

# Marriage and Money: Variations across the Earnings Distribution

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## Abstract

*This paper uses Australian data from the Negotiating the Life Course Project 1997 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 around \$5,700 per annum 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 than for men in the middle of the distribution.*

## 1. 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, labour 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

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We would like to thank members of the Negotiating the Life Course project, Jenny Chesters and anonymous reviewers for comments on earlier versions of this paper. © Centre for Labour Market Research, 2005

the labour market due to role specialisation in households. In married households women specialize in domestic duties and men specialize in the labour 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 labour market. Under this scenario men who are successful in the labour market are also more likely to marry. While evidence has been found for both explanations, on balance, the available research tends to favour specialisation with the gender division of labour in the household allowing a married man the time and energy to pursue labour 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 earnings, 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.

## **2. The Marriage Premium for Men**

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 earnings 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, 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 an 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 are married. We describe this as the earnings enhanced selection effect to contrast it against the standard selection argument of a constant marriage premium.

### **3. 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. 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. A possible explanation for the consistent finding across both studies that women who are divorced, separated, and widowed usually have higher wages than married women is that previously married women move into the workforce out of economic necessity when they experience the loss of their partner, whereas they otherwise may not (Waldfogel, 1997).

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 earnings

have declined over the last few decades, whereas female earnings have increased (England, 2001; Oppenheimer, 1997). This reduction in male earnings relative to female earnings 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.

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 specialisation 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 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.

The above arguments suggest that effects of specialisation and selection are much more complex for women than for men. As indicated earlier specialisation acts primarily to men's advantage and to women's disadvantage in relation to earnings. Therefore, the act of specialisation

operates to limit women's earnings potential. Given this, women selected into marriage on their earnings potential will also have a reduced likelihood of realising that potential, compared to women who do not marry, because of the disadvantages associated with specialisation within marriage. For example, for women, unlike men, the potential marriage premium due to selection may be counter-balanced by the overall negative impact of domestic work and motherhood resulting in a small or zero return to marriage for women at the upper ends of the earnings distribution and a penalty for women at the lower ends if they have children. Some evidence exists for this possibility in the research literature. Budig and England (2001) found 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 was actually a wage penalty for marriage.

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 examine these ideas empirically using the Negotiating the Life Course survey 1997. 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.

## **4. Methods**

### ***Analytical Sample***

The data used in this paper come from the Negotiating the Life Course 1997, Version 1 (McDonald *et al.*, 2000). For the current analyses we restrict the sample to men and women who were employed at the time of survey. Respondents who are 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 Appendix 1. Summary statistics for all variables are shown in Table 1. The dependent variable is gross (i.e. before tax) annual earnings. While a measure of hourly wage rates may be preferable for testing the effect of marriage on earnings, we are restricted here to examining annual earnings because data were not collected on number of weeks worked each year. We are therefore unable to accurately estimate hourly wage rates for respondents. We focus on raw earnings rather than logged earnings because the arguments about the different size of the marriage premium at different points on the earning distribution relate to absolute differences rather than percentage differences.

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,<sup>1</sup> with never married as the reference group.

**Table 1 Means and Standard Deviations for all Variables**

	Men Full-time (N=583)		Women Full-time (N=422)		Women Part-time (N=293)	
	Mean	SD	Mean	SD	Mean	SD
Annual Earnings	45535.81	35816	33509.73	15148	13848.01	8909
Married	.65		.57		.66	
Ever Married	.09		.16		.14	
Never Married	.26		.27		.20	
Age	36.50	9.0	35.86	9.8	36.40	9.9
Years of Education	14.98	3.3	14.93	3.2	13.88	3.2
Degree or better (1=yes)	.25		.30		.16	
Missing education (1=yes)	.02		.02		.05	
Years of Work Experience <sup>a</sup>	18.86	9.2	14.96	8.0	11.17	6.4
Pre-school child (1=yes)	.21		.09		.23	
No Children	.50		.61		.28	
One Child	.15		.16		.23	
Two Children	.23		.18		.31	
Three, or more Children	.12		.05		.18	
Private Sector	.73		.61		.71	
Government Sector	.27		.39		.29	
Managerial Occupation	.12		.04		.01	
Professional Occupation	.34		.47		.29	
White Collar Occupation	.14		.39		.54	
Blue Collar Occupation	.38		.08		.15	
Missing Occupation	.02		.02		.01	

a. Because age and work experience are highly correlated we orthogonalised them by using residualised experience from an OLS regression of experience on age for inclusion in the models.

Human capital is measured by variables for age, education and work experience. We fit linear and quadratic terms for age. 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. We also include dummy variables for university bachelor degree or higher and missing values for education in some models. We construct a measure for actual years of work experience using retrospective life history data collected from the age of 15, and incorporating years of part-time and full-time experience, with years of part-time experience weighted to 0.5.

This study uses two measures of family status: a series of dummy variables for number of children in the household including, no children, one child,

<sup>1</sup> 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 defacto unions in relation to the marriage premium (i.e. 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.

two children, and three or more children, with no children as the reference group; and a dummy variable for whether or not a pre-school child is present in the household, because the presence of younger children in the household has been found to influence women's earnings (Harkness and Waldfogel, 1999).

Finally we include measures of job characteristics. We include a measure for occupation based on major occupational categories<sup>2</sup> of the Australian Standard Classification of Occupations (ASCO), second edition (Australian Bureau of Statistics, 1997). We collapse 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 include a dummy variable for missing responses on occupation, and a dummy variable for whether or not the respondent was a government employee.

### *Analyses*

To examine the marriage premium we fit five robust regression and quantile regression 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 (10<sup>th</sup>, 20<sup>th</sup>, 30<sup>th</sup> etc. to 90<sup>th</sup> 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). This 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 estimator for the mean, rather than conventional OLS because preliminary analyses using OLS revealed the presence of various influential data points and outliers.<sup>3</sup> 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 minimises a sum of weighted absolute deviations based on the

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<sup>2</sup> 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 labour and Related.

<sup>3</sup> Influential observations were identified by looking at leverage values, Cook's distances, studentised residuals and DFBETAs from OLS runs.



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 1000 bootstrap resamples.

## 5. Results

Table 2 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 has a significant marriage premium of around \$12,800 per annum, compared to never married men, and that men who were previously married earn just over \$6,000 per annum 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 just over \$7,000 per annum. The association between previously (ever) married men and earnings becomes smaller 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.<sup>4</sup> 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 \$5,700 per annum more than single men. Thus, about 55 per cent of the male full-time marriage premium is accounted for by controlling for human capital, family and job variables ( $((12779-5701)/12779 * 100 = 55.4)$ ).

**Table 2 Marital Status Dummy Coefficients for Robust Regression Models**

	M1: Baseline Model	M2: Baseline & Human Capital	M3: Baseline, Human Capital & Job Charact- eristics	M4: Baseline, Human Capital & Family Status	M5: All Variables
<b>Full-time Employed Men</b>					
Married	12779.32 **	7215.79 **	5888.90 **	7498.08 **	5701.94 **
Ever Married	6337.75 *	2465.68	2232.53	2505.25	2152.30
Never Married	-	-	-	-	-
Observations	583	583	583	583	583
R-squared	.10	.25	.34	.26	.34
<b>Full-time Employed Women</b>					
Married	2750.29 *	439.27	-238.63	850.53	156.80
Ever Married	4264.65 *	2128.05	1543.90	2638.72	2190.75
Never Married	-	-	-	-	-
Observations	422	422	422	422	422
R-squared	.01	.34	.39	.34	.39
<b>Part-time Employed Women</b>					
Married	3378.77 *	240.63	-1489.21	1150.61	-304.64
Ever Married	4430.12 *	1090.76	713.72	1898.35	1744.66
Never Married	-	-	-	-	-
Observations	293	293	293	293	293
R-squared	.03	.10	.19	.12	.20

\*P<.05, \*\*P<.01.

<sup>4</sup> R<sup>2</sup> statistics for this estimator should be cautiously interpreted.

In contrast to results for men, there is generally no significant association between marriage and the earnings of women employed full-time. This finding supports earlier research using cross sectional data (Dolton and Makepeace, 1987; Hill, 1979; Korenman and Neumark, 1992). A small premium for previously (ever) married women disappears once human capital differences are controlled. For women employed part-time, however, the baseline model (Model 1) indicates a large significant association between marriage and earnings, where both currently and ever married women have higher earnings per annum than never married women. Again, however, these differences are 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).

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 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 include dummy variables for the number of children, and presence of a pre-school child, but our results (not shown) do not provide support for a 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 next estimate quantile regression models for the conditional deciles. Figures 1-3 present graphs of the quantile regression coefficients for the final models separately for each of the three subsamples. In each figure, the first graph shows the conditional quantile regression coefficients for married respondents compared to never married ones, and the next graph shows the coefficients for those 'ever previously married' (separated, divorced, widowed) compared to never married. For brevity we only present results from the final model. For all graphs, the solid 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 dashed 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 are 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 Final Model Full-time Employed Men**

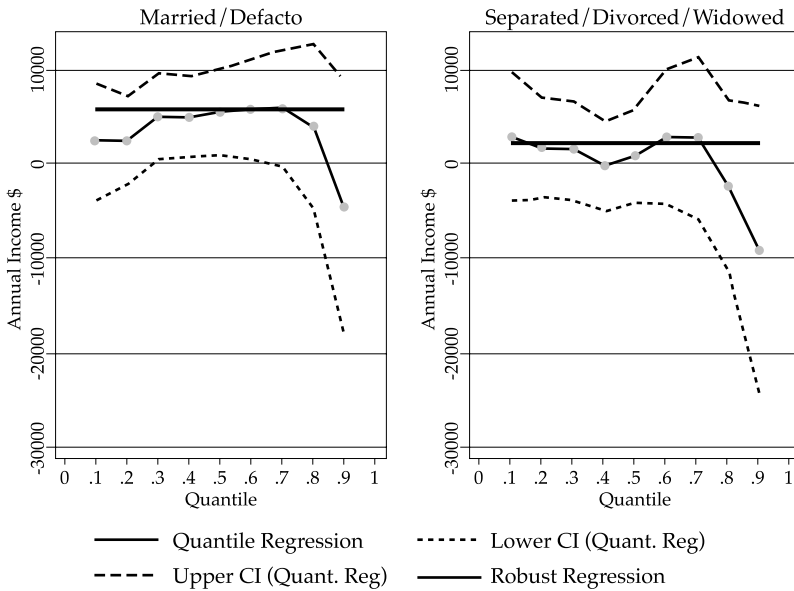


Figure 1 presents the results for men. Overall the robust regression coefficient tends to be within the quantile regression confidence band and to follow the quantile estimates fairly closely. This suggests that the robust coefficients generally estimate the marriage premium across the earnings distribution relatively well. However, looking first at the marriage/defacto coefficients in Figure 1 it is also clear that the point estimates from the quantile regression tend to be smaller than the robust regression marriage premium in the lower deciles and smaller 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 to 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. Again the results show that the robust estimator models the relationship between marriage and earnings well at differing earnings levels. The patterning is similar to that for men, with women at the top of the earnings distribution tending to have lower returns to marriage than those in the middle, but overall the size of the coefficients are small. For full-time women the relationship between marriage and earnings is non-significant across the distribution.

**Figure 2 Final Model Full-time Employed Women**

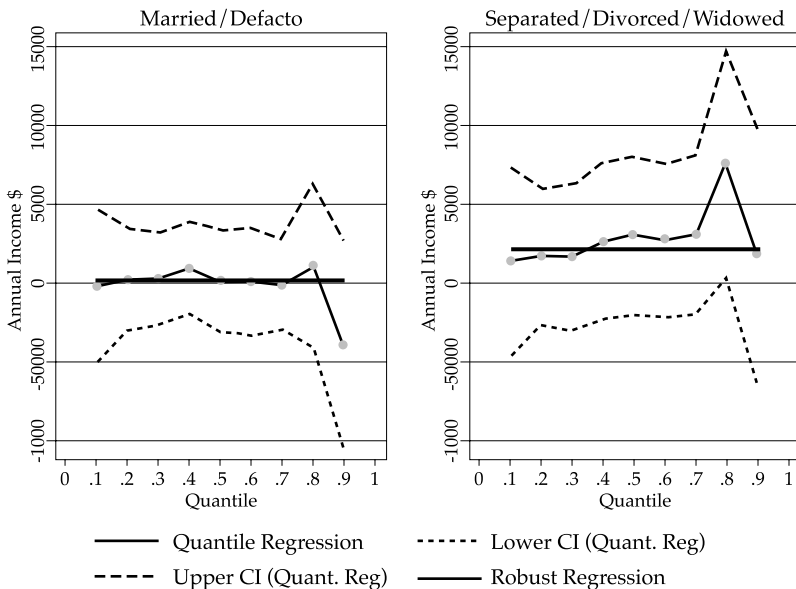
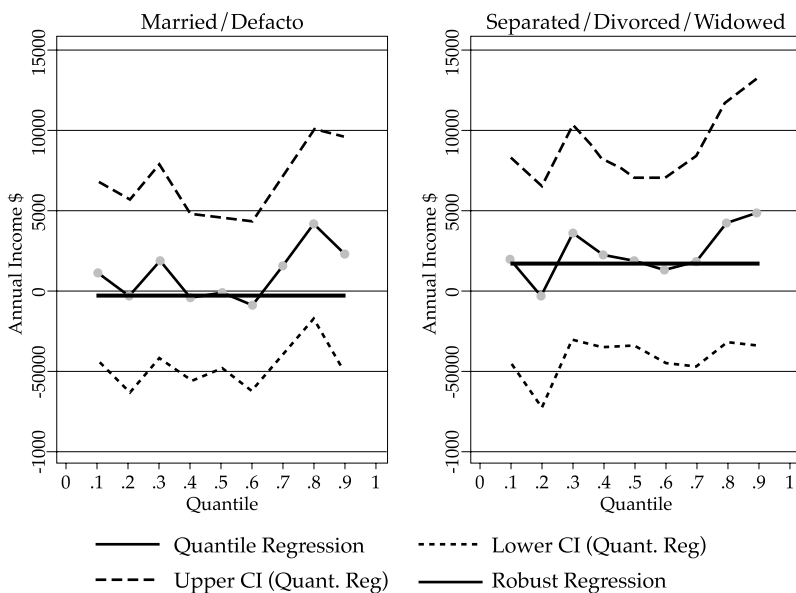


Figure 3 presents results for women employed part-time. The robust regression is also a good predictor of the relationship between marriage and earnings for part-time employed women of different income levels. These results further suggest that part-time women tend to have a larger earnings return to marriage than full-time women, but generally the relationship is not significant. Overall, the quantile regressions support the findings of the robust regressions, showing virtually no association between marriage and earnings for women irrespective of the amount they earned.

**Figure 3 Final Model Part-time Employed Women**



## 6. Discussion

Our examination of the relationship between earnings and marriage show 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 around \$5700 more per annum, 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 of selection and specialisation whereby women's earnings are limited by specialisation even if they are selected into marriage because of their earnings potential, thereby cancelling out any differences at the mean.

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 1) 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 9<sup>th</sup> decile, who have small and non-significant returns to marriage compared to 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.

This finding is consistent with other theories, such as 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 credentialised so that only workers with specialized knowledge and formal qualifications can access the occupation. This creates scarcity that drives up the price of professional labour. 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 find that none of the human capital characteristics (i.e. education, work experience) are significant for men at the 9<sup>th</sup> decile, whereas human capital is associated with earnings for men at all other deciles. Other than age the only significant factors for men in the 9<sup>th</sup> decile are 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. Alternatively, for men at the top of the earnings distribution, earnings may less adequately represent the benefits associated with work. This may be because we do not use a more comprehensive measure of compensation, including performance pay, allowances and the like, might have shown a premium for this group of men.

For women, in general, the relationship between earnings and marriage was small and non-significant. 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 find that the robust regressions adequately predict 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 than 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 qualified variants of the specialisation and selection hypotheses when examining the male marriage premium.

## Appendix 1 Description of Variables

<i>Variables</i>	<i>Definition of Variable</i>
<b>Dependent:</b>	
Annual Earnings	Gross annual income, logged
Primary Independent:	
Married	Dummy variable for people in married or defacto relationships (1=Married, defacto)
Ever Married	Dummy variable for people who were previously married (1=Divorced, Separated or Widowed)
Never Married	Dummy for people who have never been married (Reference Category)
<b>Human Capital:</b>	
Age	Age of respondent
Age#2	Age of respondent centred and squared to adjust for non-linear relationship with wages
Years of Education	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.
Degree or better	Dummy for if respondent has bachelor degree or higher (1=Bachelor degree)
Years Work Experience	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.
Years Work Experience#2	Yrs Work Experience residualized, centred and squared.
<b>Family Status:</b>	
Pre-school child	Dummy for the presence of a preschool aged child in house (1=preschool child present)
No Children	Dummy for No children in Household (Reference Group)
One Child	Dummy for One child in Household (1=1 Child)
Two Children	Dummy for Two children in Household (1=2 Children)
Three, or more Children	Dummy for Three or more children in Household (1=3 or more Children)
<b>Job Characteristics:</b>	
Government Sector	Dummy for Government or Private sector (1=Government)
Managerial Occupation	(Reference group)
Professional Occupation	Dummy for professional occupation (1=Professional, associate professional)
White Collar Occupation	Dummy for White collar employee (1=Sales, Service, Clerical)
Blue Collar Occupation	Dummy for Blue Collar employee (1=Trades, Labourer)

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