

# **Marriage and Money: The Impact of Marriage on Men's and Women's Earnings \*\***

**Belinda Hewitt\*, Mark Western\* and Janeen Baxter\***

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\* Sociology, School of Social Science, The University of Queensland  
Email authors: [m.western@uq.edu.au](mailto:m.western@uq.edu.au)

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## **Abstract**

This paper uses Australian data from the Negotiating the Life Course Project (1996/97) to investigate the impact of marriage on men's and women's earnings. We extend the earlier research in two main ways: first we investigate the impact of marriage on women's earnings; second we 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, in that married men earn 15 per cent more than their unmarried counterparts (after adjusting for human capital, job and family characteristics). Further, for men at the top of the earnings distribution the returns to marriage tend to be smaller and non-significant compared to men in the middle of the distribution.

## **Introduction**

Previous research has consistently found that married men earn more than single men (Gray 1997; Korenman & Neumark 1991; Loh 1996), although the precise value of the marriage premium varies between studies, ranging from approximately three to thirty one percent (Blackburn & Korenman 1994; Chalmers 2001; Hill 1979; Korenman & Neumark 1991; Loh 1996). Moreover, the higher earnings of married men persist even when differences in education, labor market experience, occupational and demographic characteristics are controlled. These findings are found in most developed nations (Schoeni 1995). The general consensus in the literature 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 household duties and men specialize in the labor market, enabling married men to be more productive at work than is the case for 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 & Korenman 1994; Chalmers 2002; Gray 1997; Korenman & Neumark 1991; Loh 1996). Further, a substantial body of

evidence on the allocation of work within couple households supports this argument. This research shows that female partners tend to be responsible for, and carry out most unpaid household labour, such as housework, and caring for children (Baxter 2002; Berk 1985; Brines 1994; Shelton 1992), and also invest more intellectual and emotional energy in their relationships (Steil 1997). Men on the other hand receive a range of unpaid services derived from the physical, emotional and psychological labor of their female partners (Delphy & Leonard 1987). Hence, the division of labor in the home enables married men to devote more time and energy to the labor market and thereby increase their earnings capability.

For women, the relationship between marriage and earnings is more complex. The findings of previous studies have been mixed, and sometimes contradictory (Budig & England 2000; Dolton & Makepeace 1987; Goldin & Polachek 1987; 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 & Polachek 1987; Hill 1979), whereas more recent studies, using longitudinal data, have found significant positive associations (Budig & England 2000; 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 & England 2000; Harkenss & Waldfogel 1999; Korenman & 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.

In this study we examine the relationship between marriage and earnings for men and women. We extend earlier research in two ways: first by specifically

examining the impact of marriage on women's earnings; second, by comparing the effect of marriage for men and women at different points on the earnings distribution using robust and quantile regression methods.

### **The Marriage Premium for Men**

Research that examines the determinants of men's earnings has consistently found a marriage premium with married men earning more than unmarried men. Recently, a body of literature has emerged that specifically examines reasons for the male marriage premium (Daniel 1995; Ginther & Zavodny 2001; Gray 1997; Korenman & Neumark 1991; Loh 1996; Schoeni 1995). There is, however, no consensus on whether role specialisation or selection effects contribute to married men's higher earnings. Overall, marriage premium research finds support for both arguments, although on balance there is stronger empirical support for the role specialisation productivity thesis.

Korenman & Neumark (1991), using data from the National Longitudinal Study of Young Men 1976 to 1980, and adjusting for comprehensive human capital factors, found evidence that married men's wages grew faster than single men's, and that this wage growth accounted for the majority of the marriage premium. They also found that 80 per cent of the marriage premium remained after controlling for marital selection. Korenman & Neumark (1991), conclude that their findings support the role specialisation thesis because more of the premium appears to be attributable to factors associated with the marriage institution rather than factors inherent in the men *per se*.

Ginther & Zavodny (2000) in their examination of the marriage premium used shotgun weddings (defined as weddings that are followed by the birth of a child within 7 months) as a natural experiment to control for selection into marriage, rather

than the more commonly used longitudinal fixed effects modelling. They argue that shotgun weddings do not follow the same selection processes as other marriages and therefore marital status and earnings ability may not be correlated in these marriages. They examined data from the National Longitudinal Survey of Young Men and the 1980 Census 5% Public Use Microdata Sample, and found 90 per cent of the marriage premium remained after controlling for selection into marriage (in addition to a range of human capital characteristics).

In contrast, Loh (1996), using cross sectional data from the 1990 National Longitudinal Survey of Youth Labor Market Experience examined the marriage premium adjusting for effects of wives education and participation in the work force on married men's wages, in addition to controlling for human capital, job and family characteristics. Loh found that the size of the premium did not change according to the length of time (years) that married men's wives had been in paid employment. This finding throws doubt on the role specialisation theory since men with working wives should benefit less from role specialisation within the household. Loh (1996) concludes that it is unlikely that role specialisation productivity differences explain the gap between married and unmarried men's wages.

Interestingly it has been found in some studies that the marriage premium for men is diminishing over time. Blackburn and Korenman (1994) describe a 10 per cent decrease in the marriage premium over the 1970s. Similarly, Gray (1997), using 1976 to 1980 data from the National Longitudinal Survey and 1989 to 1993 data from the National Longitudinal Survey of Youth, finds a decline of 40 per cent in the marriage premium during the 1980s. In his study Gray used longitudinal data and independent variables (ie respondents attitudes and values towards family and work) to control for the selection of high earnings men into marriage, and included a control for the

number of hours worked by married men's wives to test the specialisation hypotheses. While he found selection and specialisation effects on men's wages, he also concluded that the decrease in the premium was primarily due to lower returns to specialisation within marriage, because of the increasing participation of wives in the labor force (Gray 1997: 500).

Implicit in both the role-specialisation and selection explanations for the premium is the idea that the benefits from marriage are larger for men at the top of the earnings distribution than those at the lower end. This is because men with high earnings have either received greater gains from specialisation within marriage, or are a more attractive spouse (Daniel 1995). In contrast to earlier research we do not explicitly attempt to explain the existence of the premium, rather we use robust and quantile regression models to achieve stable estimates of its size at different points on the earnings distribution (the conditional mean and deciles). All previous research focuses solely on the mean and thus it is not clear whether the impact of marriage is constant or variable the further we move away from the mean.

### **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 (2000) 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 larger effect on women's earnings than being married or never married. 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 motherhood (Budig & England 2000). 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 two 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. 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.

In summary, recent research finds a marriage premium for women, and diminishing returns to marriage for married men. These findings possibly reflect long-term effects of changes in women's participation in higher education and the work force, and changes in the nature of marriage. In this paper we examine the relationship between marriage and earnings using cross-sectional data from a nationally representative 1996/97 Australian study titled *Negotiating the Life Course*. 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 extend previous research by investigating the relationship between marriage and earnings at different points on the conditional distribution, rather than simply focusing on the mean. This latter issue has not been explored elsewhere in the earnings literature.

## **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* 2000). 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 a response rate of 55%.

## **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 1299 respondents in the final 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<sup>1</sup>, 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: Description of variables**

Variables	Definition of Variable
<b>Dependent:</b>	
Annual Earnings (logged)	Gross annual income, logged
<b>Primary Independent:</b>	
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)

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 year 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 & Waldfogel 1999).

Finally measures of job characteristics were included in some models. We include a measure for occupation based on major occupational categories<sup>2</sup> 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.

## **Analyses**

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 & 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). 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 numerous 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 minimizes a sum of weighted absolute deviations based on the relevant quantile, while bootstrap resampling (Davison & 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: Means and Standard Deviations for all variables**

	Men Full-Time (N=583)		Women Full-Time (N=470)		Women Part-Time (N=325)	
	Mean	SD	Mean	SD	Mean	SD
Annual Earnings (logged)	10.55	(.69)	10.29	(.64)	9.26	(.94)
Married	.65		.57			.66
Ever Married	.09		.16			.14
Never Married	.26		.27			.20
Age	36.5	(9.0)	35.9	(9.8)	35.9	(9.8)
Age squared <sup>a</sup>	80.7	(86.3)	94.9	(92.7)	94.9	(92.7)
Years of Education	14.98	(3.3)	14.9	(3.2)	13.9	(3.1)
Degree or better (1=yes)	.25		.30		.16	
Missing education (1=yes)	.02		.02		.05	
Years of Work Experience <sup>b</sup>	1.4e-08	(2.6)	1.71 e-09	(4.1)	8.37e-09	(4.3)
Years of Work Experience Squared <sup>b</sup>	6.9	(13.6)	16.5	(28.3)	18.0	(29.5)
Pre-school child (1=yes)	.21		.09		.23	
No Children	.50		.71		.30	
One Child	.15		.16		.22	
Two Children	.23		.18		.30	
Three, or more Children	.12		.05		.18	
Private Sector	.73		.61		.73	
Government Sector	.27		.39		.27	
Managerial Occupation	.22		.04		.01	
Professional Occupation	.34		.47		.29	
White Collar Occupation	.14		.39		.53	
Blue Collar Occupation	.38		.08		.16	
Missing Occupation	.02		.02		.01	

<sup>a</sup> age is first centered and then squared.

<sup>b</sup> years of work experience is residualized with age, experience squared is centered residualized experience squared.

## 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<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 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 & Makepeace 1987; Hill 1979; Korenman & 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: Marital status dummy coefficients for robust regression models**

	M1: Baseline Model	M2: Baseline & Human Capital	M3: Baseline, Human Capital & Job Characteristics	M4: Baseline, Human Capital & Family Status	M5: All Variables
<b>Full-time employed Men</b>					
Married	.310**	.174**	.143**	.189**	.139**
Ever Married	.148*	.053	.050	.054	.048
Never Married	-	-	-	-	-
Observations	583	583	583	583	583
R-squared	.10	.27	.34	.27	.34
<b>Full-time employed Women</b>					
Married	.080	.005	-.027	.018	-.011
Ever Married	.120*	.057	.034	.077	.059
Never Married	-	-	-	-	-
Observations	422	422	422	422	422
R-squared	.01	.34	.40	.34	.41
<b>Part-time employed Women</b>					
Married	.335**	.100	-.017	.182	.084
Ever Married	.381*	.104	.089	.180	.178
Never Married	-	-	-	-	-
Observations	294	294	294	294	294
R-squared	.03	.11	.16	.12	.18

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

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 & Makepeace 1987; Hill 1979; Korenman & 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 & England 2000; 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 and 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 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 wages 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.

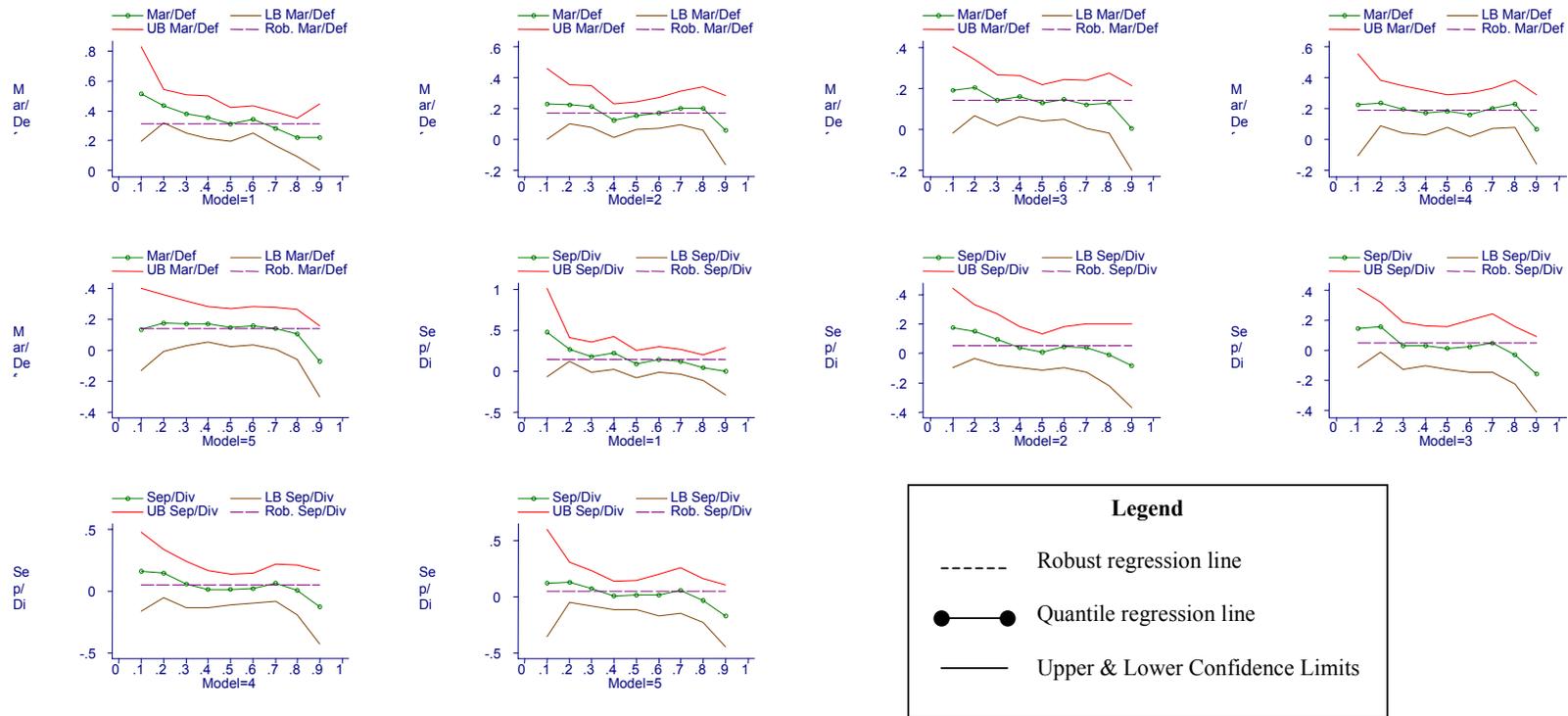


Figure 1: Quantile regression results for men employed full-time

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. Married women who are situated in the 4<sup>th</sup> quantile have slightly higher returns to marriage than never married women, which is significant for the first model. Women working full-time who were previously married tend to have higher returns to earnings than never married women, and the baseline model shows a significant relationship between being previously married and earnings for women situated in the 6<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> quantiles.

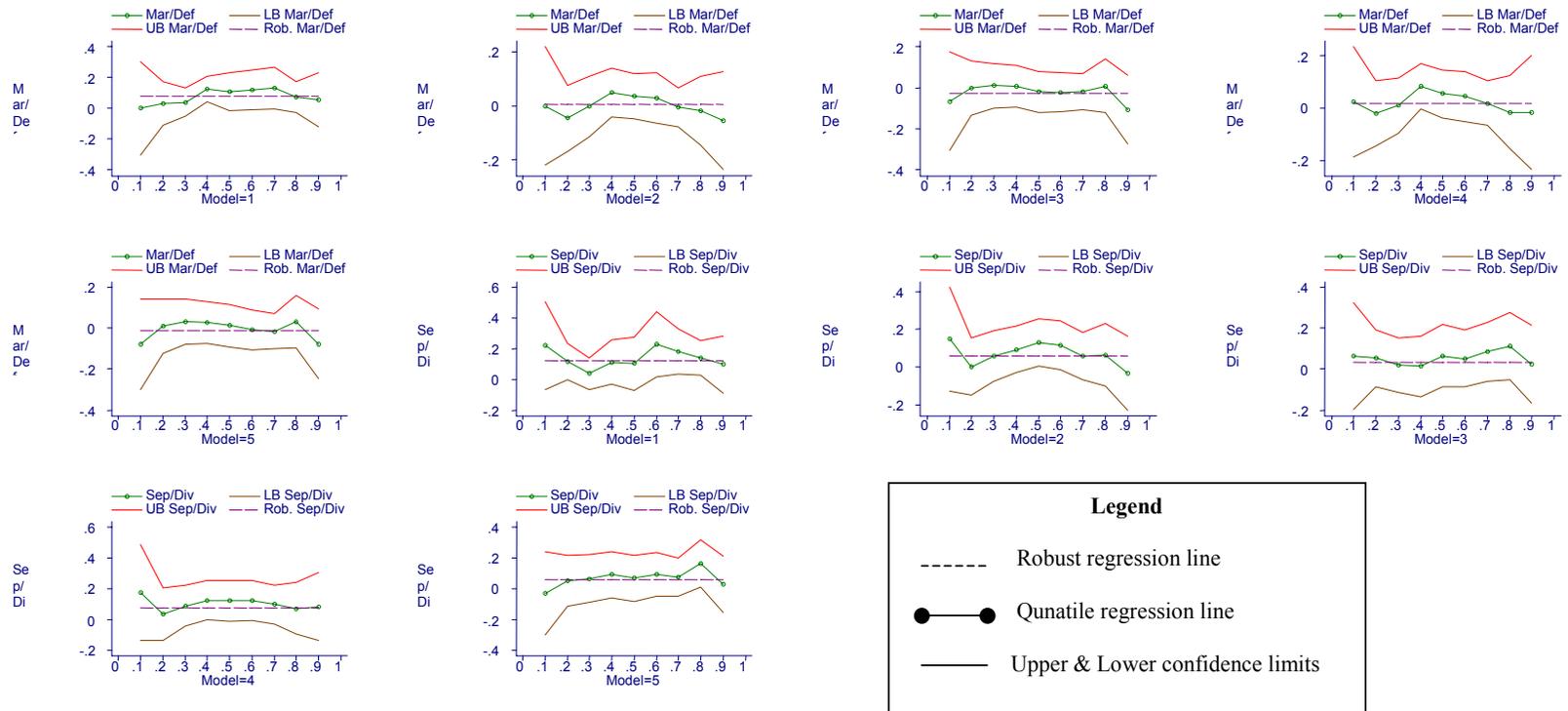


Figure 2: Quantile regression results for women employed full-time

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 quantiles (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.

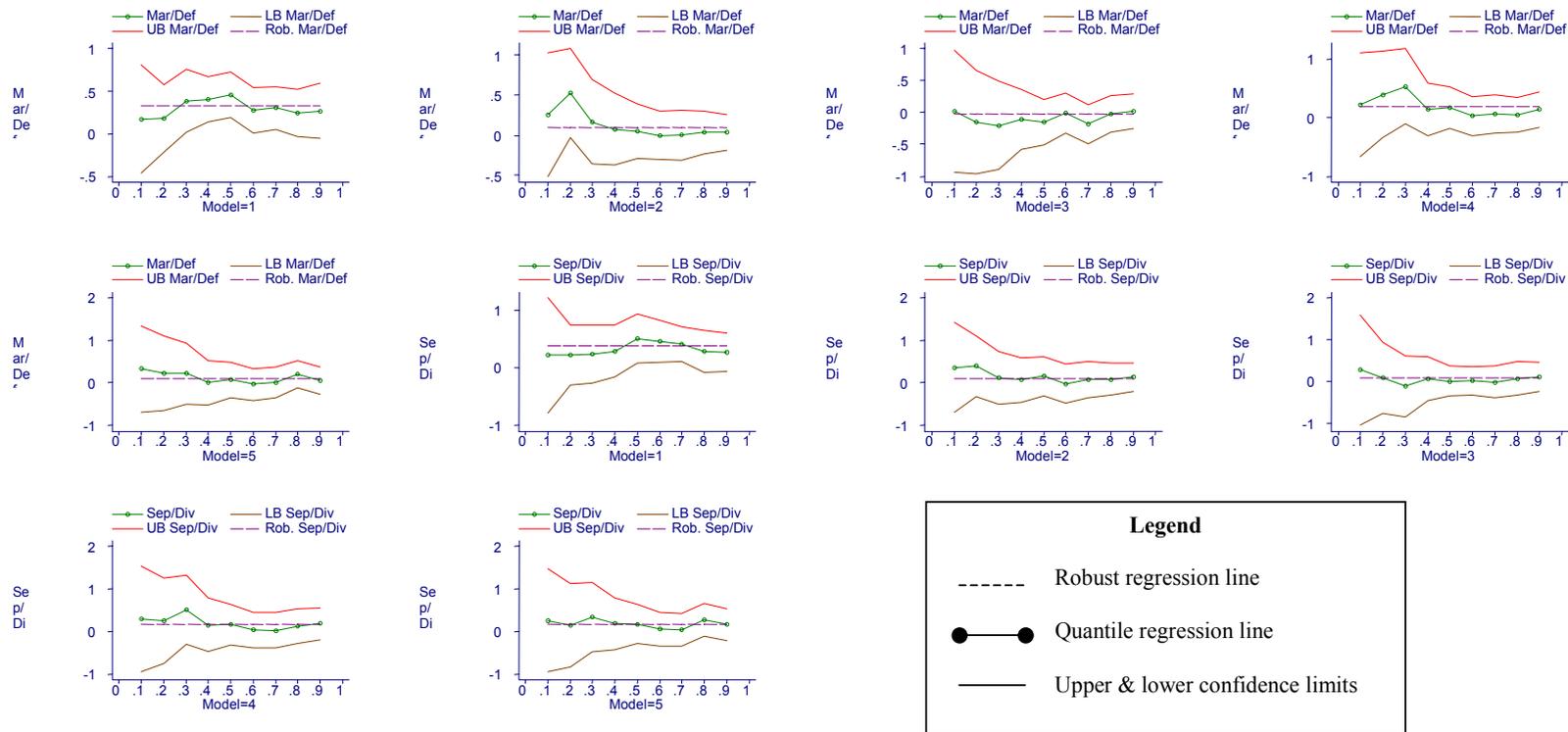


Figure 3: Quantile regression results for women employed part-time

## **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 & Korenman 1994; Dolton & Makepeace 1987; Ginther & Zarovdy 2001; Gray 1997; Hill 1979; Korenman & Neumark 1991; Korenman & 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 & Neumark 1992). Previous studies that found significant associations between marriage and women's incomes tended to be longitudinal (Budig & England 2001; Korenman & Neumark 1992; Walfogel 1997).

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, for example, the effect of marriage on earnings is different at the extreme ends of the distribution. 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. For women, we did find a significant association between marriage and income at certain points of the distribution, typically in the middle, but only for the unadjusted model, and in general the relationship was small and non-significant.

Importantly our research shows that married men at the extreme high-end of the earnings distribution, those around the 9<sup>th</sup> quantile, have small and non-significant returns to marriage compared with men in the middle of the distribution. In other words, men in the highest earnings bracket do not have the higher returns to marriage as predicted by role specialisation and selection theories (Daniel 1995). Instead our findings show their earnings have no association with marriage. This suggests that men in our sample who are in the highest earnings quantile have different wage determinants than men lower in the earnings distribution.

One possible explanation for why men in the highest earnings quantile do not have a marriage premium is associated with the idea of a 'rent' component to jobs with high salaries. An economic rent exists where payment is made for access to economic resources in fixed supply, and person's 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. 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 very 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.

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 in the 9<sup>th</sup> quantile, whereas human capital was associated with earnings for men in all other quantiles. Other than age the only significant factors for men in the 9<sup>th</sup> quantile 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).

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 offer some insight into the continuing gender gap in earnings (Cotter *et al* 1995; Le & 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 from the quantile regressions 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. Further research that examines the determinants of earnings for men at different levels of income, rather than simply focusing on the mean, is required to develop our understanding of the relationship between marriage and earnings for men.

<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 there are qualitative differences between registered marriages and defacto unions (ie. Brown 1996; Nock 1995), but that issue is not under consideration here.

<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. 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.

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

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

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