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Wage Differentials between Immigrants and the Native-Born in Australia

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Abstract

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Acknowledgement:

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Keywords

Immigrants, quantile regression, decomposition

JEL Classification

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1 Introduction

Earnings disparities between immigrants and the native-born have attracted extensive research. The interest of the Australian case in this area is not merely because Australia is a country of immigrants, with nearly one in four of its population born overseas in 2006 (ABS 2007), the unique wage setting system, where award wages set by an independent industrial tribunal coexist with collectively bargained wages at the enterprise level (Waddoups 2005), and the increasingly skill-based immigration policies provide a richer setting to understand immigrants' labour outcomes relative to the native-born.

The typical approach studying the relative earnings of immigrants is to estimate earnings equations for the two groups separately using OLS and then decompose the mean differences between them (Blinder 1973; Oaxaca 1973). Examples based on this approach with a focus on Australia include Chiswick and Miller (1985), Beggs and Chapman (1988), and Wills (1997). Chiswick and Miller (1985) find that male immigrants have incomes seven per cent lower than otherwise comparable native-born men using the 1981 Australian Census. Wills (1997) uses the 1981 and 1991 Australian Census to find that immigrants from non-English-speaking countries (NESC) have generally lower incomes than the native-born.

By focusing on the mean differences, potential variations along the earnings distribution due to differences in productivity characteristics and the returns to these characteristics between immigrants and the native-born would not be captured. Butcher and DiNardo (2002) and Chiswick et al. (2008) departed from the conventional focus on the conditional mean by estimating the earnings differentials along the entire income distribution between immigrants and the native-born using a semi-parametric decomposition method within the framework of conditional quantile regressions. Their results reveal substantial variations along the earnings distributions between immigrants and the native-born, highlighting the importance of examining the entire earnings distribution in the research of immigrant-native earnings differentials.

Using the 2001 Australian Census Chiswick et al. (2008) show that average hourly income of male immigrants from English-speaking countries (ESC) are three percentage points higher than the native-born (OZ) men, whereas the average hourly income of male immigrants from NESC is six percentage points lower than the native-

born men. Male immigrants from NESC have lower hourly income than the native-born over almost the entire income distribution. Only at the lowest end of the income distribution male immigrants earn more than their native-born counterparts. Comparing with the US, they find that the dispersion between the two extreme ends of hourly income for the native-born, the ESC and the NESC immigrants is more compressed in Australia perhaps due to the unique wage setting system in Australia.[1] Miller and Neo (2003) suggest that the award rates of pay and the favourable selectivity in migration provide immigrants with some degree of protection in Australia.

In addition, the increasingly skill-based immigration policy has made the Australian case interesting in the literature studying the relative earnings of immigrants. Antecol et al. (2004) reported that, in 2002, 40.5 per cent of all immigrants of Australia entered the country as skilled workers under the point system versus 16.4 per cent in the US. They also show that the policy of points testing is responsible for changing the skill mix of immigrants.

Following Butcher and DiNardo (2002) and Chiswick et al. (2008), we examine the wage differentials between immigrants and the native-born along the entire wage distribution and at the mean. This paper contributes to the literature in several ways.

First, most of the earlier studies focus on men and ignore important gender differences in the wage gap (e.g. Chiswick and Miller 1985, Tran-Nam and Nevile 1988; Donald and Worswick 1999, Chiswick et al. 2008).[2] In addition, most analyses ignore important wage differences between immigrants from different language backgrounds. This study does not consider immigrants in Australia as homogenous; it examines the differences by gender and by country of origins. Understanding how well immigrants from different origins adapt to the Australian labour markets and whether labour market outcomes among immigrants differ by gender are important to any policy recommendation.

Second, in addition to decomposing the wage gap into the composition effect (i.e. the gap that can be explained by the differences in observed productivity characteristics) and the wage structure effect (i.e. the gap that can be explained by the

[1] It features a high degree of institutional wage-setting based on an industry-based and occupation-specific awards system rather than a single minimum wage as in many other industrialised countries.
[2] Exceptions are, for instance, Chiswick (1989); Mincer (1978); Le (2005) and Antecol, Cobb-Clark and Trejo (2003).

differences in the returns to the observed characteristics) using the DFL decomposition procedure (DiNardo et al. 1996), we also employ the recently developed unconditional quantile regressions and associated decomposition techniques (Firpo et al. 2007) to further decompose the two effects into the contributions from individual wage covariates.[3] As it turns out, different wage covariates play different and even opposite roles in the overall wage structure effect.

Finally, our data allows us to use hourly wages as the outcome variable rather than using income from all sources as in Chiswick et al. (2008). It also allows us to examine a richer set of wage covariates (e.g. industry and occupation) than those examined in Chiswick et al. (2008).

2. Data

2.1 Data source

The empirical analysis is based on the first six waves (2001–2006) of the Household, Income and Labour Dynamics in Australia (HILDA) Survey.[4] The HILDA survey contains detailed information on individuals' current labour market activity. The wages used in this study refer to hourly wages derived from pre-tax total weekly earnings and hours worked in the main job. To avoid the effect of irregular reporting of weekly earnings and hours worked, we excluded those whose hourly wage rate is less than $5. One comparative advantage of the HILDA survey is that the earnings and working hour data are not grouped, thus avoiding possible measurement error due to grouped data.

Wages are deflated to the first quarter of 2001 using quarterly wage growth rates for males and females separately. To increase the sample size and thus the accuracy of the estimated distribution, we pool the six waves of the HILDA survey available at the time of writing this paper. Another reason for pooling the data is that sufficiently large sample sizes are important in bootstrapping the standard errors of the decomposition results.[5] Pooling six waves of HILDA raises the issue of repeated

[3] To our knowledge, this is the first Australian study that examines individual wage covariates on the immigrants-native born wage gap. Longhi, Nicoletti and Platt (2012) apply the same method to analyse wage gaps across the main ethno-religious groups in Great British.

[4] Detailed documentation of the survey is in Wooden, Freidin and Watson (2002).

[5] Sampling draws did not always contain observations that had the characteristics used in the model if only one wave data were used. For example, since only a few native-born workers are indigenous in any one wave, a redrawn native-born worker sample may not have an indigenous worker. While STATA goes ahead to estimate βs by automatically dropping these variables, the number of variables for ESC migrants and native-born samples, x^{ESC} *and* x^{n} respectively, will no longer be the same. One

observations for the same individual, as most individuals are surveyed more than once. We use bootstrap methods that account for clustering in the empirical work to address this issue. Pooling data across waves may not be appropriate if the wage gap has a time trend. We examined the raw wage gap by wave and did not find a time trend (see the Supplementary Data Appendix Figure a1 and a2).

The availability of the panel data raises the question - why have we not used panel data methods analyze the wage gap? The main reason is that the focus of this study is on explaining the wage gap along the entire wage distribution. The unconditional quantile regression and associated decomposition methods used in this study are designed for cross-sectional data and there is not a straightforward way to extend these methods to panel data to account for unobserved individual heterogeneity. Panel data models for conditional quantile regressions have been proposed by various authors (e.g. Koenker 2004), but how the decomposition procedures such as DiNardo et al. (1996) and Firpo et al. (2007) can operate from there is not clear in the literature. Panel data models are mostly used to address endogeneity issues resulting from unobserved heterogeneity. The aim of this study, like many other studies on wage gap, is largely descriptive and not trying to estimate a causal effect of immigration on wages. As such the potential endogeneity of immigration status resulting from unobserved heterogeneity is not a major concern here.

Our sample includes those wage earners who worked in non-agricultural industries. It includes males aged between 25 and 64 years (inclusive) and females aged 25 to 61 years (inclusive). Full-time students are excluded. There are 14,233 males and 14,267 females in the sample. The summary statistics are presented in the appendix Table A1. The mean gaps of log-hourly wages between the groups indicate that for men, the ESC group has the highest wages, while immigrants from NESC have the lowest wages. For women, similar to men, immigrants from ESC enjoy the highest wages but now the NESC group earns more than the native-born. On average, more immigrants especially those from NESC have tertiary qualification. This is not surprising given the shift of the immigration policies favouring skilled immigrants. Nonetheless the immigrants from ESC have the highest wages and hold more

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could not calculate the counterfactual wages of ESC migrants in bootstrapping, since $x^{ESC}\beta^{n}$ becomes unconformable. Pooling the six waves of data helps to avoid the problem.

professional occupations. The ESC group also stands to have longer experiences; while the native-born have longer years of tenure. Relative to the native-born, more immigrants, especially those from NESC, reside in capital cities.

2.2 Wage distributions and raw wage gap

Figure 1 presents the wage densities for all the three groups estimated using the kernel estimator. The differences between the distributions are not apparent, but it does appear that for most of the first half of the distribution, the density of the immigrants from ESC is lower than that of both the native-born and the NESC group for both males and females. For male immigrants from NESC, their density is initially lower than that of the native-born, but the two densities cross at about the log-wage level of 2 and the former becomes higher than the latter for the log-wage levels below 2.5. For females the density of the immigrants from NESC is above that of the native-born for most of the first half of the distribution.

[Insert Figure 1 here]

Figure 2 shows the unconditional log-wage gap at various quantiles. For men, except at the very bottom, the immigrants from ESC always do relatively better than the native-born and the wages of the former group is even more superior for quantiles over 0.8. Between male immigrants from NESC and the native-born the wage gap fluctuates around zero. At the low end (between the 0.05 and 0.2 quantile range) and part of the upper half of the distribution (at quantiles between 0.5 and below 0.8), the wages of the native-born are lower than that of the immigrants from NESC. For the quantiles between 0.2 and 0.45; and between 8.5 and 9.5 the reverse holds.

For females, the immigrants from ESC have higher wages everywhere along the distribution. For most of its first half, the gap between the two groups is around 0.55 log-wage points; it increases before falls at about the 0.95 quantile. Except at the bottom end, for most of the first half of the distribution, the immigrants from NESC have higher wages than the native-born. The negative gap reduces when moving up along the distribution. At the 0.65 quantile the gap becomes positive and increases.

The variations of the wage gap along the distribution for males and females suggest that only looking at the mean, as done in many other studies, may not provide a complete picture of the wage differentials between the native-born and immigrants.

[Insert Figure 2 here]

3. Methodologies

3.1 The DFL decomposition of distributions

DiNardo et al. (1996) propose a semi-parametric method to decompose the gap between two distributions into a component attributable to observed characteristics and another that cannot be explained by observed characteristics. In the context of wage distributions, the unexplained component is often regarded as the effect of differences in the wage structure (i.e. the returns to wage covariates). Firpo et al. (2007) term the first component as 'composition effect', and the second as 'wage structure effect'. We use these terminologies in the rest of the paper.

The DFL decomposition is essentially a reweighting procedure, through which a counterfactual distribution can be constructed. To illustrate, assume that each observation in a pooled sample of two groups is drawn from the joint distribution *f(w; X; g)*, where *w* represents the wage rate, *X* is a row vector of wage covariates (e.g. education level, experience, etc.), and *g* is a group indicator (e.g. 0 for native-born and 1 for immigrants from ESC).[6] Conditional on *g*, we can write the joint distribution of wages and covariates as *f*(*w, X*|*g*). This implies that the distribution of the wages of group 0, $f^0(w)$, is defined as the integral of the conditional density of wages over the domain of wage covariates Ω_X:

$$(1)\qquad \begin{aligned} f^0(w) &= \int_{X\in\Omega_X} f(w, X \mid g=0)dX \\ &= \int_{X\in\Omega_X} f(w \mid X, g=0)\, f_X(X \mid g=0)dX \end{aligned}.$$

where *f*(*w*|.) is the conditional distribution of wages, and $f_x(X|.)$ is the conditional joint distribution of wage covariates. The density of wages of group 1, $f^1(w)$, is defined similarly. From group 0, a counterfactual distribution of wages, $f^C(w)$, can be constructed by letting group 0 to assume the distribution of characteristics of group 1, but keep their own conditional distribution of wages. That is,

[6] The decomposition of the wage gap between immigrants from NESC and the native-born can be conducted in a similar manner.

$$(2)\quad \begin{aligned} f^C(w) &= \int_{X\in\Omega_X} f(w\mid X, g=0)\, f_X(X\mid g=1)dX \\ &= \int_{X\in\Omega_X} \varphi_X\, f(w\mid X, g=0)\, f_X(X\mid g=0)dX \end{aligned},$$

where $\varphi_X = f_X(X\mid g=1)/\, f_X(X\mid g=0)$. This demonstrates that the counterfactual distribution can be obtained through reweighting. Using Bay's rule, the reweighting factor can be calculated as

$$(3)\quad \varphi_s = P(g=1\mid X)P(g=0)\left[P(g=0\mid X)P(g=1)\right]^{-1}.$$

where *P(g=1|X)* can be computed from a logit or probit regression on the pooled sample that includes both the native-born and the immigrants concerned.

The difference between $f^1(w)$ and $f^C(w)$ is the wage structure effect, while the difference between $f^C(w)$ and $f^0(w)$ is the composition effect. Distributional statistics, such as the mean, variance and various quantiles, can be computed from the original and counterfactual distributions and the differences of the distributional statistics can be decomposed accordingly.

3.2 Unconditional quantile regression and decomposition

In the DFL decomposition, the wage structure effect aggregates the effects of the differences in the returns to wage covariates. We further apply the recently developed unconditional quantile regression (UQR) methods (Firpo et al. 2007 to decompose the overall wage structure effect into contributions from individual wage covariates.

Central to UQR is the re-centred influence function (RIF) of a statistic, such as quantile. The RIF of quantile q_τ, for an outcome variable w is $RIF(w;q_\tau) = q_\tau + \dfrac{\tau - I(w\le q_\tau)}{f_w(q_\tau)}$, where *I(.)* is an indicator function equal to one if the condition in the parenthesis is true and zero otherwise; $f_w(q_\tau)$ is the wage density at q_τ. Firpo et al. (2007) show that when the RIF is approximated by a linear function in the covariates,

$$(4)\quad E[RIF(w;q_\tau)\mid X] = X\beta,$$

where β is a column vector of coefficients, the coefficient β_j on the variable x_j represents the partial effect of the variable on that quantile.

Combined with the DFL reweighting procedure, UQR can be used to decompose the effect of a variable on the gap between the two distributions into the wage structure effect and the composition effect, in a way similar to the Oaxaca and Blinder decomposition for OLS regressions. To do so, we first run UQR on groups 1 (e.g. immigrants from ESC) and 0 (e.g. native-born) and the reweighted sample C to obtain,

(5) $\hat{RIF}(w_g;\hat{q}_\tau) = X_g\hat{\beta}_g, \quad g = 0,1,C.$

Using the parameter estimates, we then decompose the wage gap between the two groups at quantile q_τ as

$$
\begin{aligned}
q_\tau(w_1) - q_\tau(w_0) &= [\overline{X}_1(\hat{\beta}_1 - \hat{\beta}_C) + \hat{R}_\tau^S] + [(\overline{X}_1\hat{\beta}_C - \overline{X}_0\hat{\beta}_0) + \hat{R}_\tau^C] \\
&= [\sum_{j=1}^{J} \overline{x}_{1,j}(\hat{\beta}_{1,j} - \hat{\beta}_{C,j}) + \hat{R}_\tau^S] + [(\sum_{j=1}^{J} \overline{x}_{1,j}\hat{\beta}_{C,j} - \sum_{j=1}^{J} \overline{x}_{0,j}\hat{\beta}_{0,j}) + \hat{R}_\tau^C].
\end{aligned} \tag{6}
$$

where $\overline{X}_g$ ($g=0,1$) is the row vector of the means of the wage covariates for group g. The first term on the right-hand side represents the wage structure effect (i.e. the wage gap due to the differences in the returns to the covariates) and the second term the composition effect (i.e. the wage gap due to differences in the covariates). $\hat{R}^S$ and $\hat{R}^C$ are the estimates of the approximation errors corresponding to the wage structure and composition effects respectively. The approximation errors are due to the linear specification assumed by the RIF regression functions. The second line of equation (6) shows that both effects can be further decomposed into the contribution of each wage covariate or each group of wage covariates. To facilitate inferences we bootstrap the standard errors of the decomposition results. The clusters of observations due to pooling six-wave data are accounted for in the bootstrap resampling.

3.3 Model specification

We examine six groups of observed productivity characteristics (i.e. wage covariates) when analysing the wage gap: a) Education (four dummies for degree, other post-school qualification, year 12, and year 11 and below); b) Work experience (years in employment and its square; and years of tenure and its square); c) Job characteristics (three dummies to identify casual employment, part-time employment

and the interaction between casual and part-time employment, and a dummy for union membership status); d) Occupation (nine occupational dummies); e) Industry (fourteen industry dummies); f) Locality (six dummies for residence states and a dummy to identify whether an individual lives in a capital city). These variables are standard covariates for modelling wages and therefore the rationale for including them in the analysis is not further discussed here.[7,8]

IV. Results

4.1. DFL decomposition results

Figures 3 show the decomposition results at detailed quantiles. For ease of reading Table 2 presents the results for selected quantiles, together with the decomposition at the mean. Between male immigrants from ESC and male native-born, at the mean the composition effect contributes about 64 per cent to the overall wage gap (of 0.072 log-point). The composition effect also contributes to the increase in the gap everywhere along the distribution. Except at the two extreme ends, the composition effect increases as we move up the distribution. For example, at the 0.1 quantile the composition effect contributes 0.018 log-point to the gap, while at the median it contributes 0.38 log-point and at the 0.9 quantile the composition effect increases to 0.9 log point.

The wage structure effect on the wage gap between male immigrants from ESC and male native-born is initially negative at about -0.5 log-point, but it increases sharply within a narrow quantile range from the bottom to the 0.15 quantile. At the 0.15 quantile the wage structure effect is about 0.4 log-point. Between the quantiles range from 0.15 to 0.8 the wage structure effect shows a trend of slow decrease but is still positive. It then increases sharply to 1.25 log-points at the 0.95 quantile and thereafter it falls sharply. For a large part of the distribution the wage structural effect

[7] HILDA allows us to identify whether a person speaks English poorly. However, no immigrants from ESC and no native-born can be classified as having poor English. For obvious reasons, an English proficiency dummy cannot be included in the regression models for immigrants from ESC and the native-born. For decomposition purpose this variable has to be excluded in our analysis. In addition, while we can investigate the importance of English language ability by estimating earnings equations from immigrants with good English only and compare their earnings difference with the native-born. However, most immigrants with good English are from ESC. The sample size is fairly small for immigrants from NESC especially when we sub-divide the sample by gender.

[8] Information on visa catorgories could potentially be important to understanding better the different labour outcomes of female immigrants relative to that of males. Unfortunately, it is not available.

is dominated by the composition effect, but they reinforce each other to generate the overall wage advantage of male ESC immigrants over their native-born counterparts.

The wage gap between male immigrants from NESC and the native-born is negligible (-0.003 log-point) at the mean wage, but this is largely because the negative structure effect (-0.041 log-point) and the positive composition effect (0.037 log-point) offset each other. Except at the lower end, the composition effect increases at a rapid rate when moving up along the distribution, but this increase is again almost completely offset by the increase (in absolute value) in the negative wage structure effect. In the upper 70 per cent of the distribution, their increasing advantage in the productivity factors of male immigrants from NESC are virtually completely offset by their increasing disadvantage in the returns to the productivity factors.

[Insert Figure 3 here]

Between female immigrants from ESC and female native-born, at the mean, the wage structure effect (0.034 log-point) and the composition effect (0.035 log-point) contribute almost equally to the overall wage gap (0.07 log-point). At the lower one-third of the distribution, both effects contribute roughly equally to the overall wage advantage of the female immigrants, but at the central part, the composition effect contributes more than the wage structure effect to the wage gap favouring the female immigrants, and at the top 20 per cent of the distribution the wage structure effect contributes more than the composition effect in favour of the female immigrants.

[Insert Table 2 here]

In contrast to their male counterparts, at the mean wage, female immigrants from NESC perform well relative to female native-born and the two effects work to reinforce the positive gap, which is small in magnitude though. Except at the two extreme ends of the distribution, the two effects are very close in magnitude, but for most of the lower half of the distribution they are negative to generate the overall wage disadvantage of the female immigrants; for the upper half of the distribution the two effects are positive to produce the overall wage advantage of the female immigrants.

4.2. UQR decomposition results

For the UQR decomposition, we first estimated the UQR regressions at the selected quantiles (10^{th}, 25^{th}, 50^{th}, 75^{th} and 90^{th}) and at the mean. Since the focus is to identify which wage covariate is responsible for the wage differentials between immigrants and the native-born, we do not discuss the UQR regression results in detail here. Detailed regression results can be found in the Supplementary Data Appendix Tables A3.1-A3.6.

Briefly, the UQR results show that, in the second half of the wage distribution, compared to the returns to those who did not complete year 12 schooling, the returns to an undergraduate degree or above qualification are generally the highest for immigrants from ESC. In addition, immigrants from ESC consistently receive higher returns to experience than immigrants from NESC. However, at certain parts of the wage distribution, immigrants from ESC receive lower returns than the native-born.

The wage structure and composition effects are further decomposed into the contributions from each group of the covariates (see sections 3.2 and 3.3). Tables 3a and 3b present the UQR decomposition results for all the comparison groups.

For the wage structure effect, a positive (negative) decomposition result for a variable (or a group of variables) means that the returns to this variable (or this group of variables) are higher (lower) for immigrants than for the native born. Similarly, for the composition effect, a positive (negative) decomposition result means that immigrants have advantage over the native born in this productivity characteristic.

Male immigrants from ESC and male native-born

Recall that at the mean and at most part of the wage distribution, the wage structure and composition effects are positive, favouring immigrants from ESC. Table 3a shows that at the mean, the most important contributor to the positive wage structure effect is the returns to experience. Interestingly, the difference in the returns to education works to reduce the wage structure effect at the mean. That is, in terms of the returns to education, at the mean wage male immigrants from ESC are disadvantaged compared to male native-born.

The relative roles of the returns to the wage covariates in the wage structure effect are different between the mean and the selected quantiles and between the quantiles. At the 0.1 and 0.25 quantiles, the difference in the returns to location

contributes the most to the positive wage structure effect, while the difference in the returns to experience works to reduce it. At the 0.75 and 0.9 quantiles, the difference in the returns to experience is the most important contributor to the positive wage structure effect, followed by the difference in returns to industry; and the difference in the returns to education reduces the effect. At the 0.9 quantile the difference in the returns to location also works to reduce the positive structure effect.

At the mean, the differences in experience and in education are the two major contributors to the positive composition effect. At the 0.1, 0.25 and 0.5 quantiles the difference in education is the most important factor, while at the 0.75 and 0.9 quantiles it is the difference in experience that mainly drives the positive composition effect, although the difference in education is also important.[9]

[Insert Table 3a here]

Female immigrants from ESC and female native-born

From Figure 3, both the wage structure and composition effects are positive everywhere along the distribution, contributing to the overall wage advantage of female immigrants from ESC over female native-born. Table 3a further shows that, at the mean wage, the difference in the returns to experience is the most important contributor to the positive wage structure effect. Yet, the difference in the returns to location works to reduce the wage structure effect at the mean. At the 0.1, 0.25 and 0.5 quantiles the difference in the returns to experience also contributes most to the wage structure effect. The difference in the returns to industry and the difference in the returns to occupation are the most important factors contributing to the wage structure effect at the 0.75 and 0.9 quantiles respectively. Unlike males, for females the difference in the returns to education contributes positively rather than negatively to the wage structure effect at the mean and at all the quantiles examined. The difference in the returns to location is important in reducing it at the 0.5, 0.75 and 0.9 quantiles.

At the mean, the major contributors to the positive composition effect are the differences in the industry and location variables. The difference in location contributes the most to the positive composition effect at the 0.1 quantile; while at the

[9] The positive composition effect suggests that if the ESC immigrants and the native-born were to be paid the same returns, the earnings advantage of the ESC immigrants enjoyed would have been larger due to their productivity-enhancing characteristics. These results confirm the findings of Table A1 that the ESC immigrants generally are more educated and with longer experience.

0.25 quantile it is the differences in location, experience and education. At the 0.75 quantile the positive composition effect is driven by the differences in industry and education; and at the 0.9 quantile the difference in industry is the key driver. The difference in experience plays the key role in reducing the composition effect at the 0.1 and 0.5 quantiles, while at the 0.75 and 0.9 quantiles it is the difference in job characteristics that play a similar role.

Male immigrants from NESC and male native-born

From Table 2, for the wage gap between male immigrants from NESC and male native-born the wage structure effect is negative at the mean and at all the main quantiles examined. The increasing magnitude of the wage structure effect along the distribution points to the potential glass ceiling effects, a phenomenon well-documented for female higher wage earners in the literature on gender wage gap (Albrecht et al. 2003; Arulampalam et al. 2006). The composition effect also increases when moving up along the distribution. In contrast to the wage structure effect, the composition effect is positive at the mean and at all the main quantiles.

The UQR decomposition results in Table 3b show that the difference in the returns to experience is the single most important contributor to the negative wage structure effect at the mean and at all the quantiles examined. The differences in the returns to education and industry also play an important role in the negative wage structure effect at the mean and at the 0.1, 0.25 and 0.5 quantiles, while at the 0.9 quantile the differences in the returns to education and job characteristics contribute the most to the negative wage structure effect.

At the mean and at the 0.1, 0.75 and 0.9 quantiles the difference in experience contributes the most to the positive composition effect. At the 0.1 and 0.9 quantiles the differences in industry and location are important instead. The difference in occupation holds the key in reducing the positive composition effect at the mean and at all the quantiles examined.

[Insert Table 3b here]

Female immigrants from NESC and female native-born

As the earlier results show, the wage gap between female immigrants from NESC and female native-born is rather mixed. Table 3b shows that at the mean, the

wage structure effect is largely unexplained, with the difference in the returns to experience and industry being the major offsetting factors. At the 0.1 quantile, the unexplained difference contributes the most to the negative wage structure effect, while the difference in the returns to industry is the major factor that works to reduce it. At the 0.5 quantile, the difference in the returns to industry is the most important contributor to the negative wage structure effect, followed by the difference in the returns to experience. At the 0.75 and 0.9 quantiles, the wage structure effect turns positive and the unexplained difference and the difference in the returns to location are the major contributors. While the difference in the returns to experience is the key offsetting factor at the 0.75 quantile, the difference in the returns to occupation plays a similar role at the 0.9 quantile. The difference in the returns to experience is also important at the 0.9 quantile, reducing the positive wage structure effect.

The major contributor to the positive composition effect at the mean is the difference in location. At the 0.1 and 0.25 quantiles, the differences in occupation and experience are the major contributors to the negative composition effect, and the difference in location is the major factor working to reduce it. At the 0.75 and 0.9 quantiles, the composition effect turns positive and is mainly driven by the differences in location and in education. The difference in occupation is the key factor that works to reduce it.

4.3 Cohort effects

The analysis so far has treated immigrants arriving at Australia at different points of time as homogeneous.[10] To relax this assumption, we split each of the immigrant groups into two cohorts: those who have been in Australia for at most 20 years and those in Australian for more than 20 years. We could have divided the immigrants into finer cohorts. But since we have examined the wage gap by gender and country of origins, dividing the immigrants further would make the sample sizes too small to conduct meaningful analysis. In this section, we also have to combine some of the occupation and industry categories, and exclude locational dummies in order to avoid empty cells to facilitate the UQR decomposition procedure.

[10] For obvious reason, 'year of arrival' is not relevant for the native-born. Chiswick et al. (2008), for instance, set the 'length of residence' to zero for the native-born. However, the effect of this variable on the immigrant-native earnings gap in the context of the UQR decomposition would be difficult to interpret.

The UQR decomposition results for the two cohorts of immigrants (not shown here but can be found in the Supplementary Data Appendix Tables A4.1a to A4.2d), indicate that the wage advantage among immigrants from ESC, irrespective of gender and cohort, are consistent with the earlier results. However, for immigrants from NESC the duration of time since arrival matters. For males, the UQR results reported earlier (i.e. a negative NESC immigrants/native-born wage gap with the negative wage structure effect offsetting the positive composition effect) holds only among the more recent cohort of immigrants from NESC. The earlier cohort in fact enjoys a wage advantage throughout the wage distribution, with the positive contributions of the wage structure effect at most part of the wage distribution reinforcing the (positive) composition effect.

Similarly, the earlier UQR decomposition results for females from NESC only hold among the more recent immigrant cohort but not for those who arrived more than 20 years. We find that female immigrants from NESC who arrived more than 20 years again have a wage advantage over the native-born. The results for the more recent NESC cohort are consistent with the earlier UQR results. They are paid less than their native-born counterparts, with both the wage structure and composition effects being negative in most quantiles. At some parts of the second half of the wage distribution where the wage structure effect is positive, it is outweighted by the negative composition effect.

5. Conclusions

Using the HILDA survey, this paper examined and identified the contributing factors to the wage differentials between immigrants and the native-born Australians using quantile regression decomposition methods. We find that the patterns of wage differentials between immigrants from ESC and the native-born and immigrants from NESC and the native-born are not the same, and so are between men and women, highlighting the importance of differentiating them.

Our results show that immigrants from ESC have apparent wage advantage over the native-born. The overall wage advantage, due to their earnings-enhancing productivity factors (i.e. positive composition effects) and the favourable reward to their productivity factors (i.e. positive wage structure effects), increases when moving up along the wage distribution. This is broadly in line with other studies on the important effect on earnings of country of origin that immigrants from ESC have

higher average earnings, rate of returns to human capital and in rates of assimilation (Chiswrick and Miller 1985; Beggs and Chapman 1990). The importance of the productivity factors reflects a greater role for skill-based selection of entry to Australia. The increasingly skill-based immigration policy in Australia appears to result in increasing skill levels of these immigrants relative to the Australian born.

The negligible wage differences between male immigrants from NESC and male native-born is very different from most studies. The decomposition results reveal that this result is largely because the negative wage structure effect offsets the positive composition effect. While the advantage in the productivity factors of the male immigrants from NESC generally increases when moving up along the wage distribution, it is completely offset by the unfavourable rewards to these factors at most part of the wage distribution.

Female immigrants from NESC on average possess slightly favourable characteristics that are also rewarded slightly better relative to female native-born. The advantage at the mean masks the variations along the distribution. Those female immigrants on low wages are disadvantaged in both their productivity factors and the returns to these characteristics, while those on high wages have advantages in both.

Our results on immigrants from NESC, especially for males, indicates that on one hand, the increasingly skills-based selection criteria have increased the skill levels of these immigrants and have enhanced their earnings capacities. On the other hand, differences in wage structure is the main source of earnings disparities between immigrants from NESC and the Australian born, they accounts for a negative earnings gap favouring the latter. While the exact reasons for the disadvantaged wage structure of immigrants from NESC require further investigation, some studies indicate that discrimination may be one of the important factors (Junanker et al. 2004; Thapa 2004). Accordingly, to facilitate the successful labour market entry of immigrants to Australia, policies to address demand side of the labour market are worthy of consideration.

Our results controlling for the cohort effects has provided further evidence in supporting the proposition that while the increasingly skill-based immigration policies have improved migrants' labour outcomes in general (Cobb-Clark 2003), the playing field may yet to be equal for the recent immigrants from NESC. We find that only immigrants from ESC enjoy earnings advantage over the Australian-born. For immigrants from NESC, especially males who arrive in Australia recently, they have

wage disadvantage relative to the Australian-born. This disadvantage is mainly due to unfavourable returns to productivity factors such as returns to education and experience.

In addition, from the results estimated using the recently developed unconditional quantile regression decomposition methods, two important lessons can be drawn. First, analyses based on the DFL decomposition may overlook the possible offsetting effects of individual factors. For example, while at the 0.25 quantile the returns to productive factors as a whole favour male immigrants from ESC relative to the native-born, the rewards to education and experience, in fact, put them in an unfavourable position. Second, just focusing on the effect at the mean may overlook the fact that individual productivity factor may impact the wage differentials differently along the wage distribution. For example, while at the 0.1 and 0.25 quantiles, the return to experience reduces the wage difference between male immigrants from ESC and male native-born, they increase it at the 0.75 and 0.9 quantiles.

References

Albrecht, J., Bjorklund, A. and Vroman, S. (2003). 'Is there a glass ceiling in Sweden?', Journal of Labor Economics, 21(1): 145-177.

Antecol**,** H., D. A. Cobb-Clark and S. J. Trejo. (2003). 'Immigration Policy and the skills of immigrants to Australia, Canada, and the United States', Journal of Human Resources, 38(1): 192-218.

Arulampalam,W., Booth A.L., and Bryan, M.L. (2007). 'Is there a glass ceiling over Europe? Exploring the gender pay gap across the wages distribution', Industrial and Labor Relations Review, 60(2): 163-186.

Australian Bureau of Statistics (ABS) (2007). 2006 Census of Population and Housing, Cat. No. 2068.0, Commonwealth of Australia, Canberra.

Beggs, J. J. and Chapman, B. J. (1990). 'Search efficiency, skill transferability and immigrant relative unemployment rates in Australia', Applied Economics, Taylor and Francis Journals, 22(2): 249-60.

Blinder, A. S. (1973). 'Wage discrimination: Reduced form and structural estimates', Journal of Human Resources, 8(4):436-455.

Butcher, K. F. and J. DiNardo (2002). 'The Immigrant and native-born wage distributions: Evidence from United States censuses', Industrial and Labour Relations Review, 56(1): 97-121.

Chiswick, B, R., A.T. Le and P.W. Miller (2008). 'How immigrants fare across the earnings distribution in Australia and the United States', Industrial and Labour Relations Review, 61(3):353-373.

Chiswick, B. R. and P. W. Miller (1985). 'Immigrant Generation and Income in Australia',. Economic Record, 61(173):540-53.

Chiswick, B. R (1980). 'The Earnings of White and Coloured Male Immigrants in Britain', Economica, 47(185): 81-87.

Chiswick**,** B. R. (1978). 'The effect of Americanisation on the earnings of foreign-born men', Journal of Political Economy, 86(5):891-921.

Cobb-Clark, D. A. (2003). 'Public Policy and the Labour Market Adjustment of New Immigrants to Australia', Journal of Population Economics, 16(4): 655-681.

Daneshvary, N. (1993). 'Wage differentials between natives and immigrants with college degree', The American Economist, 37(2): 46-52.

DiNardo, J., Fortin, N.M. and Lemieux, T. (1996). 'Labour market institutions and the distribution of wages, 1973-1992: A semiparametric approach', Econometrica, 64(5): 1001-1044.

Firpo, S., N. Fortin, and T. Lemieux (2007). 'Decomposing wage distribution using recentered influence function regressions', unpublished manuscript, University of British Columbia, June.

Hunt, P. (2008). 'Are immigrants so stuck to the floor that the ceiling is irrelevant?', Warwick Economic Research Papers no. 838, Department of Economics, University of Warwick, Coventry.

Junanker, P.N., S. Paul and W. Yasmeen (2004). 'Are Asian Migrants Discriminated Against in the Labour Market? A Case Study of Australia', IZA Discussion Paper No. 1167, June.

Kee, P. (1995). 'Native-immigrant wage differentials in the Netherlands: Discrimination?', Oxford Journals, 47(2): 302-317.

Koenker, R. (2004). 'Quantile Regression for Longitudinal Data', Journal of Multivariate Analysis, 91: P74-89.

Longhi, S., Nicoletti, C. and Platt, L. (2012). 'Explained and Unexplained Wage Gaps across the Main Ethno-Religious Groups in Great Britain', Oxford Economic Papers, doi:10.1093/oep/gps025.

Machado, J. A. F. and Mata, J. (2005), 'Counterfactual decomposition of changes in wage distributions using quantile regression', Journal of Applied Econometrics, 20(4), 445-465.

Miller**,** P. W. (1999). 'Immigration policy and immigrant quality: The Australian Points System', American Economic Review, 89(2): 192–7.

Miller**,** P. W. and L.M. Neo (2003). 'Labour market flexibility and **i**mmigrant Adjustment'. Economic Record, 79(246): 336-356.

Oaxaca, R. L. (1973). 'Male-female wage differentials in urban labour markets', International Economic Review, 14 (3): 693–709.

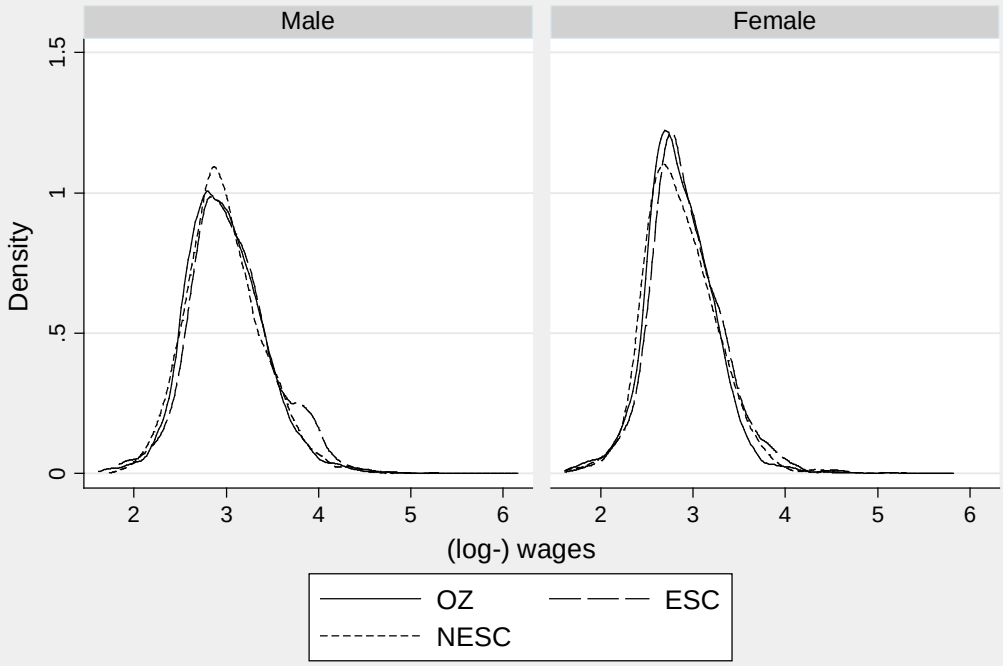
Thapa, P.J. (2004). 'On The Risk Of Unemployment: A Comparative Assessment of the Labour Market Success of Migrants in Australia', CEPR Discussion Papers 473, Centre for Economic Policy Research, Research School of Social Sciences, Australian National University, Canberra.

Tran-Nam, B. and J.W. Nevile (1988). 'The Effects of Birthplace on Male Earnings in Australia', Australian Economic Papers, 27(50):83-101.

Waddoups, C.J. (2005). 'Trade union decline and union wage effects in Australia', Industrial Relations, 44(4):607-624.

Wooden, M., Freidin, S. Watson, N. (2002). 'The household, income and labour dynamics in Australia (HILDA) Survey: Wave 1', Australian Economic Review, 35(3):339–48.

Figure 1: Wage density by country of birth



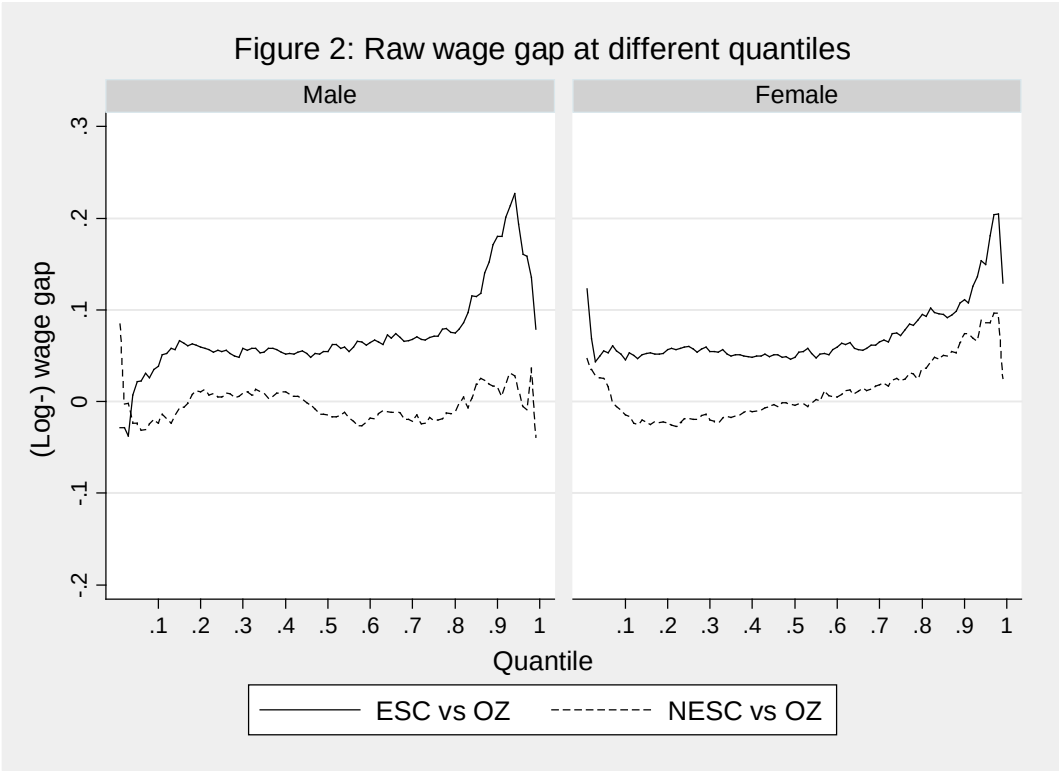


Figure 2: Raw wage gap at different quantiles
Male
Female
(Log-) wage gap
-.2
-.1
0
.1
.2
.3
.1 .2 .3 .4 .5 .6 .7 .8 .9 1
Quantile
ESC vs OZ
NESC vs OZ

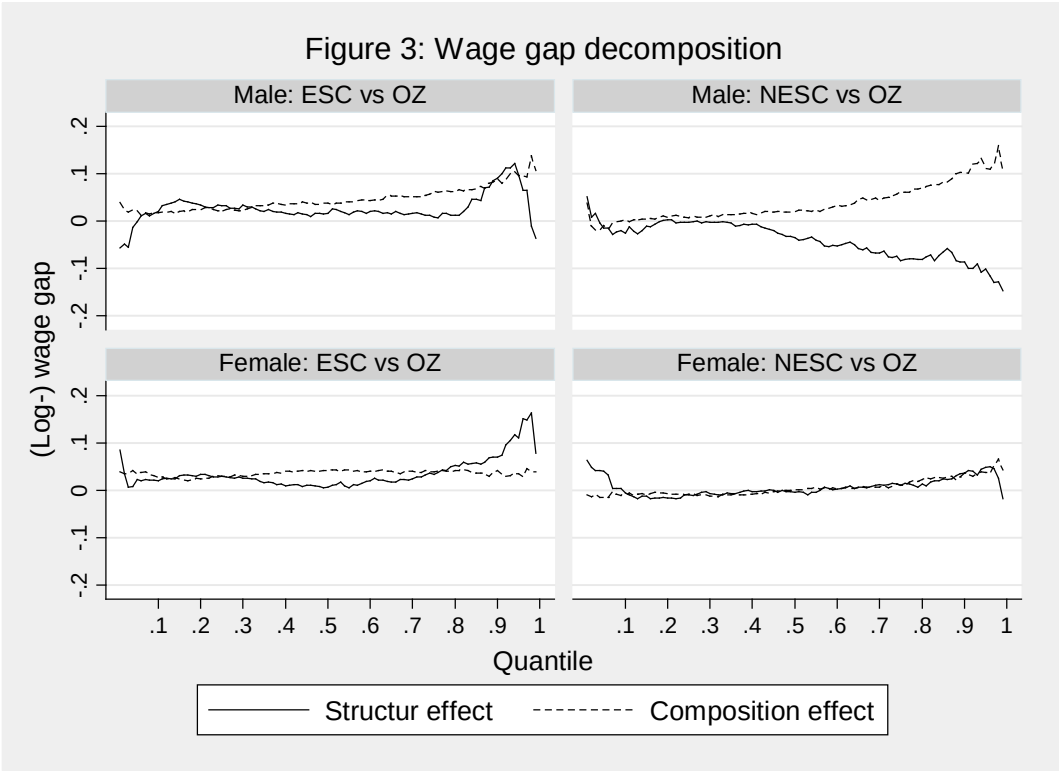


Figure 3: Wage gap decomposition
Male: ESC vs OZ
Male: NESC vs OZ
Female: ESC vs OZ
Female: NESC vs OZ
(Log-) wage gap
-.2
-.1
0
.1
.2
.1
.2
.3
.4
.5
.6
.7
.8
.9
1
Quantile
Structur effect
Composition effect

Table 2: DFL decomposition results with bootstrapped standard errors

	Raw gap		Wage structure effect		Composition effect	
	Gap	**s.e.**	**Effect**	**s.e.**	**Effect**	**s.e.**
			Male			
	ESC vs OZ					
Mean	0.0718	0.0010	0.0259	0.0008	0.0459	0.0007
Quantiles						
0.1	0.0381	0.0013	0.0206	0.0012	0.0175	0.0005
0.25	0.0541	0.0009	0.0324	0.0007	0.0217	0.0006
0.5	0.0544	0.0013	0.0165	0.0010	0.0380	0.0007
0.75	0.0711	0.0014	0.0079	0.0012	0.0631	0.0009
0.9	0.1802	0.0023	0.0904	0.0021	0.0898	0.0010
	NESC vs OZ					
Mean	-0.0033	0.0009	-0.0405	0.0008	0.0372	0.0007
Quantiles						
0.1	-0.0233	0.0010	-0.0253	0.0010	0.0020	0.0006
0.25	0.0048	0.0008	-0.0024	0.0007	0.0072	0.0005
0.5	-0.0149	0.0010	-0.0347	0.0008	0.0198	0.0008
0.75	-0.0210	0.0014	-0.0832	0.0012	0.0623	0.0009
0.9	0.0156	0.0016	-0.0870	0.0017	0.1026	0.0012
			Female			
	ESC vs OZ					
Mean	0.0695	0.0008	0.0341	0.0006	0.0354	0.0006
Quantiles						
0.1	0.0456	0.0009	0.0192	0.0009	0.0264	0.0005
0.25	0.0599	0.0007	0.0300	0.0006	0.0300	0.0005
0.5	0.0480	0.0010	0.0066	0.0008	0.0414	0.0007
0.75	0.0721	0.0014	0.0332	0.0011	0.0390	0.0008
0.9	0.1107	0.0017	0.0696	0.0015	0.0410	0.0007
	NESC vs OZ					
Mean	0.0119	0.0008	0.0076	0.0007	0.0043	0.0006
Quantiles						
0.1	-0.0148	0.0007	-0.0053	0.0009	-0.0095	0.0006
0.25	-0.0184	0.0007	-0.0096	0.0006	-0.0088	0.0005
0.5	-0.0043	0.0009	-0.0051	0.0008	0.0007	0.0007
0.75	0.0217	0.0013	0.0110	0.0010	0.0107	0.0009
0.9	0.0729	0.0017	0.0362	0.0015	0.0367	0.0008

Note: Standard errors are bootstrapped.

Table 3a UQR decomposition results - ESC vs OZ

	Males						Females					
	Mean	**0.1**	**0.25**	**0.5**	**0.75**	**0.9**	**Mean**	**0.1**	**0.25**	**0.5**	**0.75**	**0.9**
Wage structure effect												
Education	-0.0653	0.0055	-0.0439	-0.0592	-0.1215	-0.0723	0.0701	0.0643	0.0573	0.0411	0.0940	0.0883
	(0.0024)	(0.0037)	(0.0029)	(0.0029)	(0.0032)	(0.0057)	(0.0019)	(0.0033)	(0.0023)	(0.0025)	(0.0024)	(0.0030)
Experience	0.0457	-0.0928	-0.0887	0.0127	0.1489	0.4437	0.1280	0.0890	0.1578	0.2088	0.0775	0.1142
	(0.0047)	(0.0072)	(0.0055)	(0.0062)	(0.0077)	(0.0133)	(0.0037)	(0.0063)	(0.0039)	(0.0045)	(0.0059)	(0.0077)
Job characteristics	0.0075	0.0183	0.0061	-0.0032	0.0126	-0.0141	-0.0069	0.0290	0.0027	-0.0280	-0.0347	-0.0127
	(0.0010)	(0.0026)	(0.0009)	(0.0011)	(0.0014)	(0.0026)	(0.0010)	(0.0015)	(0.0009)	(0.0013)	(0.0017)	(0.0029)
Occupation	-0.0013	0.0260	0.0102	-0.0084	-0.0432	0.0010	0.0004	-0.0625	-0.0043	0.0530	-0.0522	0.1724
	(0.0027)	(0.0026)	(0.0022)	(0.0030)	(0.0050)	(0.0090)	(0.0039)	(0.0028)	(0.0021)	(0.0035)	(0.0069)	(0.0114)
Industry	-0.0028	-0.1118	-0.0204	0.0209	0.0532	0.0609	0.0140	0.0608	-0.0089	-0.0422	0.1102	0.0732
	(0.0022)	(0.0030)	(0.0021)	(0.0029)	(0.0031)	(0.0052)	(0.0023)	(0.0048)	(0.0032)	(0.0038)	(0.0045)	(0.0048)
Location	0.0025	0.0733	0.0707	-0.0201	-0.0395	-0.0961	-0.0569	-0.0154	0.0035	-0.0511	-0.0731	-0.1134
	(0.0026)	(0.0039)	(0.0026)	(0.0032)	(0.0039)	(0.0061)	(0.0017)	(0.0024)	(0.0022)	(0.0024)	(0.0030)	(0.0046)
Unexplained	0.0397	0.1021	0.0983	0.0737	0.0027	-0.2327	-0.0011	-0.1459	-0.1781	0.0018	-0.0885	-0.2524
	(0.0074)	(0.0099)	(0.0076)	(0.0085)	(0.0113)	(0.0179)	(0.0070)	(0.0010)	(0.0064)	(0.0079)	(0.0112)	(0.0156)
Composition effect												
Education	0.0226	0.0126	0.0200	0.0304	0.0292	0.0563	0.0034	-0.0129	0.0080	0.0083	0.0105	-0.0049
	(0.0008)	(0.0013)	(0.0011)	(0.0010)	(0.0013)	(0.0017)	(0.0006)	(0.0008)	(0.0006)	(0.0008)	(0.0009)	(0.0009)
Experience	0.0382	0.0070	0.0110	0.0260	0.0660	0.1479	-0.0038	-0.0146	0.0085	-0.0337	-0.0020	-0.0096
	(0.0013)	(0.0017)	(0.0016)	(0.0022)	(0.0027)	(0.0039)	(0.0011)	(0.0018)	(0.0015)	(0.0015)	(0.0019)	(0.0022)
Job characteristics	-0.0085	-0.0108	-0.0149	-0.0140	-0.0085	0.0002	-0.0059	0.0012	0.0038	-0.0052	-0.0112	-0.0203
	(0.0003)	(0.0005)	(0.0004)	(0.0004)	(0.0005)	(0.0008)	(0.0003)	(0.0006)	(0.0004)	(0.0005)	(0.0006)	(0.0008)
Occupation	-0.0064	-0.0082	-0.0139	-0.0182	0.0039	0.0276	0.0040	0.0032	-0.0030	-0.0064	0.0050	0.0185
	(0.0010)	(0.0008)	(0.0008)	(0.0012)	(0.0022)	(0.0036)	(0.0011)	(0.0008)	(0.0084)	(0.0012)	(0.0021)	(0.0035)
Industry	0.0075	0.0053	-0.0104	0.0254	0.0046	0.0123	0.0174	0.0016	0.0034	0.0002	0.0146	0.0353
	(0.0008)	(0.0009)	(0.0008)	(0.0012)	(0.0013)	(0.0019)	(0.0008)	(0.0015)	(0.0012)	(0.0011)	(0.0014)	(0.0015)
Location	-0.0143	0.0096	-0.0036	-0.0198	-0.0390	-0.0175	0.0146	0.0112	0.0096	0.0060	0.0080	0.0118
	(0.0007)	(0.0009)	(0.0007)	(0.0008)	(0.0011)	(0.0015)	(0.0005)	(0.0007)	(0.0006)	(0.0007)	(0.0008)	(0.0010)
Unexplained	0.0068	0.0021	0.0335	0.0081	0.0071	-0.1371	-0.0057	0.0367	-0.0037	0.0723	0.0139	0.0010
	(0.0023)	(0.0028)	(0.0025)	(0.0030)	(0.0004)	(0.0060)	(0.0019)	(0.0026)	(0.0022)	(0.0025)	(0.0031)	(0.0042)

Note: Bootstrapped standard errors in the parentheses.

Table 3b UQR decomposition results - NESC vs OZ

	Males						Females					
	Mean	**0.1**	**0.25**	**0.5**	**0.75**	**0.9**	**Mean**	**0.1**	**0.25**	**0.5**	**0.75**	**0.9**
Wage structure effect												
Education	-0.0633	-0.0506	-0.0837	-0.0622	-0.0321	-0.0721	-0.0150	0.0072	-0.0169	0.0165	-0.0430	-0.0603
	(0.0023)	(0.0046)	(0.0034)	(0.0026)	(0.0037)	(0.0039)	(0.0021)	(0.0030)	(0.0025)	(0.0027)	(0.0028)	(0.0030)
Experience	-0.1510	-0.1891	-0.0839	-0.1024	-0.1605	-0.3106	-0.0944	0.0132	0.0353	-0.0508	-0.1677	-0.1677
	(0.0037)	(0.0059)	(0.0046)	(0.0038)	(0.0066)	(0.0088)	(0.0031)	(0.0045)	(0.0035)	(0.0039)	(0.0046)	(0.0058)
Job characteristics	-0.0091	-0.0143	-0.0122	0.0098	-0.0201	-0.0583	0.0262	0.0216	0.0223	0.0328	0.0044	0.0621
	(0.0009)	(0.0015)	(0.0011)	(0.0010)	(0.0014)	(0.0021)	(0.0011)	(0.0014)	(0.0010)	(0.0012)	(0.0017)	(0.0029)
Occupation	0.0516	0.0036	-0.0152	0.0510	0.1026	0.2112	-0.0197	-0.0254	-0.0289	0.0072	-0.0058	-0.1750
	(0.0033)	(0.0027)	(0.0027)	(0.0028)	(0.0061)	(0.0110)	(0.0047)	(0.0023)	(0.0024)	(0.0044)	(0.0079)	(0.0141)
Industry	-0.0415	-0.1023	-0.0753	-0.0653	-0.0267	0.0687	-0.0526	0.0422	-0.0354	-0.1451	-0.0072	-0.0347
	(0.0018)	(0.0028)	(0.0020)	(0.0021)	(0.0034)	(0.0048)	(0.0026)	(0.0037)	(0.0029)	(0.0038)	(0.0038)	(0.0044)
Location	0.0146	0.0322	0.0261	0.0503	0.0019	0.0114	0.0282	-0.0035	-0.0185	0.0012	0.0829	0.1488
	(0.0027)	(0.0050)	(0.0032)	(0.0032)	(0.0043)	(0.0055)	(0.0022)	(0.0035)	(0.0026)	(0.0030)	(0.0033)	(0.0040)
Unexplained	0.1580	0.2952	0.0185	-0.0842	0.0517	0.0626	0.1349	-0.0607	0.0325	0.1331	0.1473	0.2631
	(0.0069)	(0.0103)	(0.0073)	(0.0067)	(0.0118)	(0.0175)	(0.0075)	(0.0087)	(0.0066)	(0.0083)	(0.0116)	(0.0176)
Composition effect												
Education	0.0165	0.0002	0.0178	0.0303	0.0220	0.0378	-0.0011	-0.0205	-0.0060	-0.0018	0.0129	0.0149
	(0.0008)	(0.0019)	(0.0013)	(0.0014)	(0.0014)	(0.0018)	(0.0008)	(0.0016)	(0.0010)	(0.0009)	(0.0010)	(0.0012)
Experience	0.0471	0.0447	-0.0041	-0.0109	0.0697	0.2011	0.0020	-0.0275	-0.0288	0.0064	-0.0009	0.0199
	(0.0015)	(0.0026)	(0.0017)	(0.0020)	(0.0031)	(0.0046)	(0.0012)	(0.0023)	(0.0015)	(0.0015)	(0.0017)	(0.0023)
Job characteristics	-0.0081	-0.0157	-0.0131	-0.0161	-0.0033	0.0052	-0.0086	0.0007	-0.0040	-0.0089	-0.0110	-0.0133
	(0.0004)	(0.0006)	(0.0005)	(0.0005)	(0.0006)	(0.0011)	(0.0004)	(0.0007)	(0.0043)	(0.0006)	(0.0007)	(0.0010)
Occupation	-0.0521	-0.0207	-0.0273	-0.0617	-0.0900	-0.0939	-0.0729	-0.0308	-0.0237	-0.0697	-0.1360	-0.1072
	(0.0013)	(0.0010)	(0.0010)	(0.0014)	(0.0027)	(0.0054)	(0.0015)	(0.0016)	(0.0011)	(0.0016)	(0.0025)	(0.0047)
Industry	0.0145	0.0153	0.0043	0.0077	0.0052	0.0305	0.0069	0.0248	0.0119	0.0163	-0.0087	-0.0252
	(0.0008)	(0.0009)	(0.0009)	(0.0011)	(0.0013)	(0.0021)	(0.0010)	(0.0019)	(0.0014)	(0.0014)	(0.0013)	(0.0018)
Location	0.0200	0.0153	0.0111	0.0088	0.0207	0.0499	0.0304	0.0420	0.0320	0.0321	0.0185	0.0284
	(0.0007)	(0.0013)	(0.0009)	(0.0009)	(0.0012)	(0.0015)	(0.0007)	(0.0012)	(0.0008)	(0.0008)	(0.0009)	(0.0012)
Unexplained	-0.0006	-0.0374	0.0185	0.0615	0.0378	-0.1280	0.0048	0.0019	0.0099	0.0263	0.1359	0.1194
	(0.0027)	(0.0045)	(0.0032)	(0.0035)	(0.0050)	(0.0084)	(0.0025)	(0.0042)	(0.0029)	(0.0030)	(0.0035)	(0.0056)

Note: Bootstrapped standard errors in the parentheses.

Appendix

Table A1 Summary statistics

	Males			Females		
Variable	OZ	ESC	NESC	OZ	ESC	NESC
Log wages	2.9850	3.0568	2.9817	2.8559	2.9254	2.8678
	(0.4190)	(0.4530)	(0.4164)	(0.3766)	(0.3934)	(0.3999)
Degree	0.2504	0.3213	0.3955	0.3155	0.3537	0.3967
Other post-school	0.4284	0.3779	0.3056	0.2653	0.2960	0.2126
Year 12	0.1066	0.1037	0.1425	0.1302	0.1513	0.2114
Year 11 or below	0.2146	0.1971	0.1564	0.2890	0.1991	0.1793
Yrs of experience	22.19	24.92	21.99	19.10	21.59	19.07
	(10.55)	(11.19)	(11.05)	(9.24)	(9.33)	(9.84)
Yrs of tenure	8.13	7.04	6.01	6.72	6.04	5.56
	(8.63)	(7.98)	(6.85)	(7.24)	(6.27)	(6.05)
Part-time	0.0775	0.0808	0.0996	0.4281	0.4054	0.3810
Casual	0.1261	0.1302	0.1606	0.2323	0.2110	0.2337
Part-time and casual	0.0518	0.0506	0.0682	0.1946	0.1672	0.1655
Union member	0.3651	0.3080	0.3140	0.3294	0.3324	0.2977
Manager/administrator	0.0944	0.1314	0.0713	0.0446	0.0524	0.0393
Professional	0.2177	0.2725	0.2579	0.3233	0.3411	0.2772
Associate Professional	0.1495	0.1386	0.1395	0.1315	0.1380	0.0882
Tradespersons	0.1732	0.1242	0.1558	0.0178	0.0106	0.0199
Advanced clerical	0.0092	0.0096	0.0066	0.0610	0.0710	0.0465
Intermediate clerical	0.1053	0.1025	0.0972	0.2646	0.2727	0.2681
Intermediate production	0.1454	0.1266	0.1105	0.0169	0.0066	0.0405
Elemental clerical	0.0413	0.0289	0.0556	0.0864	0.0697	0.0906
Labourers	0.0641	0.0657	0.1057	0.0538	0.0378	0.1298
Manufacture	0.1830	0.1694	0.2343	0.0505	0.0776	0.1389
Mining	0.0375	0.0283	0.0145	0.0032	0.0046	0.0024
Electricity	0.0176	0.0121	0.0217	0.0040	0.0013	0.0012
Construction	0.0796	0.0705	0.0688	0.0134	0.0060	0.0157
Wholesales	0.0574	0.0729	0.0320	0.0310	0.0226	0.0320
Retail	0.0827	0.0675	0.0761	0.1073	0.0670	0.0996
Accommodation	0.0278	0.0223	0.0634	0.0404	0.0365	0.0465
Transport	0.0691	0.0790	0.0646	0.0206	0.0199	0.0296
Community services	0.1577	0.2061	0.2017	0.1591	0.1885	0.1818
Government	0.0865	0.0585	0.0731	0.0608	0.0624	0.0707
Education	0.0773	0.1181	0.0429	0.2109	0.1466	0.1069
Health	0.0482	0.0428	0.0604	0.2457	0.2933	0.2289
Culture	0.0298	0.0217	0.0242	0.0221	0.0358	0.0115
Other industries	0.0457	0.0307	0.0223	0.0310	0.0378	0.0344
NSW/ACT	0.3087	0.3110	0.4203	0.3116	0.3371	0.4197
VIC	0.2573	0.1893	0.3122	0.2585	0.1772	0.3043
QLD	0.2197	0.2134	0.1039	0.2184	0.2243	0.1087
SA	0.0896	0.0892	0.0429	0.0905	0.0836	0.0435
WA&NT	0.0949	0.1796	0.1178	0.0842	0.1559	0.1129
TAS	0.0298	0.0175	0.0030	0.0368	0.0219	0.0109
Capital city	0.5864	0.7426	0.8587	0.5799	0.7306	0.8176
No. of observations	10804	1659	1656	10979	1507	1656

* Standard error for continuous variables is in parenthesis.

Supplementary Data Appendix

A2 Check for time trend

Figure a1: Raw wage gap by wave: males

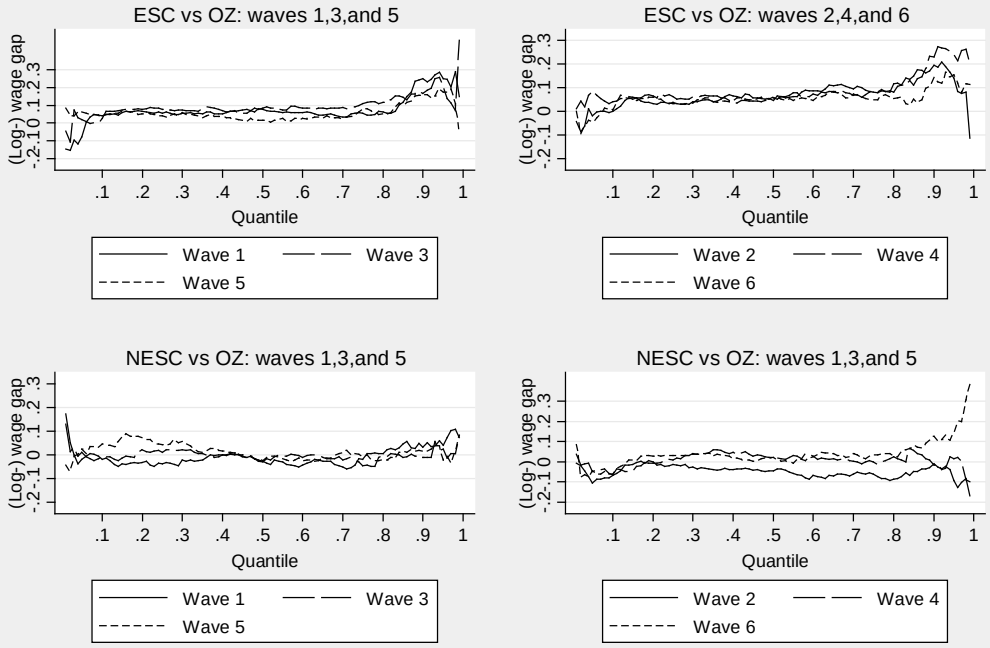
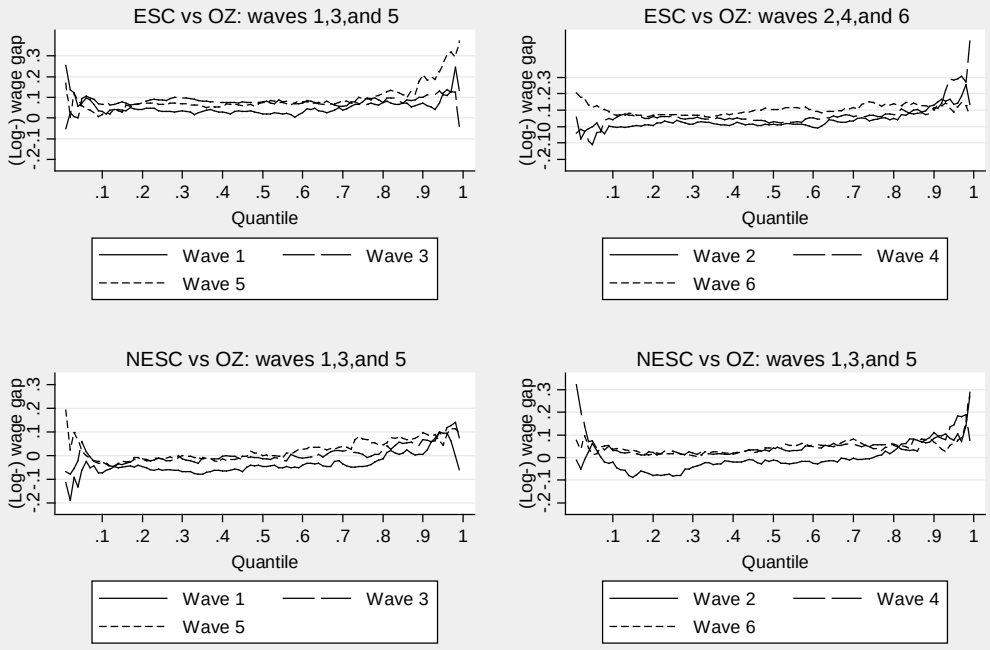


Figure a2: Raw wage gap by wave: females



A3 UQR regression results

Table A3.1 UQR results at the mean, by gender

	Males						Female					
	OZ		ESC		NESC		OZ		ESC		NESC	
	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.
Degree	0.2752	0.0124	0.2152	0.0350	0.1332	0.0330	0.1549	0.0102	0.2689	0.0290	0.1182	0.0279
Other post-school	0.0891	0.0092	0.0171	0.0278	0.0261	0.0296	0.0210	0.0085	0.1010	0.0250	-0.0042	0.0275
Year 12	0.0879	0.0128	-0.0181	0.0371	0.0625	0.0333	0.0444	0.0104	0.0579	0.0284	-0.0090	0.0267
Yrs of experience	0.0178	0.0014	0.0241	0.0040	0.0094	0.0031	0.0116	0.0014	0.0200	0.0039	0.0030	0.0032
Yrs of experience^2	-0.0003	0.0000	-0.0004	0.0001	-0.0001	0.0001	-0.0002	0.0000	-0.0004	0.0001	0.0000	0.0001
Yrs of tenure	0.0071	0.0012	0.0174	0.0037	0.0078	0.0037	0.0112	0.0012	0.0177	0.0038	0.0083	0.0035
Yrs of tenure^2	-0.0001	0.0000	-0.0004	0.0001	-0.0002	0.0001	-0.0002	0.0000	-0.0003	0.0002	-0.0002	0.0001
Part-time	0.0518	0.0212	0.0085	0.0552	0.0277	0.0518	0.0535	0.0077	0.0529	0.0206	0.1292	0.0214
Casual	0.0315	0.0131	0.0589	0.0368	0.0434	0.0314	-0.0048	0.0163	0.0441	0.0414	-0.0001	0.0339
Part-time and casual	-0.0174	0.0280	0.1131	0.0745	-0.1184	0.0671	0.0294	0.0184	-0.0080	0.0483	0.0228	0.0422
Union member	0.0970	0.0076	0.0890	0.0244	0.0752	0.0212	0.0485	0.0074	0.0039	0.0195	0.0272	0.0193
Professional	-0.1089	0.0131	-0.1629	0.0325	-0.0454	0.0380	-0.0985	0.0155	-0.1100	0.0392	-0.1166	0.0443
Associate Professional	-0.1536	0.0142	-0.1982	0.0366	-0.1739	0.0413	-0.2346	0.0167	-0.2692	0.0427	-0.2829	0.0494
Tradespersons	-0.2906	0.0147	-0.2508	0.0421	-0.2722	0.0426	-0.3757	0.0275	-0.3796	0.0889	-0.4872	0.0732
Advanced clerical	-0.1555	0.0360	-0.4659	0.0956	-0.2877	0.1124	-0.2496	0.0194	-0.2476	0.0494	-0.2946	0.0566
Intermediate clerical	-0.2775	0.0155	-0.3462	0.0401	-0.3694	0.0445	-0.3658	0.0162	-0.3854	0.0411	-0.4460	0.0447
Intermediate production	-0.3708	0.0155	-0.3888	0.0428	-0.3663	0.0460	-0.4143	0.0283	-0.2740	0.1086	-0.6310	0.0623
Elemental clerical	-0.3883	0.0206	-0.5069	0.0625	-0.4118	0.0523	-0.3953	0.0197	-0.3378	0.0530	-0.4420	0.0546
Labourers	-0.4467	0.0183	-0.4116	0.0511	-0.4467	0.0459	-0.4459	0.0208	-0.4067	0.0591	-0.5650	0.0499
Mining	0.3804	0.0189	0.3532	0.0604	0.3203	0.0771	0.1871	0.0545	0.3873	0.1234	-0.0037	0.1657
Electricity	0.0491	0.0260	0.1152	0.0866	0.0630	0.0635	0.1917	0.0490	0.0693	0.2224	0.1689	0.2329
Construction	0.0773	0.0141	0.0549	0.0424	-0.0214	0.0394	0.0246	0.0292	-0.0100	0.1084	-0.0819	0.0695
Wholesales	-0.0934	0.0160	-0.1006	0.0408	-0.1465	0.0526	0.0232	0.0216	0.1102	0.0620	-0.0580	0.0508

Retail	-0.1625	0.0143	-0.1858	0.0431	-0.1910	0.0379	-0.1024	0.0172	-0.1039	0.0470	-0.2268	0.0406
Accommodation	-0.1835	0.0218	-0.1692	0.0665	-0.2613	0.0425	-0.0900	0.0204	-0.1201	0.0523	-0.1810	0.0462
Transport	0.0211	0.0150	0.0632	0.0425	0.0010	0.0402	0.0452	0.0249	-0.0277	0.0652	-0.0864	0.0529
Community services	0.0732	0.0122	0.1594	0.0334	0.0350	0.0300	0.0325	0.0156	0.0419	0.0356	-0.0214	0.0324
Government	-0.0076	0.0141	-0.0636	0.0466	-0.0050	0.0395	0.0923	0.0183	0.1297	0.0457	0.0286	0.0421
Education	-0.1756	0.0160	-0.2230	0.0439	-0.1487	0.0506	-0.0831	0.0159	-0.0878	0.0388	-0.1391	0.0386
Health	-0.1345	0.0176	-0.0282	0.0519	-0.1222	0.0433	-0.0384	0.0152	0.0244	0.0352	-0.0800	0.0326
Culture	-0.0687	0.0207	-0.2040	0.0665	-0.1190	0.0616	-0.0807	0.0243	0.0550	0.0530	-0.0471	0.0803
Other industries	-0.1144	0.0178	-0.2198	0.0590	-0.1540	0.0617	-0.0551	0.0219	-0.1108	0.0520	-0.1343	0.0511
VIC	-0.0534	0.0088	-0.0382	0.0273	-0.0071	0.0210	-0.0758	0.0080	-0.1348	0.0241	-0.0190	0.0198
QLD	-0.0728	0.0092	-0.1422	0.0268	-0.0292	0.0322	-0.0820	0.0084	-0.0609	0.0227	0.0304	0.0291
SA	-0.0737	0.0126	-0.2206	0.0360	-0.0997	0.0448	-0.0841	0.0113	-0.1415	0.0319	-0.1103	0.0421
WA&NT	-0.0527	0.0123	-0.1045	0.0280	-0.0145	0.0298	-0.0614	0.0116	-0.0866	0.0256	0.0091	0.0282
TAS	-0.0495	0.0202	-0.2382	0.0744	0.0821	0.1618	-0.0616	0.0169	-0.0369	0.0590	0.1504	0.0825
Capital city	0.0616	0.0072	0.0831	0.0228	0.0453	0.0283	0.0565	0.0065	0.0022	0.0195	0.0531	0.0234
Constant	2.8087	0.0235	2.8552	0.0689	2.9662	0.0660	2.8877	0.0255	2.7788	0.0696	3.0704	0.0654

Table A3.2 UQR results at the 10th quantile, by gender

	Males						Female					
	OZ		ESC		NESC		OZ		ESC		NESC	
	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.
Degree	0.0901	0.0179	0.1529	0.0556	0.0200	0.0546	0.0590	0.0171	0.1404	0.0486	0.0284	0.0378
Other post-school	0.0722	0.0134	0.0540	0.0441	-0.0239	0.0490	0.0136	0.0143	0.0417	0.0419	0.0021	0.0373
Year 12	0.0326	0.0186	0.0529	0.0589	0.0420	0.0551	0.0147	0.0174	0.0889	0.0475	-0.0043	0.0362
Yrs of experience	0.0096	0.0020	-0.0004	0.0063	-0.0043	0.0051	0.0121	0.0023	0.0182	0.0065	0.0111	0.0044
Yrs of experience^2	-0.0002	0.0000	0.0001	0.0001	0.0001	0.0001	-0.0003	0.0001	-0.0004	0.0001	-0.0002	0.0001
Yrs of tenure	0.0049	0.0017	0.0085	0.0059	0.0048	0.0060	0.0088	0.0021	0.0034	0.0063	0.0073	0.0048
Yrs of tenure^2	-0.0001	0.0001	-0.0003	0.0002	-0.0002	0.0002	-0.0002	0.0001	0.0000	0.0003	-0.0002	0.0002
Part-time	-0.1225	0.0308	-0.0386	0.0876	-0.3306	0.0857	-0.0082	0.0130	0.0306	0.0345	0.0236	0.0290
Casual	-0.0143	0.0191	-0.0275	0.0584	-0.0177	0.0520	-0.1684	0.0274	-0.0515	0.0694	-0.1272	0.0460
Part-time and casual	0.0332	0.0407	-0.0133	0.1182	0.1318	0.1111	0.0415	0.0309	-0.0538	0.0809	0.0678	0.0572
Union member	0.1197	0.0111	0.1591	0.0387	0.0984	0.0351	0.0360	0.0124	0.0450	0.0328	0.0309	0.0261
Professional	-0.0240	0.0190	0.0006	0.0516	-0.0089	0.0629	0.0323	0.0260	-0.0486	0.0656	-0.0273	0.0601
Associate Professional	-0.0566	0.0206	0.0420	0.0581	-0.0079	0.0684	-0.0218	0.0281	-0.0963	0.0716	-0.0556	0.0670
Tradespersons	-0.1168	0.0213	-0.1370	0.0668	-0.1502	0.0706	-0.1238	0.0462	-0.2790	0.1489	-0.2606	0.0994
Advanced clerical	-0.0728	0.0523	-0.2346	0.1518	-0.0425	0.1862	0.0123	0.0325	-0.0781	0.0827	-0.0912	0.0768
Intermediate clerical	-0.1011	0.0225	-0.1310	0.0636	-0.1022	0.0738	-0.0943	0.0271	-0.1635	0.0688	-0.1315	0.0607
Intermediate production	-0.1833	0.0224	-0.1946	0.0680	-0.2877	0.0762	-0.1991	0.0476	-0.2073	0.1819	-0.2266	0.0846
Elemental clerical	-0.1948	0.0300	-0.3736	0.0993	0.0047	0.0866	-0.1360	0.0330	-0.1598	0.0889	-0.1082	0.0740
Labourers	-0.2701	0.0266	-0.2635	0.0811	-0.4333	0.0761	-0.2436	0.0350	-0.2883	0.0990	-0.2090	0.0677
Mining	0.1190	0.0274	0.0907	0.0959	0.0682	0.1276	0.1554	0.0916	0.2449	0.2067	0.1706	0.2249
Electricity	0.0455	0.0378	-0.2110	0.1375	0.0040	0.1052	0.1082	0.0823	0.3138	0.3725	0.0897	0.3161
Construction	0.0658	0.0204	-0.0524	0.0674	-0.0277	0.0652	-0.0651	0.0491	-0.1691	0.1816	0.0835	0.0943
Wholesales	-0.0927	0.0232	-0.3190	0.0648	-0.3490	0.0870	0.0220	0.0363	0.0793	0.1038	0.1178	0.0689
Retail	-0.1874	0.0208	-0.3667	0.0685	-0.2489	0.0627	-0.0730	0.0289	-0.0878	0.0788	-0.1187	0.0551
Accommodation	-0.1579	0.0316	-0.2275	0.1056	-0.3914	0.0704	-0.1424	0.0342	-0.2477	0.0876	-0.0367	0.0627

Transport	-0.0189	0.0218	0.0423	0.0674	-0.0479	0.0665	0.0171	0.0418	-0.2465	0.1092	-0.1363	0.0717
Community services	0.0308	0.0177	-0.0903	0.0531	-0.0829	0.0497	-0.0287	0.0261	0.0472	0.0597	0.0757	0.0440
Government	0.0197	0.0204	-0.1232	0.0740	-0.0589	0.0653	0.0176	0.0307	0.1076	0.0766	0.0882	0.0571
Education	-0.0461	0.0233	-0.1496	0.0698	-0.1191	0.0838	-0.0790	0.0267	0.0056	0.0650	-0.0012	0.0524
Health	-0.0603	0.0255	-0.2272	0.0824	-0.1907	0.0717	-0.0739	0.0255	0.0362	0.0589	0.0247	0.0442
Culture	-0.0604	0.0301	-0.3509	0.1056	-0.2532	0.1020	-0.0958	0.0408	0.0930	0.0888	0.1003	0.1090
Other industries	-0.1315	0.0258	-0.5194	0.0937	-0.3626	0.1021	-0.1080	0.0367	-0.1782	0.0872	-0.1159	0.0694
VIC	-0.0426	0.0128	0.0649	0.0433	-0.0418	0.0347	-0.0651	0.0135	0.0120	0.0403	-0.0298	0.0268
QLD	-0.0611	0.0133	0.0050	0.0426	-0.0057	0.0533	-0.0342	0.0141	0.0345	0.0380	0.0763	0.0395
SA	-0.0298	0.0182	-0.0366	0.0572	-0.0602	0.0742	-0.0252	0.0190	-0.0676	0.0535	-0.0190	0.0572
WA&NT	-0.0534	0.0178	-0.0844	0.0445	-0.0090	0.0493	-0.0601	0.0196	-0.0581	0.0429	0.0581	0.0383
TAS	-0.0087	0.0294	-0.1099	0.1182	-0.0361	0.2679	0.0493	0.0283	-0.0535	0.0988	0.1665	0.1119
Capital city	0.0340	0.0104	0.1042	0.0362	0.0614	0.0468	0.0550	0.0109	0.0054	0.0327	0.0414	0.0318
Constant	2.4143	0.0341	2.5186	0.1094	2.6717	0.1092	2.4025	0.0427	2.2916	0.1166	2.3432	0.0887

Table A3.3 UQR results at the 25th quantile, by gender

	Males						Female					
	OZ		ESC		NESC		OZ		ESC		NESC	
	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.
Degree	0.1636	0.0150	0.1208	0.0399	0.0260	0.0412	0.0739	0.0113	0.1891	0.0326	0.0284	0.0319
Other post-school	0.0947	0.0112	0.0558	0.0316	0.0062	0.0369	0.0115	0.0095	0.0506	0.0281	0.0021	0.0314
Year 12	0.0432	0.0155	0.0226	0.0422	0.0567	0.0415	0.0215	0.0115	0.0828	0.0319	-0.0043	0.0305
Yrs of experience	0.0104	0.0016	0.0052	0.0045	0.0020	0.0038	0.0063	0.0015	0.0203	0.0043	0.0111	0.0037
Yrs of experience^2	-0.0002	0.0000	-0.0001	0.0001	0.0000	0.0001	-0.0001	0.0000	-0.0004	0.0001	-0.0002	0.0001
Yrs of tenure	0.0084	0.0014	0.0113	0.0043	0.0121	0.0046	0.0092	0.0014	0.0068	0.0042	0.0073	0.0040
Yrs of tenure^2	-0.0002	0.0000	-0.0003	0.0001	-0.0003	0.0002	-0.0002	0.0000	0.0000	0.0002	-0.0002	0.0002
Part-time	-0.0742	0.0257	-0.0814	0.0628	-0.1168	0.0646	0.0043	0.0086	-0.0031	0.0231	0.0236	0.0244
Casual	0.0336	0.0159	-0.0138	0.0419	0.0197	0.0392	0.0099	0.0181	0.0257	0.0466	-0.1272	0.0388
Part-time and casual	0.0254	0.0339	0.0285	0.0848	-0.0716	0.0838	-0.0087	0.0205	-0.0145	0.0543	0.0678	0.0482
Union member	0.1377	0.0092	0.1566	0.0277	0.1214	0.0264	0.0311	0.0082	0.0525	0.0220	0.0309	0.0220
Professional	-0.0316	0.0158	-0.0395	0.0370	-0.0157	0.0474	0.0045	0.0172	-0.0456	0.0440	-0.0273	0.0506
Associate Professional	-0.0726	0.0172	-0.1366	0.0417	-0.0457	0.0516	-0.0757	0.0186	-0.0861	0.0480	-0.0556	0.0564
Tradespersons	-0.1695	0.0177	-0.2071	0.0479	-0.2591	0.0532	-0.2452	0.0305	-0.1054	0.0999	-0.2606	0.0837
Advanced clerical	-0.1189	0.0436	-0.2199	0.1089	-0.2141	0.1404	-0.0768	0.0215	-0.0906	0.0555	-0.0912	0.0647
Intermediate clerical	-0.1607	0.0188	-0.1956	0.0456	-0.2533	0.0556	-0.1829	0.0179	-0.1904	0.0462	-0.1315	0.0511
Intermediate production	-0.3159	0.0187	-0.3431	0.0488	-0.3920	0.0574	-0.2637	0.0315	-0.0766	0.1221	-0.2266	0.0713
Elemental clerical	-0.2736	0.0250	-0.2717	0.0712	-0.2598	0.0653	-0.2168	0.0218	-0.1795	0.0596	-0.1082	0.0624
Labourers	-0.4028	0.0222	-0.3491	0.0582	-0.5301	0.0574	-0.3121	0.0231	-0.3505	0.0665	-0.2090	0.0570
Mining	0.2329	0.0229	0.1510	0.0688	0.1183	0.0962	0.2851	0.0606	0.2543	0.1388	0.1706	0.1895
Electricity	0.0982	0.0315	-0.0333	0.0986	0.0329	0.0793	0.1554	0.0544	-0.1420	0.2500	0.0897	0.2664
Construction	0.0894	0.0170	0.1198	0.0483	-0.0446	0.0492	0.0044	0.0325	-0.1495	0.1219	0.0835	0.0795
Wholesales	-0.1195	0.0193	-0.1696	0.0464	-0.2058	0.0656	0.0216	0.0240	0.0599	0.0697	0.1178	0.0580
Retail	-0.2327	0.0173	-0.2533	0.0491	-0.2432	0.0473	-0.1107	0.0191	-0.1616	0.0529	-0.1187	0.0464
Accommodation	-0.1046	0.0263	-0.1885	0.0757	-0.3775	0.0531	-0.0536	0.0226	-0.0627	0.0588	-0.0367	0.0529

Transport	0.0243	0.0182	0.0456	0.0484	-0.0270	0.0501	0.0688	0.0276	-0.0260	0.0733	-0.1363	0.0605
Community services	0.0435	0.0148	0.0320	0.0381	-0.0762	0.0375	0.0473	0.0173	0.0233	0.0400	0.0757	0.0371
Government	0.0300	0.0170	-0.0050	0.0531	-0.0370	0.0493	0.1029	0.0203	0.0790	0.0514	0.0882	0.0481
Education	-0.0795	0.0194	-0.1471	0.0501	-0.0847	0.0632	-0.0349	0.0177	-0.0440	0.0436	-0.0012	0.0441
Health	-0.1316	0.0213	-0.2378	0.0591	-0.1204	0.0541	-0.0109	0.0169	-0.0206	0.0395	0.0247	0.0372
Culture	-0.0562	0.0251	-0.1621	0.0757	-0.0672	0.0769	-0.0351	0.0270	0.0758	0.0596	0.1003	0.0918
Other industries	-0.0850	0.0215	-0.2166	0.0672	-0.3272	0.0770	-0.0689	0.0243	-0.0635	0.0585	-0.1159	0.0585
VIC	-0.0319	0.0107	0.0209	0.0311	-0.0105	0.0262	-0.0468	0.0089	-0.0566	0.0271	-0.0298	0.0226
QLD	-0.0353	0.0111	-0.0148	0.0306	-0.0026	0.0402	-0.0568	0.0093	0.0403	0.0255	0.0763	0.0332
SA	-0.0076	0.0152	-0.0752	0.0410	-0.0338	0.0559	-0.0039	0.0126	-0.0974	0.0359	-0.0190	0.0482
WA&NT	-0.0187	0.0149	-0.0057	0.0319	-0.0749	0.0371	-0.0453	0.0129	-0.0203	0.0288	0.0581	0.0323
TAS	-0.0026	0.0245	-0.1579	0.0848	0.2509	0.2020	-0.0226	0.0187	-0.0190	0.0663	0.1665	0.0943
Capital city	0.0466	0.0087	0.1153	0.0260	0.0689	0.0353	0.0482	0.0072	0.0332	0.0219	0.0414	0.0268
Constant	2.5497	0.0284	2.6814	0.0784	2.8100	0.0823	2.5942	0.0283	2.4156	0.0782	2.3432	0.0747

Table A3.4 UQR results at the 50th quantile, by gender

	Males						Female					
	OZ		ESC		NESC		OZ		ESC		NESC	
	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.
Degree	0.2499	0.0160	0.2101	0.0436	0.2860	0.0337	0.1634	0.0123	0.2752	0.0342	0.2091	0.0356
Other post-school	0.0956	0.0119	0.0506	0.0345	0.1196	0.0261	0.0261	0.0103	0.0686	0.0296	0.0175	0.0352
Year 12	0.0801	0.0166	-0.0319	0.0461	0.1974	0.0355	0.0440	0.0125	-0.0265	0.0335	-0.0368	0.0341
Yrs of experience	0.0196	0.0018	0.0199	0.0049	0.0115	0.0033	0.0109	0.0016	0.0267	0.0046	0.0057	0.0041
Yrs of experience^2	-0.0003	0.0000	-0.0004	0.0001	-0.0001	0.0001	-0.0002	0.0000	-0.0006	0.0001	-0.0001	0.0001
Yrs of tenure	0.0089	0.0015	0.0234	0.0047	0.0177	0.0032	0.0105	0.0015	0.0132	0.0044	0.0098	0.0045
Yrs of tenure^2	-0.0001	0.0000	-0.0004	0.0002	-0.0004	0.0001	-0.0002	0.0001	-0.0001	0.0002	-0.0002	0.0002
Part-time	0.0499	0.0274	0.0088	0.0687	0.0987	0.0572	0.0240	0.0094	-0.0427	0.0243	0.0877	0.0273
Casual	0.0186	0.0170	-0.0215	0.0458	0.0231	0.0317	0.0073	0.0197	-0.0149	0.0489	0.0857	0.0434
Part-time and casual	-0.0125	0.0362	0.1106	0.0926	-0.0392	0.0716	0.0321	0.0223	0.0662	0.0570	-0.0351	0.0539
Union member	0.1363	0.0098	0.1126	0.0303	0.1339	0.0200	0.0610	0.0089	0.0436	0.0231	0.0488	0.0246
Professional	-0.0514	0.0169	-0.1238	0.0404	-0.0252	0.0352	-0.0320	0.0188	-0.0303	0.0462	-0.0605	0.0566
Associate Professional	-0.1137	0.0183	-0.2348	0.0455	-0.0018	0.0357	-0.2068	0.0202	-0.2244	0.0504	-0.2343	0.0631
Tradespersons	-0.2924	0.0189	-0.2842	0.0523	-0.1717	0.0374	-0.3709	0.0333	-0.2962	0.1049	-0.5069	0.0936
Advanced clerical	-0.1795	0.0465	-0.3334	0.1189	0.0553	0.1120	-0.2282	0.0234	-0.1158	0.0583	-0.1449	0.0724
Intermediate clerical	-0.2724	0.0200	-0.4321	0.0498	-0.1519	0.0382	-0.3747	0.0196	-0.3281	0.0485	-0.3738	0.0572
Intermediate production	-0.4182	0.0200	-0.4229	0.0533	-0.2219	0.0399	-0.3959	0.0343	-0.2131	0.1282	-0.6621	0.0797
Elemental clerical	-0.4075	0.0267	-0.5431	0.0778	-0.4217	0.0532	-0.3925	0.0238	-0.2674	0.0626	-0.3611	0.0698
Labourers	-0.4922	0.0237	-0.4052	0.0636	-0.2348	0.0488	-0.4535	0.0252	-0.3550	0.0698	-0.5450	0.0638
Mining	0.3967	0.0244	0.3423	0.0751	0.1401	0.0543	0.2659	0.0660	0.4500	0.1457	0.2639	0.2119
Electricity	0.1586	0.0336	0.0335	0.1077	-0.1501	0.0683	0.2607	0.0593	0.1670	0.2625	0.1244	0.2978
Construction	0.0895	0.0182	0.2048	0.0528	0.0372	0.0424	0.0529	0.0354	-0.0783	0.1280	-0.0818	0.0889
Wholesales	-0.1182	0.0206	0.0167	0.0507	-0.1422	0.0459	0.0269	0.0262	0.0087	0.0732	-0.1055	0.0649
Retail	-0.2144	0.0185	-0.2151	0.0537	-0.3018	0.0375	-0.1452	0.0209	-0.2368	0.0555	-0.3262	0.0519
Accommodation	-0.2246	0.0281	-0.0942	0.0827	-0.2741	0.0512	-0.0757	0.0246	-0.2370	0.0617	-0.2566	0.0591

Transport	0.0377	0.0194	0.0615	0.0528	-0.0010	0.0421	0.0865	0.0301	-0.0426	0.0769	-0.0958	0.0676
Community services	0.0488	0.0158	0.1785	0.0416	-0.0226	0.0347	0.0595	0.0188	-0.0324	0.0420	-0.0856	0.0415
Government	0.0112	0.0182	0.1067	0.0580	-0.0596	0.0389	0.1602	0.0221	0.0995	0.0540	-0.0127	0.0538
Education	-0.1267	0.0207	-0.2029	0.0547	-0.1424	0.0464	-0.0617	0.0193	-0.1247	0.0458	-0.2292	0.0493
Health	-0.1400	0.0227	-0.0015	0.0646	-0.2713	0.0496	-0.0027	0.0184	-0.0308	0.0415	-0.1737	0.0416
Culture	-0.0856	0.0268	-0.0267	0.0827	-0.2308	0.0467	-0.0362	0.0294	0.0834	0.0626	-0.1329	0.1027
Other industries	-0.0506	0.0230	-0.0725	0.0734	-0.0140	0.0413	-0.0151	0.0265	-0.0959	0.0614	-0.1330	0.0654
VIC	-0.0546	0.0114	-0.0621	0.0339	-0.0167	0.0245	-0.0749	0.0097	-0.1153	0.0284	-0.0250	0.0253
QLD	-0.0586	0.0119	-0.1792	0.0334	-0.0280	0.0252	-0.0969	0.0102	-0.0402	0.0268	-0.0297	0.0372
SA	-0.0692	0.0162	-0.2220	0.0448	-0.1003	0.0363	-0.0819	0.0137	-0.1331	0.0377	-0.1738	0.0539
WA&NT	-0.0427	0.0159	-0.0533	0.0349	-0.0473	0.0320	-0.0435	0.0141	-0.0523	0.0303	-0.0005	0.0361
TAS	-0.0518	0.0261	-0.1756	0.0926	-0.0079	0.0566	-0.0802	0.0204	0.0096	0.0696	0.2435	0.1054
Capital city	0.0612	0.0093	0.0535	0.0284	0.1039	0.0209	0.0635	0.0078	-0.0197	0.0230	0.0384	0.0300
Constant	2.7346	0.0303	2.8168	0.0857	2.6026	0.0639	2.8165	0.0308	2.7135	0.0821	2.9761	0.0836

Table A3.5 UQR at the 75th quantile, by gender

	Males						Female					
	OZ		ESC		NESC		OZ		ESC		NESC	
	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.
Degree	0.3774	0.0192	0.2006	0.0540	0.2596	0.0524	0.2473	0.0148	0.4225	0.0475	0.1712	0.0430
Other post-school	0.0960	0.0143	-0.0148	0.0428	0.0818	0.0470	0.0219	0.0125	0.1282	0.0410	-0.0112	0.0425
Year 12	0.1387	0.0199	-0.0068	0.0571	0.0884	0.0529	0.0619	0.0151	0.0601	0.0465	-0.0174	0.0412
Yrs of experience	0.0239	0.0021	0.0412	0.0061	0.0129	0.0049	0.0165	0.0020	0.0204	0.0063	-0.0023	0.0050
Yrs of experience^2	-0.0004	0.0000	-0.0008	0.0001	-0.0002	0.0001	-0.0004	0.0000	-0.0004	0.0001	0.0001	0.0001
Yrs of tenure	0.0052	0.0018	0.0200	0.0058	0.0174	0.0058	0.0162	0.0018	0.0250	0.0062	0.0123	0.0054
Yrs of tenure^2	0.0000	0.0001	-0.0004	0.0002	-0.0004	0.0002	-0.0004	0.0001	-0.0006	0.0003	-0.0005	0.0002
Part-time	0.1830	0.0330	0.0385	0.0850	0.1155	0.0823	0.0744	0.0113	0.0417	0.0337	0.1679	0.0330
Casual	0.0547	0.0204	0.1366	0.0567	0.0597	0.0499	0.0470	0.0238	0.0217	0.0678	0.0234	0.0524
Part-time and casual	-0.1013	0.0435	0.1863	0.1147	-0.1622	0.1067	0.0349	0.0269	0.0642	0.0791	-0.0358	0.0651
Union member	0.0758	0.0118	0.0562	0.0375	0.0320	0.0336	0.0895	0.0108	0.0027	0.0320	0.0299	0.0298
Professional	-0.1505	0.0203	-0.2423	0.0501	-0.0505	0.0604	-0.1909	0.0226	-0.2287	0.0641	-0.1325	0.0684
Associate Professional	-0.2170	0.0221	-0.2912	0.0564	-0.2641	0.0657	-0.3776	0.0244	-0.5148	0.0699	-0.5230	0.0763
Tradespersons	-0.3744	0.0228	-0.3472	0.0648	-0.2856	0.0678	-0.5453	0.0401	-0.5555	0.1455	-0.7619	0.1131
Advanced clerical	-0.2213	0.0560	-0.6012	0.1473	-0.5743	0.1787	-0.4550	0.0283	-0.5398	0.0808	-0.6109	0.0874
Intermediate clerical	-0.3722	0.0241	-0.5005	0.0617	-0.4740	0.0708	-0.5354	0.0236	-0.6195	0.0673	-0.7303	0.0691
Intermediate production	-0.3968	0.0240	-0.4521	0.0660	-0.3954	0.0731	-0.5225	0.0413	-0.5167	0.1778	-0.8202	0.0963
Elemental clerical	-0.4451	0.0321	-0.6840	0.0963	-0.5957	0.0831	-0.5460	0.0287	-0.5348	0.0869	-0.6443	0.0843
Labourers	-0.4795	0.0285	-0.5150	0.0787	-0.4204	0.0730	-0.5385	0.0304	-0.5253	0.0968	-0.7978	0.0770
Mining	0.5684	0.0293	0.5554	0.0930	0.5794	0.1225	0.0511	0.0796	0.6387	0.2021	-0.2276	0.2561
Electricity	-0.0505	0.0404	0.3493	0.1334	0.0436	0.1010	0.3001	0.0715	0.1373	0.3641	0.6474	0.3599
Construction	0.0966	0.0218	0.1184	0.0654	0.0118	0.0626	-0.0306	0.0426	0.0869	0.1775	-0.1020	0.1074
Wholesales	-0.0758	0.0248	0.0038	0.0628	-0.1369	0.0836	0.0034	0.0315	0.1280	0.1015	-0.0851	0.0784
Retail	-0.1154	0.0222	-0.0873	0.0665	-0.1723	0.0602	-0.1004	0.0251	0.0223	0.0770	-0.1556	0.0628
Accommodation	-0.2042	0.0338	-0.0660	0.1024	-0.1874	0.0676	-0.0817	0.0297	-0.0249	0.0856	-0.1055	0.0714

Transport	0.0012	0.0233	0.0543	0.0654	0.0363	0.0638	-0.0156	0.0363	0.0911	0.1067	-0.0438	0.0817
Community services	0.0960	0.0190	0.3310	0.0515	0.0744	0.0478	0.0115	0.0227	0.1094	0.0583	-0.0469	0.0501
Government	0.0375	0.0218	-0.0482	0.0718	0.0290	0.0627	0.0942	0.0267	0.2553	0.0749	0.0994	0.0650
Education	-0.2458	0.0249	-0.3382	0.0677	-0.2176	0.0804	-0.1204	0.0232	-0.0781	0.0635	-0.1996	0.0596
Health	-0.1910	0.0273	0.0597	0.0800	-0.2206	0.0689	-0.0415	0.0222	0.1490	0.0576	-0.0464	0.0503
Culture	-0.0700	0.0322	-0.0105	0.1024	-0.1954	0.0979	-0.1212	0.0355	0.0193	0.0868	-0.1421	0.1241
Other industries	-0.0730	0.0276	-0.0686	0.0909	-0.0441	0.0980	-0.0293	0.0319	0.0391	0.0852	0.0021	0.0790
VIC	-0.0823	0.0137	-0.0849	0.0420	0.0104	0.0333	-0.0991	0.0117	-0.2192	0.0394	0.0039	0.0305
QLD	-0.0938	0.0143	-0.2227	0.0413	-0.0615	0.0512	-0.1080	0.0123	-0.1555	0.0371	0.0087	0.0449
SA	-0.1387	0.0195	-0.3283	0.0555	-0.2087	0.0712	-0.1193	0.0165	-0.2135	0.0523	-0.1485	0.0651
WA&NT	-0.0796	0.0191	-0.1604	0.0432	-0.0198	0.0473	-0.0461	0.0170	-0.1645	0.0420	-0.0464	0.0436
TAS	-0.1187	0.0314	-0.4568	0.1147	0.1003	0.2572	-0.1042	0.0246	0.0567	0.0966	0.1410	0.1274
Capital city	0.0649	0.0112	0.0322	0.0351	0.0111	0.0449	0.0418	0.0094	0.0101	0.0320	0.0807	0.0362
Constant	3.0123	0.0365	3.0164	0.1061	3.1022	0.1048	3.1529	0.0371	3.0780	0.1139	3.4364	0.1010

Table A3.6 UQR at the 90th quantile, by gender

	Males						Female					
	OZ		ESC		NESC		OZ		ESC		NESC	
	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.
Degree	0.4759	0.0265	0.4672	0.1025	0.2675	0.0735	0.2090	0.0196	0.3263	0.0666	0.1018	0.0603
Other post-school	0.0493	0.0198	-0.0309	0.0813	0.0151	0.0659	0.0185	0.0165	0.1257	0.0575	-0.0024	0.0595
Year 12	0.1254	0.0275	-0.0082	0.1086	0.0624	0.0741	0.0695	0.0199	0.0706	0.0652	-0.0266	0.0577
Yrs of experience	0.0218	0.0029	0.0694	0.0116	0.0118	0.0069	0.0150	0.0026	0.0124	0.0089	-0.0002	0.0070
Yrs of experience^2	-0.0003	0.0001	-0.0012	0.0002	-0.0001	0.0001	-0.0003	0.0001	-0.0002	0.0002	0.0000	0.0002
Yrs of tenure	0.0065	0.0025	0.0285	0.0109	0.0068	0.0081	0.0126	0.0024	0.0340	0.0086	0.0113	0.0076
Yrs of tenure^2	-0.0001	0.0001	-0.0008	0.0004	-0.0001	0.0003	-0.0003	0.0001	-0.0010	0.0004	-0.0004	0.0003
Part-time	0.2424	0.0455	-0.0578	0.1616	-0.0154	0.1154	0.1346	0.0149	0.1270	0.0473	0.3299	0.0462
Casual	0.1101	0.0282	0.2211	0.1078	0.0796	0.0700	0.1266	0.0314	0.1016	0.0952	0.1949	0.0734
Part-time and casual	-0.1003	0.0601	0.6829	0.2180	-0.0490	0.1496	-0.0148	0.0355	0.1182	0.1109	-0.1571	0.0912
Union member	0.0090	0.0163	-0.1358	0.0713	-0.0965	0.0472	0.0272	0.0142	-0.0982	0.0449	-0.0114	0.0417
Professional	-0.2966	0.0280	-0.3832	0.0952	-0.1625	0.0847	-0.3066	0.0299	-0.0461	0.0900	-0.4140	0.0958
Associate Professional	-0.3699	0.0305	-0.2840	0.1072	-0.2747	0.0921	-0.4555	0.0322	-0.2787	0.0981	-0.6938	0.1068
Tradespersons	-0.4642	0.0314	-0.2848	0.1232	-0.2192	0.0950	-0.5854	0.0530	-0.4447	0.2041	-0.9434	0.1584
Advanced clerical	-0.2033	0.0773	-0.9357	0.2799	-0.7437	0.2506	-0.5316	0.0373	-0.4062	0.1134	-0.7520	0.1225
Intermediate clerical	-0.4650	0.0332	-0.4673	0.1173	-0.4513	0.0993	-0.5768	0.0311	-0.4456	0.0944	-0.9090	0.0968
Intermediate production	-0.4920	0.0331	-0.5042	0.1255	-0.3256	0.1026	-0.5236	0.0546	-0.2395	0.2494	-0.9632	0.1349
Elemental clerical	-0.5508	0.0443	-0.6660	0.1831	-0.5546	0.1166	-0.6013	0.0379	-0.4346	0.1218	-0.9711	0.1180
Labourers	-0.5548	0.0393	-0.5058	0.1496	-0.3183	0.1024	-0.5597	0.0401	-0.3535	0.1358	-0.9808	0.1079
Mining	0.5507	0.0405	0.5619	0.1768	0.9056	0.1718	0.1878	0.1051	0.6686	0.2835	-0.4094	0.3586
Electricity	-0.0508	0.0558	0.9927	0.2535	0.2958	0.1416	0.2058	0.0944	0.2689	0.5107	-0.5604	0.5040
Construction	0.0637	0.0301	-0.0109	0.1243	-0.0703	0.0878	0.0265	0.0563	0.0937	0.2490	-0.1177	0.1504
Wholesales	-0.0473	0.0342	-0.1014	0.1194	-0.0450	0.1172	0.0210	0.0416	0.3543	0.1423	-0.1481	0.1098
Retail	-0.0591	0.0307	-0.1362	0.1263	-0.0950	0.0844	-0.0589	0.0332	0.1134	0.1080	-0.1448	0.0879
Accommodation	-0.1336	0.0467	-0.2115	0.1946	-0.0689	0.0948	-0.0776	0.0392	-0.0137	0.1200	-0.1603	0.1000

Transport	0.0142	0.0322	0.2127	0.1243	0.0320	0.0895	0.0412	0.0479	0.2086	0.1497	-0.0579	0.1144
Community services	0.1238	0.0262	0.5171	0.0979	0.3244	0.0670	0.0746	0.0300	0.1992	0.0818	-0.0324	0.0702
Government	-0.0628	0.0302	-0.4029	0.1365	0.0412	0.0880	0.1035	0.0353	0.0965	0.1051	0.0497	0.0910
Education	-0.4061	0.0344	-0.3320	0.1287	0.1054	0.1128	-0.0896	0.0307	-0.0738	0.0891	-0.2173	0.0835
Health	-0.1649	0.0377	0.0149	0.1520	0.0437	0.0966	-0.0267	0.0293	0.1297	0.0808	-0.0728	0.0704
Culture	-0.0402	0.0445	-0.3648	0.1947	0.0715	0.1372	-0.0715	0.0469	0.0286	0.1217	-0.0539	0.1737
Other industries	-0.1549	0.0382	-0.1627	0.1727	-0.0403	0.1374	-0.0194	0.0421	-0.0593	0.1195	-0.0241	0.1106
VIC	-0.0542	0.0189	-0.0964	0.0799	0.0495	0.0468	-0.1278	0.0155	-0.3109	0.0553	0.0210	0.0427
QLD	-0.1123	0.0197	-0.3446	0.0786	-0.0287	0.0718	-0.1206	0.0162	-0.1948	0.0521	0.1073	0.0629
SA	-0.1408	0.0269	-0.3495	0.1054	-0.1221	0.0999	-0.1964	0.0218	-0.2284	0.0734	-0.1566	0.0912
WA&NT	-0.0748	0.0263	-0.2719	0.0821	0.0729	0.0663	-0.1267	0.0224	-0.2302	0.0589	0.0262	0.0611
TAS	-0.1290	0.0434	-0.4969	0.2179	-0.0984	0.3607	-0.1157	0.0325	-0.3813	0.1354	0.0725	0.1784
Capital city	0.0644	0.0154	0.0572	0.0667	0.0249	0.0630	0.0543	0.0125	-0.0001	0.0448	0.1243	0.0507
Constant	3.4173	0.0503	3.0460	0.2017	3.3498	0.1470	3.4653	0.0490	3.2256	0.1598	3.8471	0.1414

A4 UQR cohort decomposition results

Table A4.1a Cohort-specific UQR decomposition results - male ESC (<20 years in Australia) versus male OZ

	Mean	0.1	0.25	0.5	0.75	0.9
Structure effect						
Education	-0.0820	-0.0131	-0.0314	-0.0157	-0.1286	-0.1601
	(0.0035)	(0.0054)	(0.0044)	(0.0044)	(0.0054)	(0.0063)
Experience	0.1455	-0.0064	-0.0890	0.1483	0.4872	0.4518
	(0.0061)	(0.0074)	(0.0066)	(0.0090)	(0.0137)	(0.0157)
Job characteristics	0.0054	0.0338	0.0108	0.0044	0.0103	-0.0320
	(0.0010)	(0.0013)	(0.0012)	(0.0012)	(0.0020)	(0.0026)
Occupation	-0.0599	-0.0135	-0.0096	-0.1104	-0.1596	0.1218
	(0.0040)	(0.0030)	(0.0030)	(0.0047)	(0.0088)	(0.0108)
Industry	0.0176	-0.1034	-0.1011	-0.0479	0.1313	0.2166
	(0.0032)	(0.0037)	(0.0034)	(0.0045)	(0.0060)	(0.0055)
Unexplained	0.0405	0.1479	0.2639	0.0520	-0.2481	-0.4053
	(0.0092)	(0.0102)	(0.0097)	(0.0118)	(0.0187)	(0.0234)
Composition effect						
Education	0.0522	0.0164	0.0370	0.0641	0.0633	0.1072
	(0.0011)	(0.0012)	(0.0015)	(0.0013)	(0.0012)	(0.0020)
Experience	0.0446	0.0095	0.0079	0.0270	0.0556	0.2045
	(0.0017)	(0.0014)	(0.0015)	(0.0023)	(0.0028)	(0.0046)
Job characteristics	-0.0142	-0.0181	-0.0222	-0.0206	-0.0158	0.0001
	(0.0003)	(0.0004)	(0.0004)	(0.0004)	(0.0005)	(0.0008)
Occupation	0.0351	0.0033	-0.0029	0.0058	0.0245	0.0987
	(0.0012)	(0.0006)	(0.0007)	(0.0011)	(0.0022)	(0.0039)
Industry	0.0131	0.0090	0.0034	0.0051	0.0156	0.0258
	(0.0007)	(0.0007)	(0.0008)	(0.0010)	(0.0011)	(0.0020)
Unexplained	-0.1034	-0.0162	-0.0182	-0.0682	-0.1053	-0.3563
	(0.0024)	(0.0022)	(0.0023)	(0.0030)	(0.0041)	(0.0067)

Note: Bootstrapped standard errors in the parentheses.

Table A4.1b Cohort-specific UQR decomposition results – younger female ESC (<20 years in Australia) versus female OZ

	Mean	0.1	0.25	0.5	0.75	0.9
Structure effect						
Education	0.0780	0.2049	0.1025	0.0284	0.0675	0.1037
	(0.0036)	(0.0077)	(0.0041)	(0.0037)	(0.0045)	(0.0068)
Experience	0.1026	0.0341	0.2169	0.0784	0.0666	0.1696
	(0.0057)	(0.0098)	(0.0058)	(0.0067)	(0.0092)	(0.0160)
Job characteristics	0.0119	0.0302	0.0066	0.0063	0.0027	0.0293
	(0.0013)	(0.0022)	(0.0013)	(0.0016)	(0.0023)	(0.0047)
Occupation	0.0583	-0.0201	-0.0331	0.0053	0.0990	0.2636
	(0.0058)	(0.0078)	(0.0046)	(0.0052)	(0.0117)	(0.0154)
Industry	0.0386	0.0694	-0.0344	0.0600	0.1434	0.1293
	(0.0046)	(0.0116)	(0.0066)	(0.0073)	(0.0062)	(0.0062)
Unexplained	-0.2349	-0.3066	-0.2217	-0.1567	-0.2897	-0.5685
	(0.0102)	(0.0195)	(0.0116)	(0.0123)	(0.0167)	(0.0241)
Composition effect						
Education	0.0071	0.0044	0.0046	0.0043	0.0048	0.0046
	(0.0007)	(0.0009)	(0.0007)	(0.0010)	(0.0009)	(0.0011)
Experience	0.0098	-0.0205	-0.0087	-0.0027	0.0128	0.0231
	(0.0012)	(0.0016)	(0.0012)	(0.0014)	(0.0017)	(0.0026)
Job characteristics	-0.0155	0.0012	0.0000	-0.0114	-0.0305	-0.0388
	(0.0004)	(0.0006)	(0.0004)	(0.0004)	(0.0006)	(0.0007)
Occupation	-0.0026	-0.0027	-0.0072	-0.0059	-0.0037	0.0108
	(0.0010)	(0.0009)	(0.0008)	(0.0011)	(0.0021)	(0.0041)
Industry	0.0149	0.0059	0.0258	0.0117	0.0182	0.0078
	(0.0008)	(0.0016)	(0.0013)	(0.0013)	(0.0013)	(0.0017)
Unexplained	0.0062	0.0307	0.0090	0.0294	0.0146	0.0115
	(0.0017)	(0.0023)	(0.0021)	(0.0025)	(0.0029)	(0.0046)

Note: Bootstrapped standard errors in the parentheses.

Table A4.1c Cohort-specific UQR decomposition results – Younger male NESC (< 20 in Australia) versus male OZ

	Mean	0.1	0.25	0.5	0.75	0.9
Structure effect						
Education	-0.0864	-0.0147	-0.1284	-0.0743	-0.0540	-0.1099
	(0.0030)	(0.0081)	(0.0050)	(0.0041)	(0.0046)	(0.0046)
Experience	-0.1084	-0.1505	-0.0600	-0.0497	-0.1069	-0.2148
	(0.0046)	(0.0068)	(0.0048)	(0.0055)	(0.0076)	(0.0104)
Job characteristics	-0.0235	-0.0261	-0.0474	-0.0157	-0.0263	-0.0664
	(0.0009)	(0.0016)	(0.0012)	(0.0011)	(0.0016)	(0.0022)
Occupation	0.1117	0.0041	0.0126	0.0669	0.2183	0.4110
	(0.0040)	(0.0037)	(0.0038)	(0.0051)	(0.0090)	(0.0145)
Industry	-0.0340	-0.0620	-0.0485	-0.0818	-0.0427	0.0321
	(0.0022)	(0.0035)	(0.0025)	(0.0029)	(0.0038)	(0.0053)
Unexplained	0.0917	0.2153	0.2590	0.1083	-0.0714	-0.1252
	(0.0075)	(0.0123)	(0.0088)	(0.0097)	(0.0129)	(0.0192)
Composition effect						
Education	0.0147	-0.0072	0.0089	0.0455	0.0180	0.0514
	(0.0011)	(0.0019)	(0.0018)	(0.0015)	(0.0014)	(0.0020)
Experience	0.0287	-0.0106	-0.0120	0.0073	0.0389	0.1400
	(0.0020)	(0.0022)	(0.0020)	(0.0026)	(0.0030)	(0.0049)
Job characteristics	-0.0078	-0.0242	-0.0159	-0.0155	-0.0079	0.0270
	(0.0004)	(0.0006)	(0.0005)	(0.0005)	(0.0006)	(0.0013)
Occupation	-0.0431	-0.0209	-0.0403	-0.0565	-0.0884	-0.0970
	(0.0015)	(0.0011)	(0.0011)	(0.0017)	(0.0033)	(0.0059)
Industry	0.0240	0.0294	0.0154	0.0114	0.0222	0.0263
	(0.0008)	(0.0012)	(0.0010)	(0.0012)	(0.0015)	(0.0019)
Unexplained	-0.0025	0.0110	0.0335	0.0106	0.0489	-0.0702
	(0.0032)	(0.0032)	(0.0031)	(0.0038)	(0.0054)	(0.0091)

Note: Bootstrapped standard errors in the parentheses.

Table A4.1d Cohort-specific UQR decomposition results – Younger female NESC (< 20 in Australia) versus female OZ

	Mean	0.1	0.25	0.5	0.75	0.9
Structure effect						
Education	-0.0008	0.0108	0.0461	-0.0016	-0.0174	-0.0821
	(0.0033)	(0.0064)	(0.0050)	(0.0042)	(0.0039)	(0.0055)
Experience	-0.0252	0.0141	0.0948	0.0399	-0.1013	-0.1699
	(0.0037)	(0.0048)	(0.0044)	(0.0046)	(0.0050)	(0.0076)
Job characteristics	0.0145	0.0392	0.0113	0.0191	-0.0275	0.0351
	(0.0012)	(0.0015)	(0.0013)	(0.0015)	(0.0017)	(0.0027)
Occupation	0.0313	-0.0368	0.0006	0.0853	0.2172	-0.1402
	(0.0067)	(0.0035)	(0.0043)	(0.0066)	(0.0112)	(0.0275)
Industry	-0.0052	0.0441	0.0387	-0.0099	0.0168	-0.0072
	(0.0026)	(0.0044)	(0.0032)	(0.0042)	(0.0036)	(0.0046)
Unexplained	-0.0095	-0.0884	-0.2178	-0.1137	-0.0864	0.3629
	(0.0092)	(0.0079)	(0.0080)	(0.0098)	(0.0135)	(0.0316)
Composition effect						
Education	-0.0078	0.0197	0.0072	-0.0243	-0.0145	0.0049
	(0.0011)	(0.0022)	(0.0013)	(0.0013)	(0.0013)	(0.0012)
Experience	-0.0198	-0.0505	-0.0531	-0.0203	-0.0096	-0.0370
	(0.0015)	(0.0030)	(0.0016)	(0.0020)	(0.0019)	(0.0025)
Job characteristics	-0.0080	-0.0152	-0.0015	-0.0067	-0.0199	-0.0197
	(0.0005)	(0.0009)	(0.0005)	(0.0006)	(0.0007)	(0.0010)
Occupation	-0.0786	-0.0229	-0.0131	-0.0829	-0.1218	-0.1425
	(0.0015)	(0.0017)	(0.0012)	(0.0016)	(0.0030)	(0.0050)
Industry	0.0296	0.0454	0.0277	0.0369	0.0196	-0.0285
	(0.0011)	(0.0019)	(0.0013)	(0.0015)	(0.0016)	(0.0017)
Residual	0.0608	0.0113	0.0146	0.0663	0.1167	0.2089
	(0.0026)	(0.0039)	(0.0027)	(0.0033)	(0.0039)	(0.0057)

Note: Bootstrapped standard errors in the parentheses.

Table A4.2a Cohort-specific UQR decomposition results - male ESC (over 20 years in Australia) versus male OZ

	Mean	0.1	0.25	0.5	0.75	0.9
Structure effect						
Education	-0.0844	0.0050	-0.0297	-0.0919	-0.1566	-0.0729
	(0.0027)	(0.0046)	(0.0033)	(0.0035)	(0.0037)	(0.0067)
Experience	0.0972	0.0920	0.0058	0.0265	0.1304	0.4907
	(0.0082)	(0.0129)	(0.0083)	(0.0091)	(0.0108)	(0.0196)
Job characteristics	0.0109	-0.0212	-0.0135	-0.0066	0.0176	0.0154
	(0.0014)	(0.0021)	(0.0014)	(0.0018)	(0.0018)	(0.0036)
Occupation	0.0053	0.0425	0.0154	0.0370	-0.0331	-0.0902
	(0.0037)	(0.0039)	(0.0028)	(0.0037)	(0.0057)	(0.0117)
Industry	0.0402	-0.0861	0.0054	0.1269	0.0963	0.0454
	(0.0026)	(0.0041)	(0.0034)	(0.0032)	(0.0035)	(0.0069)
Unexplained	-0.0549	-0.0125	0.0592	-0.0618	-0.0659	-0.3694
	(0.0095)	(0.0139)	(0.0102)	(0.0113)	(0.0129)	(0.0230)
Composition effect						
Education	0.0130	0.0058	0.0060	0.0123	0.0181	0.0505
	(0.0009)	(0.0012)	(0.0011)	(0.0012)	(0.0011)	(0.0018)
Experience	-0.0021	-0.0221	-0.0111	-0.0066	0.0056	0.0524
	(0.0016)	(0.0020)	(0.0017)	(0.0019)	(0.0028)	(0.0050)
Job characteristics	-0.0023	-0.0027	-0.0021	-0.0068	-0.0020	-0.0115
	(0.0004)	(0.0006)	(0.0005)	(0.0005)	(0.0006)	(0.0010)
Occupation	-0.0318	-0.0041	-0.0156	-0.0296	-0.0240	-0.0347
	(0.0015)	(0.0009)	(0.0010)	(0.0012)	(0.0022)	(0.0043)
Industry	-0.0121	-0.0127	-0.0128	0.0084	-0.0179	-0.0194
	(0.0007)	(0.0009)	(0.0008)	(0.0010)	(0.0012)	(0.0019)
Unexplained	0.0814	0.0540	0.0590	0.0621	0.0848	0.0438
	(0.0024)	(0.0027)	(0.0023)	(0.0027)	(0.0038)	(0.0069)

Note: Bootstrapped standard errors in the parentheses.

Table A4.2b Cohort-specific UQR decomposition results – female ESC (over 20 years in Australia) versus female OZ

	Mean	0.1	0.25	0.5	0.75	0.9
Structure effect						
Education	0.0834	0.0384	0.0413	0.0700	0.1168	0.0766
	(0.0020)	(0.0033)	(0.0029)	(0.0031)	(0.0029)	(0.0033)
Experience	0.2106	0.2240	0.2647	0.3315	0.1151	0.0326
	(0.0048)	(0.0102)	(0.0055)	(0.0061)	(0.0072)	(0.0097)
Job characteristics	-0.0001	0.0226	0.0148	-0.0293	-0.0366	-0.0256
	(0.0013)	(0.0017)	(0.0015)	(0.0016)	(0.0025)	(0.0036)
Occupation	0.0095	-0.0246	0.0370	0.1494	-0.0975	0.1107
	(0.0045)	(0.0023)	(0.0025)	(0.0040)	(0.0080)	(0.0144)
Industry	-0.0227	0.0757	-0.0402	-0.1097	0.0289	0.0097
	(0.0029)	(0.0049)	(0.0039)	(0.0046)	(0.0053)	(0.0049)
Unexplained	-0.2416	-0.2843	-0.2764	-0.3894	-0.1004	-0.1403
	(0.0074)	(0.0131)	(0.0082)	(0.0085)	(0.0121)	(0.0199)
Composition effect						
Education	-0.0010	-0.0077	0.0040	0.0051	0.0024	-0.0047
	(0.0006)	(0.0009)	(0.0007)	(0.0009)	(0.0008)	(0.0008)
Experience	-0.0116	-0.0147	0.0110	-0.0286	-0.0162	-0.0150
	(0.0013)	(0.0019)	(0.0015)	(0.0016)	(0.0020)	(0.0024)
Job characteristics	0.0084	0.0147	0.0053	0.0056	0.0030	-0.0003
	(0.0004)	(0.0006)	(0.0005)	(0.0006)	(0.0007)	(0.0011)
Occupation	0.0117	-0.0047	0.0012	-0.0192	0.0242	0.0700
	(0.0010)	(0.0009)	(0.0009)	(0.0013)	(0.0023)	(0.0036)
Industry	0.0124	-0.0068	0.0145	-0.0049	0.0176	0.0429
	(0.0008)	(0.0015)	(0.0013)	(0.0013)	(0.0013)	(0.0017)
Unexplained	0.0096	0.0372	-0.0139	0.0762	0.0069	-0.0523
	(0.0018)	(0.0026)	(0.0022)	(0.0024)	(0.0031)	(0.0043)

Note: Bootstrapped standard errors in the parentheses.

Table A4.2c Cohort-specific UQR decomposition results – male NESC (over 20 in Australia) versus male OZ

	Mean	0.1	0.25	0.5	0.75	0.9
Structure effect						
Education	0.0137	0.0436	0.0028	-0.0096	0.0392	0.0459
	(0.0027)	(0.0047)	(0.0042)	(0.0039)	(0.0047)	(0.0051)
Experience	-0.0131	0.0199	-0.0146	-0.1153	0.0359	0.2073
	(0.0078)	(0.0101)	(0.0077)	(0.0100)	(0.0124)	(0.0173)
Job characteristics	0.0110	0.0249	0.0350	0.0171	0.0129	-0.0393
	(0.0015)	(0.0020)	(0.0018)	(0.0018)	(0.0024)	(0.0034)
Occupation	0.0669	0.0234	-0.0141	0.0310	0.0427	0.2219
	(0.0051)	(0.0044)	(0.0036)	(0.0041)	(0.0067)	(0.0119)
Industry	-0.0809	-0.0661	-0.0970	-0.1118	-0.0741	0.0354
	(0.0024)	(0.0032)	(0.0026)	(0.0032)	(0.0042)	(0.0064)
Unexplained	0.0017	-0.0436	0.1400	0.1913	-0.0948	-0.5142
	(0.0110)	(0.0132)	(0.0099)	(0.0124)	(0.0156)	(0.0226)
Composition effect						
Education	0.0016	-0.0134	-0.0029	0.0056	0.0053	0.0267
	(0.0008)	(0.0011)	(0.0011)	(0.0011)	(0.0011)	(0.0017)
Experience	-0.0098	-0.0105	0.0020	-0.0075	-0.0079	0.0156
	(0.0021)	(0.0028)	(0.0021)	(0.0022)	(0.0026)	(0.0060)
Job characteristics	0.0010	0.0040	0.0054	0.0016	-0.0056	-0.0126
	(0.005)	(0.0007)	(0.0007)	(0.0005)	(0.0007)	(0.0010)
Occupation	-0.0596	-0.0213	-0.0265	-0.0412	-0.0343	-0.1292
	(0.0019)	(0.0010)	(0.0010)	(0.0013)	(0.0026)	(0.0048)
Industry	0.0073	-0.0095	-0.0093	0.0122	0.0133	0.0242
	(0.0007)	(0.0009)	(0.0008)	(0.0010)	(0.0009)	(0.0015)
Unexplained	0.0972	0.0639	0.0467	0.0572	0.0845	0.1529
	(0.0030)	(0.0037)	(0.0027)	(0.0028)	(0.0037)	(0.0082)

Note: Bootstrapped standard errors in the parentheses.

Table A4.2d Cohort-specific UQR decomposition results – female NESC (over 20 in Australia) versus female OZ

	Mean	0.1	0.25	0.5	0.75	0.9
Structure effect						
Education	0.0137	-0.0051	-0.0546	0.0626	0.0082	0.0244
	(0.0023)	(0.0032)	(0.0027)	(0.0036)	(0.0038)	(0.0032)
Experience	-0.2441	-0.0398	-0.1110	-0.2408	-0.3725	-0.2560
	(0.0063)	(0.0075)	(0.0058)	(0.0068)	(0.0090)	(0.0118)
Job characteristics	0.0190	0.0289	0.0296	0.0260	0.0302	0.0648
	(0.0015)	(0.0019)	(0.0017)	(0.0022)	(0.0032)	(0.0031)
Occupation	-0.0330	-0.0751	-0.0748	-0.0346	-0.1607	0.1138
	(0.0047)	(0.0031)	(0.0033)	(0.0064)	(0.0082)	(0.0112)
Industry	-0.0313	0.0944	-0.0300	-0.1477	0.0349	0.0021
	(0.0033)	(0.0057)	(0.0045)	(0.0056)	(0.0050)	(0.0043)
Unexplained	0.3285	0.0029	0.2550	0.3606	0.5641	0.1697
	(0.0094)	(0.0113)	(0.0098)	(0.0126)	(0.0139)	(0.0177)
Composition effect						
Education	-0.0063	-0.0118	-0.0025	-0.0075	-0.0001	-0.0073
	(0.0006)	(0.0009)	(0.0007)	(0.0009)	(0.0008)	(0.0008)
Experience	-0.0078	-0.0218	-0.0010	-0.0177	-0.0125	-0.0089
	(0.0012)	(0.0020)	(0.0013)	(0.0015)	(0.0018)	(0.0024)
Job characteristics	-0.0037	0.0089	-0.0007	-0.0052	-0.0075	-0.0131
	(0.0004)	(0.0006)	(0.0004)	(0.0005)	(0.0008)	(0.0011)
Occupation	-0.0257	-0.0078	-0.0038	-0.0202	-0.0557	-0.0392
	(0.0012)	(0.0009)	(0.0008)	(0.0014)	(0.0024)	(0.0044)
Industry	0.0239	0.0106	0.0125	0.0196	0.0269	0.0369
	(0.0008)	(0.0015)	(0.0012)	(0.0011)	(0.0011)	(0.0015)
Residual	0.0163	0.0164	-0.0176	0.0193	0.0502	0.0470
	(0.0018)	(0.0027)	(0.0021)	(0.0025)	(0.0029)	(0.0048)

Note: Bootstrapped standard errors in the parentheses.