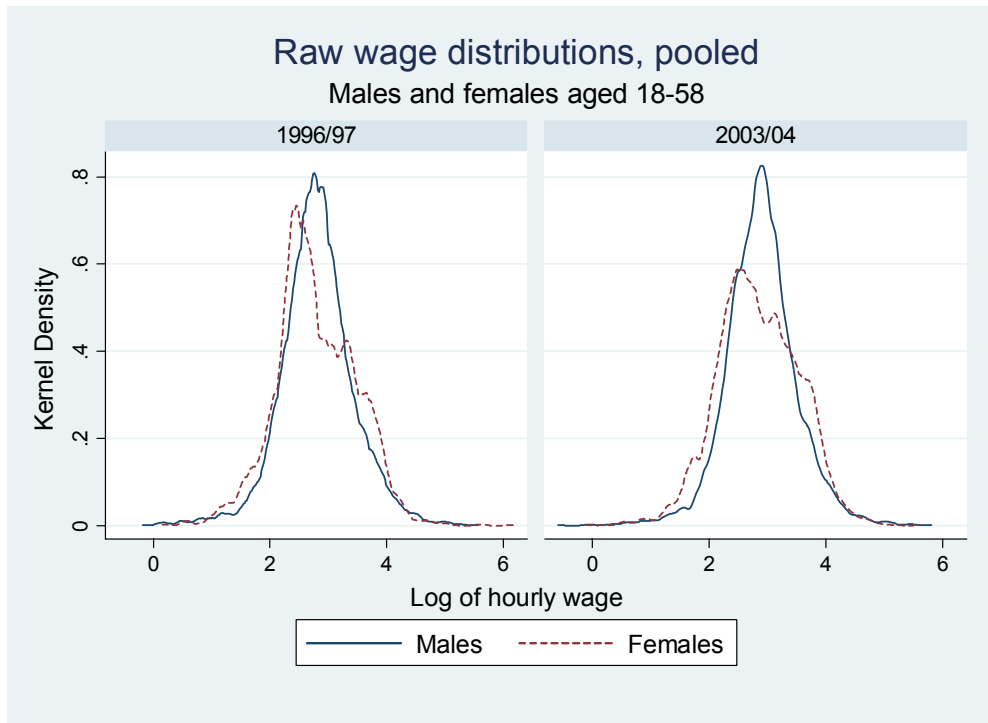


Figure 1 (contd.) : Kernel density functions, pooled, public and private, 1996/7 and 2003/2004

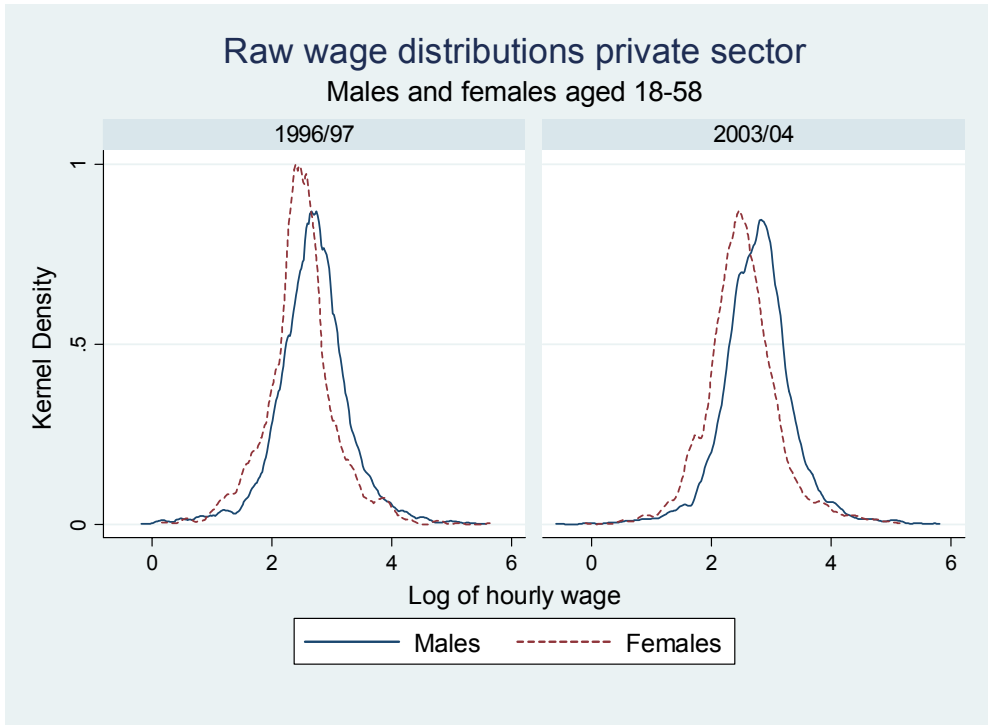


Figure 2: Gender wage gap due to differences in coefficients evaluated at men's characteristics: 1996/97 and 2003/2004
Part time, occupation and industry dummies excluded

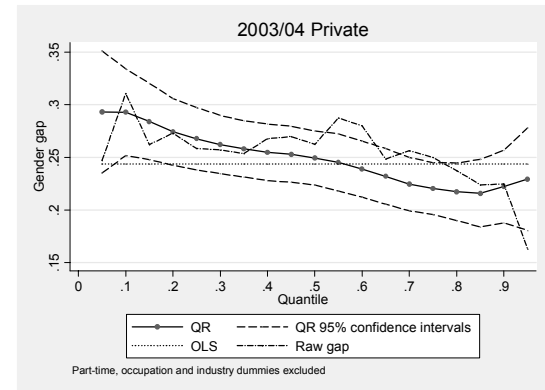
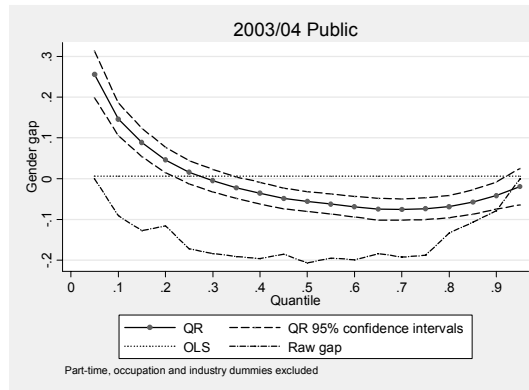
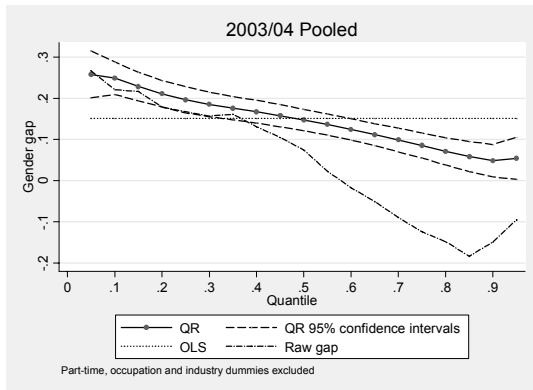
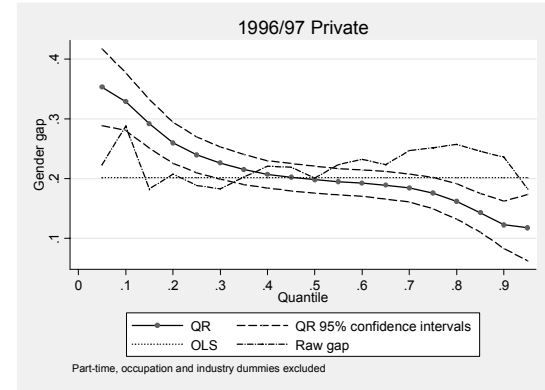
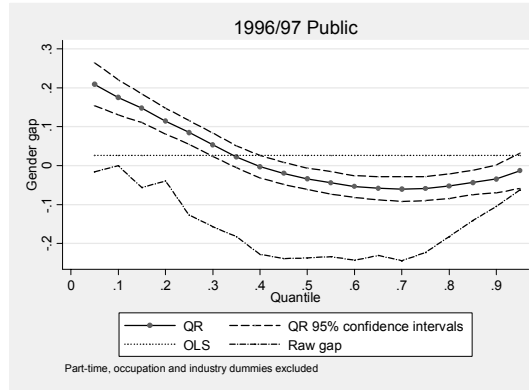
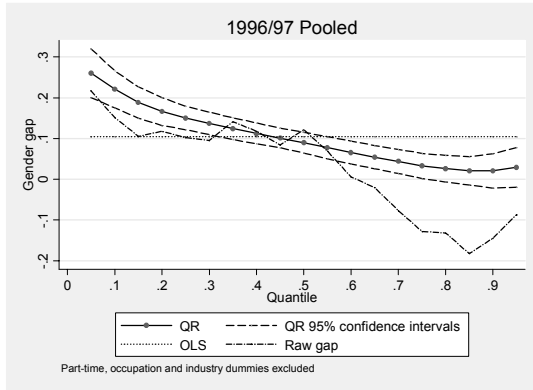
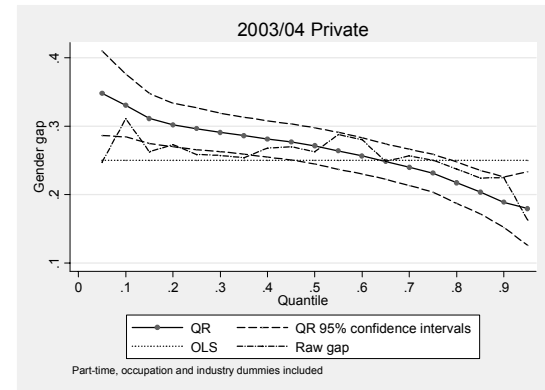
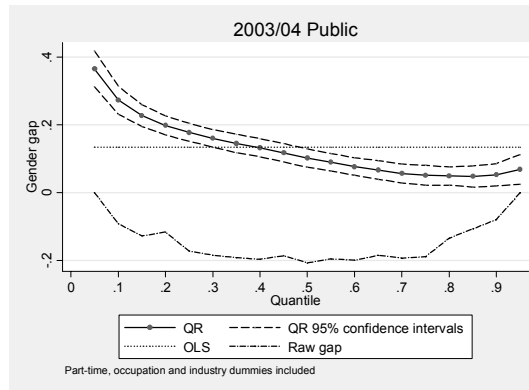
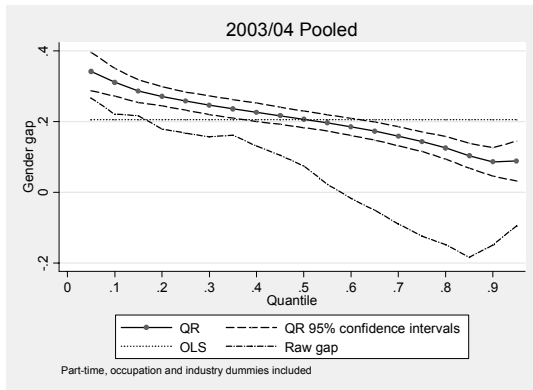
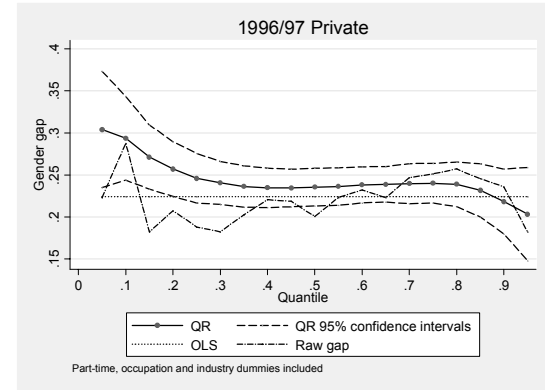
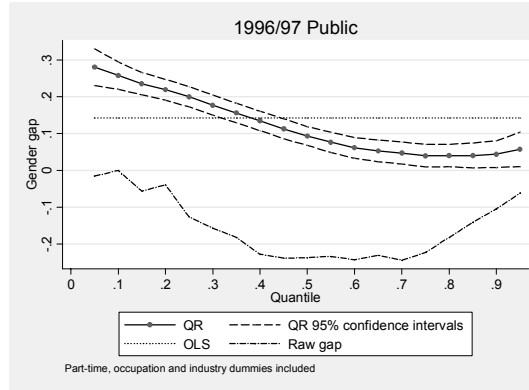
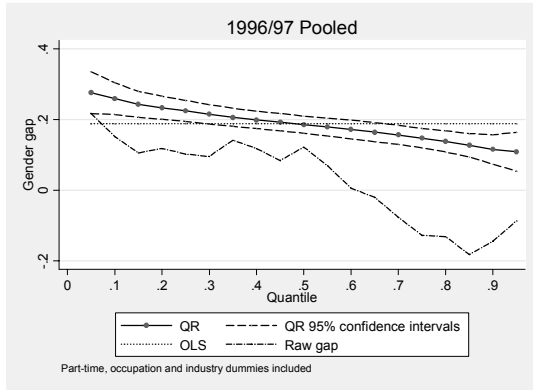


Figure 3: Gender wage gap due to differences in coefficients evaluated at men's characteristics: 1996/97 and 2003/2004
Part time, occupation and industry dummies included



Appendix Tables

Table A1: Foreign Employment

Item	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004(a)
Males	46021	42112	37552	53867	63720	59793	59807	70522	74279	79977
(%)	27	26	25	34	35	33	33	35	36	38
Female	126468	120464	112731	105949	116015	122395	124200	133251	134529	133137
%	73	74	75	66	65	67	67	65	64	62

Source: Sri Lanka Bureau of Foreign Employment

Table A2: Employment in BOI (export oriented) Industries(1996)

Occupational Level	Total	Female	Female%
Administration	3203	841	26.3
Technical Staff- Executive	1974	277	14.03
Non- Executive	2087	247	11.8
Supervisory- Technical	3077	938	30.5
Non- technical	3849	2212	57.5
Clerical and allied	6935	3815	55
Skilled	24412	15,05	61.9
Semi Skilled	60975	52475	86.1
Unskilled	24140	15580	64.5
Trainees	28958	23400	80.8
Other	5534	1721	31.1
Total	165144	116611	70.8

Source: Board of Investment, Colombo, Includes 3 Export Processing Zones and Factories Outside Colombo.

Table A3: Selected Labour Force Indicators

	Year							
	1996*	1998*	2000*	2001*	2002*	2003**	2004Q3***	2004Q4***
Labour force								
Participation rate								
<i>By sex</i>								
Both sexes	48.6	51.7	50.3	48.8	50.3	48.9	47.8	48.8
Male	65.9	67.5	67.2	66.2	67.9	67.2	65.7	67.0
Female	31.6	36.4	33.9	31.9	33.6	31.4	31.0	31.7
Unemployment rate								
<i>By sex</i>								
Both sexes	11.3	9.2	7.6	7.9	8.8	8.4	8.5	8.2
Male	8.2	6.5	5.8	6.2	6.6	6.0	6.0	6.0
Female	17.7	14.0	11.1	11.5	12.9	13.2	13.5	12.5
<i>by selected educational levels</i>								
G.C.E. (A/L) & above								
Both sexes	19.0	17.5	14.9	15.3	16.8	16.5	17.3	16.8
Male	10.1	9.4	8.8	10.1	10.8	10.4	11.9	11.1
Female	28.3	25.8	21.5	21.5	23.0	23.3	23.8	23.3
Employed population								
<i>By sex</i>								
Both sexes	5536216	6049388	6310247	6235588	6519415	7012755	7304547	7495007
Male	3856411	4004621	4248877	4248877	4395164	4833483	4991170	5113831
Female	1679805	2044767	2068701	1986711	2124250	2179272	2313377	2381177

* Excluding Northern & Eastern Province

** Excluding Northern Province

*** All the districts are included

Source: LFS, 2004 4th Q

Table A4: Historical Table of Currently Employed Persons by Employment Status - Female

Year	Total Employed	Employee			Employer	Own Account Worker	Unpaid Family Worker
		Total	Public	Private			
*1990	100.0	55.1	25.3	29.8	0.6	17.9	26.5
*1991	100.0	64.5	28.6	35.9	0.7	16.0	18.9
*1992	100.0	63.4	24.1	39.4	0.7	14.8	21.0
*1993	100.0	65.6	21.0	44.6	0.7	15.0	18.7
*1994	100.0	64.2	17.7	46.5	0.9	16.1	18.8
*1995	100.0	63.2	17.6	45.5	1.1	16.7	19.1
*1996	100.0	63.9	17.0	46.8	0.5	16.7	18.9
*1997	100.0	61.8	16.7	45.2	0.9	19.0	18.3
*1998	100.0	55.2	15.2	40.1	0.6	17.2	27.0
*1999	100.0	57.2	15.6	41.5	0.6	17.5	24.8
*2000	100.0	55.5	15.0	40.5	0.8	17.2	26.5
*2001	100.0	60.1	15.9	44.1	0.5	18.1	21.3
*2002	100.0	58.8	15.1	43.7	0.8	17.4	23.0
**2003	100.0	59.0	15.7	43.3	0.9	18.8	21.3
***2004 1 st Q	100.0	62.4	17.5	44.9	1.0	18.6	18.0
****2004 2 nd Q	100.0	62.7	15.0	47.7	0.9	17.4	18.9
Q							
****2004 3 rd Q	100.0	61.7	15.4	46.3	0.5	18.8	19.0
Q							
****2004 4 th Q	100.0	59.0	13.9	45.0	1.0	20.1	19.9

* Excluding Northern & Eastern Province

** Including Eastern Province but Excluding Northern Province

*** Excluding Vavuniya, Mulathivu, Kilinochchi districts

**** All the districts are included

Source: LFS, 2004 4th Q

Table A5 : Duncan Indices, 1996-2004

Year	Number of Observations	Duncan index of dissimilarity	
		10 Categories	39 Categories
1996	6242	16.6	44.0
1997	9786	20.3	43.9
1998	10579	18.0	42.4
1999	10520	16.7	42.6
2000	10504	17.8	47.5
2001	7977	18.0	45.4
2002	10309	18.3	44.0
2003	10672	14.8	43.9
2004	4736	15.0	42.0
All	81235	16.5	43.5

Table A6: List of 39 categories (based on ISCO88 3-digit and 4-digit classification).

- 1 Officials and Administrators (govt, political and special interest groups)
- 2 Other managers and administrators
- 3 Physical, mathematical, computing, engineering, and life science professionals
- 4 Health Professionals (except nursing)
- 5 Nursing and Midwifery professionals
- 6 University Teaching and Related
- 7 Elementary and Secondary Education Teaching
- 8 Business, legal, archivist, librarian, social science, writers, religious professionals
- 9 Physical, mathematical, computing, engineering, and life science associate professionals (including traditional medicine and faith healers)
- 10 Nursing and Midwifery associate professionals
- 11 Teaching associate and other associate professionals
- 12 Clerks (including secretaries and accounting and book-keeping clerks)
- 13 Personal service workers
- 14 Protective service workers and models
- 15 Salesworkers (shops, market and stalls excluding elementary occupations)
- 16 Market oriented agrarian workers (including animal producers and forestry workers, hunters and trappers)
- 17 Market oriented fishery workers (Aquatic life cultivators, inland and coastal waters fishery workers and deep sea fishery workers)
- 18 Subsistence agricultural and fishery workers
- 19 Miners, blasters, stone-cutters and carvers
- 20 Building trades workers
- 21 Metal and machinery trades workers
- 22 Precision, handicraft, printing and related workers
- 23 Other craft and related trades workers
- 24 Plant and machine operators
- 25 Drivers and mobile machinery operators
- 26 Street vendors, street services and related including shop workers
- 27 Domestic helpers and cleaners
- 28 Helpers and cleaners in institutions and businesses
- 29 Messengers, watchers and security workers
- 30 Garbage collectors and related
- 31 Agricultural, fishery and related labourers (unskilled workers)
- 32 Mining and related labourers (unskilled)
- 33 Building construction labourers (unskilled workers)
- 34 Other construction labourers (unskilled)
- 35 Manufacturing and transport labourers (unskilled)
- 36 Labourers not elsewhere classified (unskilled)
- 37 Armed forces
- 38 No specific occupation
- 39 No occupation stated or misclassified occupation