Marriage and Money: Variations across the Earnings Distribution**

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ABSTRACT

This paper uses Australian data from the Negotiating the Lifecourse Project (1996/97) to investigate the impact of marriage on men’s and women’s earnings. We extend earlier earnings research and investigate whether the effect of marriage is constant for men and women at different points on the conditional earnings distribution by using robust and quantile regression techniques. We find no association between marriage and wages for women, but for men a large and significant premium exists with married men earning 15 per cent more than their unmarried counterparts, after adjusting for human capital, job and family characteristics. Overall, there are very few differences in the association between marriage and earnings for men and women across the wage distribution. Although, importantly, we find that the returns to marriage tend to be smaller and non-significant for men at the top of the distribution compared to men in the middle of the distribution.

KEY WORDS: Earnings, Earnings Gender Gap, Marriage, Marriage Premium, Quantile Regression.

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INTRODUCTION

Previous research has consistently found that married men earn more than single men (Gray, 1997; Korenman and Neumark, 1991; Loh, 1996; Blackburn and Korenman, 1994; Chalmers, 2002; Hill, 1979). Moreover, the higher earnings of married men persist even when differences in education, labor market experience, occupational and demographic characteristics are controlled. The general consensus is that, controlling for observable characteristics, married men are more productive than unmarried men (Chalmers, 2002; Daniel, 1995; Gray, 1997).

Two main explanations for the productivity of married men have emerged. The specialisation argument is that married men are more productive in the labor market due to role specialisation in households. In married households women specialize in domestic duties and men specialize in the labor market, enabling married men to be more productive at work than unmarried men. The second explanation is that there are selection effects whereby the unobservable characteristics of men that are valued in the marriage market are also valued in the labor market. Under this scenario men who are successful in the labor market are also more likely to marry. While evidence has been found for both explanations, on balance, the available research tends to favour the specialisation argument where the gender division of labor in the household allows men the time and energy to pursue labor market goals (Becker, 1985; Blackburn and Korenman, 1994; Chalmers, 2002; Gray, 1997; Korenman and Neumark, 1991; Loh, 1996).
For women, the relationship between marriage and earnings is more complex. The findings of previous studies have been mixed, and sometimes contradictory (Budig and England, 2001; Dolton and Makepeace, 1987; Goldin and Polachek, 1987; Gray, 1997; Hill, 1979; Waldfogel, 1997). Early research investigating the relationship between marriage and women’s earnings found little or no association (Dolton and Makepeace, 1987; Goldin and Polachek, 1987; Hill, 1979), whereas more recent studies, using longitudinal data, have found significant positive associations (Budig and England, 2001; Waldfogel, 1997). Moreover, studies investigating the determinants of women’s earnings tend to find a significant wage penalty for motherhood, where mothers earn less than non-mothers, rather than a strong association between marriage and earnings (Budig and England, 2001; Harkness and Waldfogel, 1999; Korenman and Neumark, 1992; Waldfogel, 1997). The evidence suggests then that marriage may increase women’s wages, but this pattern is strongly counter-balanced by the negative impact of motherhood.

Despite the burgeoning literature examining the association between marriage and earnings, especially for men, very little is known about the association between marriage and earnings at varying points on the distribution. In this study we investigate the relationship between marriage and earnings for both men and women. We extend earlier research by comparing the effect of marriage at different points on the earnings distribution using quantile regression methods. This is important because both the specialisation and selection hypotheses can be qualified to imply different marriage premiums depending on where on the income distribution we examine the relationship.
The Marriage Premium for Men

Drawing on issues and arguments raised in the earnings literature there are several reasons to believe that the association between earnings and marriage for men may differ depending on where they are situated within the distribution. For instance, if specialisation benefits are the primary mechanism for the association between marriage and earnings for men one might expect similar returns to marriage for men at all points on the distribution. Feminist research has long recognised the “incorporation” of wives into husbands’ work and the importance of their role as providers of domestic labour, emotional support and in some cases, a direct contribution to the husbands job through a range of essential, but unpaid activities, such as entertaining clients, secretarial work and account-keeping (Finch, 1983; Delphy and Leonard, 1992). In Married to the Job Finch argues that this kind of incorporation is not restricted to wives of professional workers, but rather extends across the occupational structure to include wives of those employed in services, trades and manual work.

In arguing for specialisation effects associated with marriage, Daniel (1995) came up with the term augmentation capital to describe the ability of a wife to enhance her husband’s productivity in the work place by providing a flow of services ranging from organising activities, running errands, performing housework, and other household chores. He argues that even when a woman marries a man with lower earnings, she is still likely to have augmentation capital and provide her husband with a marriage premium (Daniel, 1995: 119). Under this scenario returns to marriage would be expected to differ depending on the degree of specialisation within the household. However, since augmentation capital contributes directly to men’s
productivity we can also qualify the standard specialisation argument to anticipate larger premiums at the top of the earnings distribution than at the middle or bottom. If, as human capital theory argues, earnings reflect marginal productivity (i.e. the productivity of the hypothetical extra employee), we can think about augmentation capital as enhancing the marginal productivity of the “last” married employee, relative to the “last” nonmarried employee. Enhanced marginal productivity associated with augmentation capital may arise because married men have more time to devote to paid work than single men, are able to commit more fully to it in other ways (such as psychologically or emotionally), or have greater flexibility with respect to paid work than single men, so that they are better able to adjust to changing work demands. In all these cases though, we might expect that the additional “effort” married men are able to make in paid work by comparison to single men translates into a larger premium at the top of the earnings distribution, either because it does genuinely imply a greater difference in the marginal productivity of married and single men in highly paid jobs, compared to those in lower paid jobs, or because it is associated with employers’ perceptions of greater productivity differences. Differences in effort between those in highly paid jobs are likely to be associated with larger earnings differentials than similar differences in effort among those in lower paid jobs because productivity differences (real or perceived) are larger in the former case. We refer to this as the earnings enhanced specialisation argument, in contrast to the standard specialisation argument, which implies a constant premium across the earnings distribution.

If selection factors are the primary force underlying the marriage premium, one might also expect that men at the top of the earnings distribution would have a larger premium than men at the lower end because men who earn more money are
more likely to be married (Becker, 1981). Prior studies provide evidence for this scenario. For example, Nakosteen and Zimmer (1997), using the 1979, 1982 and 1984 waves of the Panel Study on Income Dynamics investigated the probability of marriage for single men who had above average earnings and found that those with higher than expected earnings were significantly more likely to marry within the study time frame. Selectivity implies that unmeasured characteristics that are valuable for both marriage and employment explain the marriage premium for men. The likely mechanism here is that employers use marriage as indicator of other desirable characteristics that employees possess. In highly paid jobs, being unmarried may therefore carry a greater “penalty” since it signals the absence of such characteristics more strongly in a pool where a higher proportion of men is married. We describe this as the earnings enhanced selection effect to contrast it against the standard selection argument of a constant marriage premium.

Marriage and Women’s Earnings

Early research examining the determinants of women’s earnings found that marriage had little or no association once adjustments were made for human capital (education, work experience, tenure), job characteristics (hours worked, occupation, employment conditions), and family status (the presence or number of children). For example, Hill (1979) using data from the 1976 Panel Study of Income Dynamics found no significant association between marriage and wages. Controlling for education, work experience and number of children, her results show that married, white women earn more than unmarried women, but less than divorced, separated or widowed women. Dolton and Makepeace (1987) also found no association between marriage and wages among female college graduates. Goldin and Polachek (1987), on the other hand,
using 1980 U.S. Census data found that single women had a wage advantage over married women, but these differences were small once adjustments were made for variability in expected levels of accumulated human capital.

More recent investigations have focused specifically on the wage penalty for motherhood. Budig and England (2001) used the National Longitudinal Survey for Youth, 1982-1993, and adjusting for a wide range of human capital, family, and job characteristics, found a marriage premium for women of around 4 per cent. They also found that being divorced, separated, and widowed had a large positive effect on women’s earnings compared to being married or never married. Interestingly, their results also showed an interaction effect between marriage and children, with the size of the marriage premium declining as the number of children in the household increased so that by three children, there is actually a wage penalty for marriage (Budig and England, 2001). Waldfogel (1997) also found a marriage premium for women, but found that divorced, separated and widowed women had higher earnings than both married and never married women.

Taken together this evidence suggests that the relationship between marriage and women’s earnings appears to be changing. While earlier research found little, or no, association between marriage and earnings, recent studies have found significant positive associations. There are several possible explanations for this shift. First, there have been major social changes for women since the 1970s, such as increased participation in higher education and employment, which may have led to a shift in the determinants of female earnings. Secondly, studies show that male wages have declined over the last few decades, whereas female wages have increased (England, 2001; Oppenheimer, 1997). This reduction in male wages relative to female wages may encourage men to select partners who are able to make economic contributions to
the family, thereby generating a selection effect for women who have earnings potential into marriage. On the other hand, the observed change in the relationship between marriage and wages for women could be attributable to differences in statistical methods. Korenman and Neumark (1992) criticized the use of cross-sectional techniques in examining the relationships between marriage, motherhood and wages for women for underestimating the effects of these determinants on wages. One consistent finding across all studies, however, is that where there is a wage premium for marriage, women who are divorced, separated, and widowed usually have higher wages than married women. This is because women who experience separation, divorce or widowhood tend to move into the workforce out of necessity, whereas they otherwise may not (Waldfogel, 1997).

In addition to expecting an association between marriage and earnings for women, there are several scenarios under which one might expect the association between women’s earnings and marriage to differ depending on where they are situated within the earnings distribution. Under the specialisation argument women would be expected to experience a negative return to marriage across all levels of the earnings distribution due to the negative impact of housework duties on women’s wages. While recent research into household specialization indicates that in households where women work full-time the division of household labour is more egalitarian (Bianchi et al, 2000), women still do more domestic labour overall and are more likely to adjust their working arrangements to accommodate demands from home (Western and Baxter, 2001). Therefore, women who work part time are more likely to spend more time and energy on domestic oriented tasks (Baxter 1991) and face a wage penalty from marriage. On the other hand, women who are employed full time may have a smaller marriage penalty because they are more likely to be in
households where the division of labour is more equal, and they are better able to pursue labour market goals. Under the standard specialisation argument, we would expect the marriage penalty to be consistent across the earnings distribution for both full and part-time employed women, but smaller for full-time women than part-time women. Unlike for men, there is no earnings-enhanced specialisation effect.

With regard to selectivity, the increase in women’s labour force involvement and earnings potential, relative to men’s reduced earnings potential (Oppenheimer, 1997; England, 2001), may predispose men to select wives who have high earnings, or potential for high earnings as marriage partners. South (1991) has found that men take into consideration their prospective partner’s employment potential when deciding whether to marry. Under an earnings-enhanced selection scenario the marriage premium would work in the same way for women as for men, with women at the top end of the earnings distribution experiencing a larger marriage premium than women at the lower end of the distribution. Further this would apply irrespective of whether the woman works full or part time, because even if a woman is working part time she may make a more attractive spouse if she can earn a higher income in the time she works. For women, unlike men, though, the potential marriage premium may be counter-balanced by the overall negative impact of motherhood resulting in a zero return to marriage for women at the upper ends of the earnings distribution and a negative premium for women at the lower ends if they have children.

In summary, research examining the association between marriage and earnings focuses on the selection or specialisation debate for men, and the wage penalty to motherhood for women. Within these literatures no studies to date have investigated the association between marriage and earnings across the distribution, even though there are clear theoretical reasons for doing so. We develop the earnings enhanced
selection and specialisation arguments for men, and the earnings enhanced selection argument for women to take account of these possibilities. We use cross-sectional data from a nationally representative 1996/97 Australian study titled *Negotiating the Lifecourse* to examine these ideas empirically. First we examine the nature and extent of the effects of marriage on earnings, emphasising differences both between the sexes, and between individuals according to marital status. Second we investigate the relationship between marriage and earnings at different points on the conditional distribution, rather than simply focusing on the mean.

**METHODS**

*Data*

The data used in this paper come from a 1996/97 national Australian survey titled “Negotiating the Life Course: Gender, Mobility and Career Trajectories” (NLC) (McDonald et al, 2000a). The sample comprised 2,231 respondents between the ages of 18 and 54 randomly selected from listed telephone numbers in the electronic white pages. Each respondent was randomly selected from all 18 to 54 year olds in the household. The data were collected using computer assisted telephone interviewing (CATI), with an overall response rate estimated between 52 and 63 per cent depending on the denominator used (see, MacDonald et al, 2000b). Despite the relatively low response rate the overall sample is comparable to the Australian population for age, marital status, family status, and employment status (MacDonald et al, 2000b).
Analytic Sample

For the current analyses we restrict the sample to men and women who were employed at the time of survey. Respondents who were on paid maternity or ‘other’ leave, such as sick or long service leave, are included. The self-employed are excluded. There were 1298 respondents in the final analytic sample.

Variables

The dependent and independent variables are described in Table 1. The dependent variable is the natural log of gross (i.e. before tax) annual income. The primary independent variable, marital status, consists of a series of dummy variables for never married, previously married (divorced, separated, and widowed) and currently married or cohabiting \(^1\), with never married as the reference group. We follow conventional practice for semi-logarithmic equations in interpreting the dummy variable coefficients as indicating the percentage increment (premium) or decrement (penalty) on earnings for the group coded 1 on the dummy variable in comparison to the dummy variable reference category (see Wooldridge, 2002: 43-47).

Table 1 about here

Human capital is measured by variables for age, education and work experience. We use controls for age in years and age centred and squared (i.e. we mean deviate age and then square this quantity). This captures the curvilinear effect of age on earnings in cross-sectional data, but minimizes the correlation between linear and quadratic age terms. We use two education measures, a continuous variable for years of education constructed using retrospective education life history data from the age of 15, and a level of education variable to estimate years of schooling before the age of 15. Dummy variables for university bachelor degree or higher and missing
values for education were also included in some models. A measure for actual years of work experience was constructed using retrospective life history data collected from the age of 15, and incorporates years of part-time and full-time experience, with years of part-time experience weighted to 0.5. Because age and experience are highly correlated we orthogonalized them by using residualized experience from an OLS regression of experience on age. This produces the same regression coefficients for age and experience in our models as using the original variables would, but eliminates collinearity between them. We also add a term for residualized experience centered and squared to capture the nonlinear effect of work experience.

Two measures of family status are used in this study: a series of dummy variables for number of children in the household including, no children, one child, two children, and three or more children, with no children as the reference group; a dummy variable for whether or not a pre-school child is present in the household is also included in some models, because the presence of younger children in the household has been found to influence women’s earnings (Harkness and Waldfogel, 1999).

Finally measures of job characteristics were included in some models. We include a measure for occupation based on major occupational categories of the Australian Standard Classification of Occupations (ASCO) (Australian Bureau of Statistics, 1997). This is the Australian official occupational classification. We collapsed these into four categories: (1) managers and administrators, (2) professionals, (3) white collar employees, (4) and blue collar workers. Managers and administrators are the reference category. We also included a dummy variable for missing responses on occupation, and a dummy variable for whether or not the respondent was a government employee.
To examine the marriage premium we fit five different analytic models to separate samples of full-time male and female employees and part-time female employees. We pursue separate analyses because earnings determination processes differ across the three groups (Harkness and Waldfogel, 1999; Waldfogel, 1997). We use robust regression based on iterative reweighted least squares to model the conditional mean earnings in each group, and simultaneous bootstrapped quantile regressions of the deciles (10th, 20th, 30th etc. to 90th percentiles) to model other points on the distribution. The five analytic models include a baseline model incorporating marital status only, a second model that adds the human capital variables (age, education and experience), and a third model that adds job characteristics. Model 4 is the second model plus family variables (numbers of children and the presence/absence of preschool children), and model 5 includes all variables (marital status, human capital, family, and job characteristics). The staged procedure allows us to examine how the marriage premium changes as we introduce human capital and other variables that previous research has found to be differentially related to the earnings of women and men (Hill, 1979).

We use a robust regression estimator for the mean, rather than conventional OLS because preliminary analyses using OLS revealed the presence of various influential data points and outliers. The IRLS estimator starts with an OLS fit and uses Cook’s distances to identify extreme observations. It then runs iterative reweighted least squares, initially weighting observations using a Huber function and then Tukey’s biweight until convergence (Hamilton, 2002; Stata Corporation, 2001:152-157). The bootstrapped quantile regression estimator minimizes a sum of
weighted absolute deviations based on the relevant quantile, while bootstrap resampling (Davison and Hinkley, 1997) is used to generate the estimated variance-covariance matrix of parameter estimates (Stata Corporation, 2001:11-27). The analyses are based on 200 bootstrap resamples. The means and standard deviations of all variables for the three groups are presented in Table 2.

Table 2 about here

RESULTS
Table 3 presents results of the robust regression models. For ease of presentation we only show coefficients for the marital status dummy variables. The baseline model shows that full-time employed men have a significant marriage premium of approximately 31 per cent of earnings, compared to never married men, and that men who were previously married earn approximately 15 per cent more than never married men. Adding human capital variables, as shown in Model 2, attenuates the return to marriage for men by around half to 17 per cent. The association between previously (ever) married men and wages becomes small and non-significant with the introduction of human capital factors, and remains non-significant for all other models. The R-squared also increases substantially (from 0.10 to 0.27) with the introduction of human capital factors and increases marginally again with the introduction of the job variables. Adjusting for job characteristics (Model 3) and family status (Model 4), in addition to human capital factors does not have a significant effect on wages for married men. The final model includes human capital, job characteristics and family status variables; after adjusting for all variables married men earn around 14 per cent more than single men. We can thus account for about 55
per cent of the male full-time marriage premium with human capital, family and job variables \(((0.31-0.139) / 0.31 * 100)\).

In contrast to results for men, there is no significant association between marriage and the wages of women employed full-time. This finding supports earlier research using cross sectional data and ordinary least squares (OLS) regression (Dolton and Makepeace, 1987; Hill, 1979; Korenman and Neumark, 1992). There is a small premium for previously (ever) married women that disappears once human capital differences are controlled. For women employed part-time, however, the baseline model (Model 1) shows a large significant association between marriage and wages, with both currently and ever married women earning over thirty percent more than never married women. Again, however, these differences can be fully accounted for by human capital differences in married and single women. After controlling for age, education and experience, there are no significant associations between marriage and wages for part-time employed women in the remaining four models (Models 2-5).

Table 3 about here

Consistent with earlier studies, our results thus show a significant positive association between marriage and men’s average earnings. For women the relationship between marriage and mean earnings tends to be small and non-significant after adjusting for compositional differences in human capital. This is again consistent with previous cross-sectional studies using OLS (Dolton and Makepeace, 1987; Hill, 1979; Korenman and Neumark, 1992). Studies examining the determinants of women’s earnings more often find that motherhood, has a stronger influence on women’s earnings than marriage, being associated with a substantial wage penalty (Budig and England, 2001; Waldfogel, 1997). Models 4 and 5 included dummy variables for the number of children, and presence of a pre-school child, but
our results (not shown) do not provide support for the wage penalty for motherhood for either full-time or part-time women. As expected none of the family status variables were significantly associated with men’s wages either.

To further investigate the relationship between marriage and earnings we now turn to quantile regression models for the conditional deciles. Figures 1-3 present graphs of the quantile regression coefficients for the five models separately for each of the three subsamples. In each Figure, the first five graphs show the conditional quantile regression coefficients for married respondents compared to never married ones, while the next 5 graphs show the coefficients for those ‘ever previously married’ (separated, divorced, widowed) compared to never married. For all graphs, the dashed line represents the robust regression estimate (i.e. the relevant dummy variable coefficient from the robust regression model), the dotted line is the conditional quantile regression coefficient at each of the nine deciles, and the solid lines are the upper and lower pointwise confidence limits for the quantile coefficients. Where the confidence band incorporates zero the relationship between marriage and earnings is not statistically significant. The figures also enable us to see how closely the robust coefficient tracks the quantile coefficients along the earning distribution.

Figure 1 about here

Figure 1 presents the results for men. For most models, the robust regression coefficient tends to be within the quantile regression confidence band and to follow the quantile estimates fairly closely. This suggests that the robust coefficients generally estimate the marriage premium across the earnings distribution relatively well. However, looking first at the marriage coefficients in Figure 1 (first 5 panels) it is also clear that the point estimates from the quantile regression tend to be larger than the robust regression marriage premium in the lower deciles and smaller than it in the
higher deciles. In particular, men who are located at the top end of the earnings
distribution tend to have smaller and non-significant returns to marriage, compared
with men in the middle of the wage distribution. This suggests that wage
determination processes vary somewhat across the male earnings distribution with
marriage mattering more at the bottom and middle and less at the top.

Figure 2 presents the corresponding graphs for full-time employed women.
They again show that the robust estimator models the relationship between marriage
and wages well at differing earnings levels. The patterning is similar to that for men,
where women at the top of the earnings distribution tend to have lower returns to
marriage than those in the middle, but overall the size of the coefficients are small.
The relationship between marriage and earnings tends to be non-significant across the
distribution and for all models, with one minor exception. Modelling the fourth, sixth
and seventh deciles in the baseline model, married women have slightly higher
earnings than never married women. Women working full-time who were previously
married also tend to have higher earnings than never married women at the sixth,
seventh and eighth deciles, according to the baseline model.

Figure 2 about here

Figure 3 presents results for women employed part-time. The robust
regression is also a good predictor of the relationship between marriage and earnings
for part-time employed women of different income levels. In Model 1, the
relationship between marriage and earnings is significant in the middle income deciles
(3-7) for both married and previously married women. Further, part-time women tend
to have a larger earnings return to marriage than full-time women, but generally the
relationship is not significant. Overall, the quantile regressions tend to support the
findings of the robust regressions, showing virtually no association between marriage and earnings for women irrespective of the amount they earn.

Figure 3 about here

DISCUSSION

Our examination of the relationship between earnings and marriage shows a large and significant marriage premium for men, but little or no association between marriage and earnings for women. Adjusting for a range of human capital, job, and family characteristics married men in our study earn 15 per cent more, on average, than unmarried men. These findings support the findings of previous studies examining the determinants of earnings for men, and other cross-sectional studies on the determinants of women’s earnings (Blackburn and Korenman, 1994; Dolton and Makepeace, 1987; Gray, 1997; Hill, 1979; Korenman and Neumark, 1991; Korenman and Neumark, 1992). One possible explanation for the lack of association between marriage, family and earnings for women in our study is our use of cross-sectional data. Other studies have found some limitations with using cross-sectional data to examine determinants of women’s earnings, because they tend to under-estimate the effects of marriage and family (Korenman and Neumark, 1992). Previous studies that found significant associations between marriage and women’s incomes tended to be longitudinal (Budig and England, 2001; Korenman and Neumark, 1992; Walfogel, 1997). Alternatively our lack of findings of any effects for marriage for women could be attributable to joint processes whereby women at the lower end of the earnings distribution have an earnings penalty for marriage, because they are more likely to specialize in domestic duties, and women at the top end of the distribution have a premium, because they have stronger labour market attachment, thereby cancelling
out any differences at the mean. However, the lack of association between marriage and earnings at any point on the quantile regression equations, once adjustments are made for human capital, makes this possibility unlikely.

Most significantly, our study extends the existing literature to examine the relationship between marriage and earnings for men and women situated at different levels on the earnings distribution. Overall, we found that the effects of marriage are similar for men and women irrespective of where they are situated on the wage distribution, however, the quantile regression results do provide additional insight into the relationship.

For men, the effect of marriage on earnings is different at the extreme ends of the distribution but not in the manner predicted by either the earnings enhanced specialisation or selection hypotheses. In contrast to predictions, men who are at the higher end of the earnings distribution do not have the same large and significant benefits associated with marriage as men in the middle of the wage distribution. For men at the lower end of the distribution the effects are of a similar magnitude as middle-income men, but the association is not significant. These findings do not provide unequivocal support for a selection or specialisation argument. Having said that, however, the full model for married men (Figure 2a, Model 5) shows a pattern of association across the distribution that is fairly consistent with a standard specialisation argument. Here the returns to marriage are virtually the same for men at the second to eighth deciles. The standard and modified specialisation arguments, however, do not hold for married men at the extreme high-end of the earnings distribution, those around the 9th decile, who have small and non-significant returns to marriage compared with men in the middle of the distribution. This finding is also in contrast to the expected association between marriage and earnings for a selection
argument, where high earnings men should have a larger return to marriage. In other words, men in the highest earnings bracket do not have higher returns to marriage as expected through either specialisation or selection processes.

This finding is consistent with other theories, however, particularly economic rent theory. An economic rent exists where payment is made for access to economic resources in fixed supply, and persons with ownership of, or effective control over the economic resource have possession of the right to the payment (Sorensen, 1996; Sorensen, 2000). Two kinds of employment rents are relevant to our findings. First, monopoly rents exist where employees are able to demand, and/or employers are willing to pay salaries above the competitive wage rate for certain skills, talents or abilities possessed by individuals that are in short supply (Sorensen, 1996). Monopoly rents apply particularly to professional occupations that are credentialized so that only workers with specialized knowledge and formal qualifications can access the occupation. This creates scarcity that drives up the price of professional labor. Second, loyalty rents, or efficiency wages, may also be paid to those in administrative and managerial positions. Management and administration positions are difficult for employers to regulate so a wage above the competitive wage rate is offered to buy loyalty, and increase incentives to perform (Bowles and Gintis, 1990). A substantial component of the earnings of men with high earnings may reflect these types of rents which are associated with the nature of the job position, rather than characteristics of the individual such as marital status, and human capital. Under this scenario one would expect that the returns to marriage would be lower for men as they move up the earnings distribution, because other wage determinants become more important.

There is some indication of employment rent processes in our results. In the final, full regression model we found that none of the human capital characteristics
(i.e. education, work experience) were significant for men at the 9\textsuperscript{th} decile, whereas human capital was associated with earnings for men at all other deciles. Other than age the only significant factors for men in the 9\textsuperscript{th} decile were job characteristics; the dummy for white collar employee (-0.40), and the dummy for public sector employment (-0.17), both had large negative coefficients (results not shown). These results are consistent with the existence of employment rents in highly paid managerial and private sector jobs for full-time male employees.

For women, in general, the relationship between earnings and marriage was small and non-significant, although we did find some minor variations in significant associations between marriage and earnings across the distribution. Married women who worked full time (Figure 2a, Model 1) and married women who worked part time (Figure 3a, Model 1) both experienced a marriage premium around the middle quantiles. However, the premium was present only in the unadjusted model and once controls for human capital were included the coefficients became small and non-significant. In sum, contrary to our expectations, there is no association between marriage and earnings for women irrespective of whether they have children, or work full or part time.

In addition to the substantive issues above, the quantile regressions enabled us to compare the effectiveness of using a statistical technique that uses the conditional mean function of the wage distribution with one that examines the relationship at several points on the conditional distribution. In most cases we found that the robust regressions adequately predicted the effects of marriage on wages across the entire earnings distribution.

More broadly our results also offer some insight into the continuing gender gap in earnings (Cotter et al, 1995; Le and Miller, 2001; Wellington, 1994). While
there is no evidence here to suggest that being married is necessarily a disadvantage for women’s earnings, they certainly do not receive the premium for marriage that men do. It is therefore not unreasonable to conclude that the persistence of the gender wage gap is due at least in part, to differential returns to marriage for men and women. Additionally, our findings indicate that men situated at the upper end of the earnings distribution have diminished returns to marriage compared to men lower in the distribution, and may therefore have different earnings mechanisms operating. This result indicates that further research is required that examines the determinants of earnings for men at different levels of income, rather than simply focusing on the mean, to develop our understanding of the relationship between marriage and earnings for men. Given our results, selection and specialisation effects for men are not enhanced at the top of the distribution, as we expected. Rather, the implication is that the selection and specialisation mechanisms associated with marriage are offset by other factors that determine the earnings of highly paid men. This suggests that we need to think further about appropriately qualifies variants of the specialisation and selection hypotheses when examining the male marriage premium.
Cohabiting unmarried couples are included with married couples in this analysis as we were interested in the presence, or not, of a partner within the household. There are studies that have found qualitative differences between registered marriages and de facto unions in relation to the marriage premium (ie. Brown and Booth, 1996; Nock, 1995). Further, there is some evidence that there is an association between cohabitation and a decline in the marriage premium for men (Cohen, 2002). However, we did not have an adequate sample size to address differences between married and cohabiting respondents here.

The Australian Standard Classification of Occupations (ASCO) is a skill-based measure that groups together occupations requiring similar levels of education, knowledge, responsibility, and on-the-job training and experience. The occupational groupings are hierarchically ordered based on their relative skill-levels, with those occupations having the most extensive skill requirements located at the top of the hierarchy (ABS, 1997). The nine-level ASCO classification comprises Managers and Administrators, Professionals, Associate Professionals, Trades and Related, Advanced Clerical, Intermediate Clerical, Intermediate Production and Transport, Elementary Clerical, and labor and Related.

Influential observations were identified by looking at leverage values, Cook’s distances, studentized residuals and DFBETAs from OLS runs.

R² statistics for this estimator should be cautiously interpreted.
REFERENCES


Table 1: Description of variables

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<tr>
<td><strong>Dependent:</strong></td>
<td></td>
</tr>
<tr>
<td>Annual Earnings (logged)</td>
<td>Gross annual income, logged</td>
</tr>
<tr>
<td><strong>Primary Independent:</strong></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>Dummy variable for people in married or defacto relationships (1=Married, defacto)</td>
</tr>
<tr>
<td>Ever Married</td>
<td>Dummy variable for people who were previously married (1=Divorced, Separated or Widowed)</td>
</tr>
<tr>
<td>Never Married</td>
<td>Dummy for people who have never been married (Reference Category)</td>
</tr>
<tr>
<td><strong>Human Capital:</strong></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>Age of respondent</td>
</tr>
<tr>
<td>Age#2</td>
<td>Age of respondent centred and squared to adjust for non-linear relationship with wages</td>
</tr>
<tr>
<td>Years of Education</td>
<td>Continuous measure of years of education of respondent, incorporates level of education measure and retrospective data from age of 15 years, retrospective component includes years of full-time and part-time study weighted by 0.5.</td>
</tr>
<tr>
<td>Degree or better</td>
<td>Dummy for if respondent has bachelor degree or higher (1=Bachelor degree)</td>
</tr>
<tr>
<td>Years Work Experience</td>
<td>Continuous measure of years of work experience, includes full-time years of work, and part-time years of work weighted by 0.5. Residualized with age so work experience is net of the influence of age.</td>
</tr>
<tr>
<td>Years Work Experience#2</td>
<td>Yrs Work Experience residualized, centred and squared.</td>
</tr>
<tr>
<td><strong>Family Status:</strong></td>
<td></td>
</tr>
<tr>
<td>Pre-school child</td>
<td>Dummy for the presence of a preschool aged child in house (1=preschool child present)</td>
</tr>
<tr>
<td>No Children</td>
<td>Dummy for No children in Household (Reference Group)</td>
</tr>
<tr>
<td>One Child</td>
<td>Dummy for One child in Household (1=1 Child)</td>
</tr>
<tr>
<td>Two Children</td>
<td>Dummy for Two children in Household (1=2 Children)</td>
</tr>
<tr>
<td>Three, or more Children</td>
<td>Dummy for Three or more children in Household (1=3 or more Children)</td>
</tr>
<tr>
<td><strong>Job Characteristics:</strong></td>
<td></td>
</tr>
<tr>
<td>Government Sector</td>
<td>Dummy for Government or Private sector (1=Government)</td>
</tr>
<tr>
<td>Managerial Occupation</td>
<td>(Reference group)</td>
</tr>
<tr>
<td>Professional Occupation</td>
<td>Dummy for professional occupation (1=Professional, associate professional)</td>
</tr>
<tr>
<td>White Collar Occupation</td>
<td>Dummy for White collar employee (1=Sales, Service, Clerical)</td>
</tr>
<tr>
<td>Blue Collar Occupation</td>
<td>Dummy for Blue Collar employee (1=Trades, Labourer)</td>
</tr>
<tr>
<td>Variable</td>
<td>Men Full-Time (N=583)</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>Annual Earnings (logged)</td>
<td>10.55</td>
</tr>
<tr>
<td>Married</td>
<td>.65</td>
</tr>
<tr>
<td>Ever Married</td>
<td>.09</td>
</tr>
<tr>
<td>Never Married</td>
<td>.26</td>
</tr>
<tr>
<td>Age</td>
<td>36.50</td>
</tr>
<tr>
<td>Age squared(^a)</td>
<td>80.66</td>
</tr>
<tr>
<td>Years of Education</td>
<td>14.98</td>
</tr>
<tr>
<td>Degree or better (1=yes)</td>
<td>.25</td>
</tr>
<tr>
<td>Missing education (1=yes)</td>
<td>.02</td>
</tr>
<tr>
<td>Years of Work Experience(^b)</td>
<td>1.40e-08</td>
</tr>
<tr>
<td>Years of Work Experience Squared(^b)</td>
<td>6.86</td>
</tr>
<tr>
<td>Pre-school child (1=yes)</td>
<td>.21</td>
</tr>
<tr>
<td>No Children</td>
<td>.50</td>
</tr>
<tr>
<td>One Child</td>
<td>.15</td>
</tr>
<tr>
<td>Two Children</td>
<td>.23</td>
</tr>
<tr>
<td>Three, or more Children</td>
<td>.12</td>
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<tr>
<td>Private Sector</td>
<td>.73</td>
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<tr>
<td>Government Sector</td>
<td>.27</td>
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<tr>
<td>Managerial Occupation</td>
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<tr>
<td>Professional Occupation</td>
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<tr>
<td>White Collar Occupation</td>
<td>.14</td>
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<tr>
<td>Blue Collar Occupation</td>
<td>.38</td>
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<tr>
<td>Missing Occupation</td>
<td>.02</td>
</tr>
</tbody>
</table>

\(^a\) Age is first centered and then squared. Note that the means and SD for the age squared variable are larger for women than men because of differences in the shape of the age distributions. For men the distribution is more compressed and bell shaped, whereas for both full and part time employed women there are larger numbers situated in the tails of the distribution inflating the squared means and SDs.

\(^b\) Years of work experience is residualized with age, experience squared is centered residualized experience squared. Residualized experience was calculated separately for all groups.
Table 3: Marital status dummy coefficients for robust regression models

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full-time employed Men</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>.310**</td>
<td>.174**</td>
<td>.143**</td>
<td>.189**</td>
<td>.139**</td>
</tr>
<tr>
<td>Ever Married</td>
<td>.148*</td>
<td>.053</td>
<td>.050</td>
<td>.054</td>
<td>.048</td>
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<tr>
<td>Never Married</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Observations</td>
<td>583</td>
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<td>583</td>
<td>583</td>
<td>583</td>
</tr>
<tr>
<td>R-squared</td>
<td>.10</td>
<td>.27</td>
<td>.34</td>
<td>.27</td>
<td>.34</td>
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<tr>
<td><strong>Full-time employed Women</strong></td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Married</td>
<td>.080</td>
<td>.005</td>
<td>-.027</td>
<td>.018</td>
<td>-.011</td>
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<tr>
<td>Ever Married</td>
<td>.120*</td>
<td>.057</td>
<td>.034</td>
<td>.077</td>
<td>.059</td>
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<td>Never Married</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Observations</td>
<td>422</td>
<td>422</td>
<td>422</td>
<td>422</td>
<td>422</td>
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<tr>
<td>R-squared</td>
<td>.01</td>
<td>.34</td>
<td>.40</td>
<td>.34</td>
<td>.41</td>
</tr>
<tr>
<td><strong>Part-time employed Women</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>.335**</td>
<td>.100</td>
<td>-.017</td>
<td>.182</td>
<td>.084</td>
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<tr>
<td>Ever Married</td>
<td>.381*</td>
<td>.104</td>
<td>.089</td>
<td>.180</td>
<td>.178</td>
</tr>
<tr>
<td>Never Married</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Observations</td>
<td>294</td>
<td>294</td>
<td>294</td>
<td>294</td>
<td>294</td>
</tr>
<tr>
<td>R-squared</td>
<td>.03</td>
<td>.11</td>
<td>.16</td>
<td>.12</td>
<td>.18</td>
</tr>
</tbody>
</table>

*P<.05, **P<.01.
Figure 1: Quantile regression results for men employed full-time

a: Quantile Regression coefficients for men who are married or cohabiting for Models 1-5

b: Quantile Regression coefficients for men who are separated or divorced for Models 1-5

Legend: ________ Robust Regression Line, ——— Quantile Regression Line & Points, ———— Upper and Lower Confidence Limits (Quantile Reg)
Figure 2: Quantile regression results for women employed full-time

a: Quantile Regression coefficients for full time women who are married or cohabiting for Models 1-5

b: Quantile Regression coefficients for full time women who are separated or divorced for Models 1-5

Legend: ———— Robust Regression Line, ——— Quantile Regression Line & Points, ——— Upper and Lower Confidence Limits (Quantile Reg)
Figure 3: Quantile regression results for women employed part-time

a: Quantile Regression coefficients for part-time employed women who are married or cohabiting for Models 1-5

b: Quantile Regression coefficients for part-time employed women who are separated or divorced for Models 1-5

Legend: ——— Robust Regression Line, ——— Quantile Regression Line & Points, ——— Upper and Lower Confidence Limits (Quantile Reg)