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Are All the Good Men Married? Uncovering the Sources of the Marital Wage Premium

By KATE ANTONOVICS AND ROBERT TOWN*

A longstanding and yet unsettled question in labor economics is: Does marriage cause men's wages to rise? Cross-sectional wage studies consistently find that married men earn higher wages than do men who are not currently married. Even after controlling for a broad set of covariates, this estimated differential is large, ranging from 10 to 50 percent. Among the competing explanations for the marital wage premium, three receive the most attention. The first is that marriage makes men more productive by allowing them to specialize in non-household production. The second is that employers discriminate in favor of married men, and the third is that the unobservable characteristics that make men more productive in the labor market also make them more attractive in the marriage market. The primary difference between the first two explanations and the third is that the first two suggest that the marriage has a causal effect on men's wages, while the third implies that the estimated marital wage premium is the result of an omitted-variable bias. This paper attempts to identify the causal effect of marital status on earnings by using data on monozygotic (MZ) twins to control for unobserved heterogeneity.

Data on monozygotic twins have most frequently been used to obtain estimates of the returns to schooling (e.g., Orley Ashenfelter and Alan Kruger, 1994; Jere Behrman et al., 1996). These studies control for differences in genetic endowments and family background by examining the relationship between within-twin variation in schooling and wages. In a similar fashion, we use within-twin variation in marital status, to examine the effect of marriage on men's wages.[1] We find that, when the data are treated as a cross section, the estimated marital wage premium is 19 percent. When we look within MZ twins, the estimated premium does not fall. In fact, the point estimate increases to approximately 26 percent. These results are robust to alternative specifications of the wage equation and various attempts to control for measurement error. Thus, the findings indicate that little, if any, of the marital wage premium is due to the selection of more productive men into marriage.

Previous studies of the marital wage premium, have attempted to control for unobservable heterogeneity by using panel data to difference out individual-level fixed effects (e.g., Sanders Korenman and David Neumark, 1991; Eng Seng Loh, 1996; Christopher Cornwell and Peter Rupert, 1997; Jeffrey Gray, 1997; Leslie Stratton, 2002). Estimates from these studies vary considerably. While some authors report that the marital wage premium disappears once individual-level fixed effects have been controlled for, others report that the marital wage premium remains positive and significant.

There are numerous potential problems with these fixed-effects estimates. First, these estimates are likely to be biased if past earnings shocks affect current marital status. For example, if men are more likely to get married after receiving a positive wage shock, then fixed-effects estimates of the causal effect of marriage

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[1] A common criticism of twin-studies estimates of the returns to schooling is that they may exacerbate the biases caused by unobserved heterogeneity since there are likely to be unobservable differences even between identical twins, and it is difficult to imagine what, besides those unobservable differences, would lead twins to choose different levels of education. Our study may be less open to this criticism since there is arguably a larger random component to marital status. See John Bound and Gary Solon (1999) for a complete discussion of the biases associated with twin-based estimation.

on wages are likely to be biased downward due to regression to the mean.[2] In addition, fixed-effects estimates will also be biased if unobserved productivity is time-varying. For example, fixed-effects estimates of the marital wage premium will be biased upward if men postpone marriage until increases in their unobserved productivity lead to higher wages.

Only one other paper, Harry Krashinsky (2004), uses twin data to study the impact of marriage on wages. As in Ashenfelter and Krueger (1994), his data were collected from the Twinsburg Twins Festival. Krashinsky's cross-sectional results imply that married male twins earn 23 percent more than unmarried twins. However, the within-twin estimates drop the returns to marriage to 6 percent, but the standard errors are large (7.7 percent), and thus it is difficult to infer much about the causal relationship between wages and marriage from his study.

I. Empirical Framework

We assume that w_{ij}, the logarithm of wages for individual $i \in \{1, 2\}$ from family j is given by

$$(1) \qquad w_{ij} = \beta M_{ij} + \boldsymbol{\gamma}\mathbf{X}_{ij} + \mu_{ij} + f_j + u_{ij}$$

where M_{ij} takes on the value of 1 if the man is married and 0 otherwise, $\mathbf{X}_{ij}$ is a vector of control variables including age, experience and years of schooling, μ_{ij} is an individual-specific, genetically determined earnings endowment, f_j is a family-specific earnings endowment, and u_{ij} is a mean-zero independently and identically distributed error term. It is assumed that μ_{ij}, f_j, and u_{ij} are unobservable to the econometrician.

The parameter of interest in this study is β, the marginal impact of marriage on wages. If more-productive men select into marriage, then M_{ij} will be positively correlated with either μ_{ij} or f_j (or both) and the ordinary least-squares (OLS) estimate of β will be biased upward. A major goal of this and other studies of the marital wage premium is to eliminate this selection bias so that the resulting estimate of β can be interpreted as the causal effect of marriage on wages.

For an MZ twin pair, equation (1) can be rewritten as

$$(2) \qquad w_{1j} = \beta M_{1j} + \boldsymbol{\gamma}\mathbf{X}_{1j} + \mu_{1j} + f_j + u_{1j}$$

$$(3) \qquad w_{2j} = \beta M_{2j} + \boldsymbol{\gamma}\mathbf{X}_{2j} + \mu_{2j} + f_j + u_{2j}.$$

The principal identifying assumption in our analysis is that, for MZ twins, $\mu_{1j} = \mu_{2j}$. That is, we assume that the genetically determined, individual-specific earnings endowment is identical across twins. Given this assumption it is possible to difference equations (2) and (3) so that

$$(4) \qquad w_{1j} - w_{2j} = \beta(M_{1j} - M_{2j}) + \boldsymbol{\gamma}(\mathbf{X}_{1j} - \mathbf{X}_{2j}) + (u_{1j} - u_{2j}).$$

Differencing equations (2) and (3) sweeps out individual-specific and family-specific earnings endowments. As a result, the least-squares estimate of equation (4) produces an unbiased estimate of β. If the estimates of β from equations (1) and (4) are similar, then this suggests that marital status is unrelated to unobserved productivity.

II. Data Description

Our data come from the Socioeconomic Survey of Twins.[3] This survey was sent to a subset of twins from the Minnesota Twins Registry (MTR). The MTR is the largest birth-record-based twin registry in the United States and comprises about 80 percent of the approximately 10,400 surviving intact twin pairs born in Minnesota from 1936 through 1955. Between 1983 and 1990, the MTR staff was able to locate both members of about 80 percent of the surviving pairs and sent them a four-page bibliographic questionnaire (BQ). Then, between May and November of 1994, the Socioeconomic Survey of Twins was sent to the members of the pairs who had filled out the BQ and for whom the MTR still had a current address.

[2] See Joshua Angrist and Krueger (1999) for a full discussion.

[3] See Behrman et al. (1996) for further discussion of the data.

In total, data are available from both members of 487 male twin pairs, of which 280 pairs are MZ. Our analysis focuses solely on these MZ pairs.

Our indicator of marital status is current marital status.[4] It takes on a value of 1 if the individual is currently married and 0 otherwise. Our measure of schooling is constructed using the respondents' report of their highest completed degree. From these reports we construct four indicator variables for whether an individual has less than a high-school degree, a high-school degree but no college degree, a college degree but no postgraduate degree, or a postgraduate degree. The other right-hand-side variables include tenure at current job and region-of-the-country dummy variables. For the cross-sectional analysis we also include age and age-squared as additional control variables.

We restrict our sample in a number of ways. First, we consider only individuals who work at least 26 weeks per year and at least 20 hours per week. In addition, we drop observations in which individuals earn above $60/hour (less than 6 percent of the sample) or below $4.25/hour (the Federal minimum wage in 1994). We also drop a small number of observations in which individuals report working more than 100 hours per week. For two individuals who indicate that they worked more than 52 weeks per year, we code them as having worked 52 weeks. Observations with missing data are dropped. We lose 116 twin pairs due to missing values and an additional 28 twin pairs due to our sample-selection criteria. Cleaning the data leaves us with 136 MZ twin pairs. The twins in 31 (23 percent) of these pairs differ in their marital status.

In order to determine whether our sample is representative of the U.S. population, Table 1 compares the means of various demographic and job-tenure variables for the twins in our sample to those of a similarly selected cohort of men in the 1995 March supplement of the Current Population Survey. The CPS sample is similar to our sample of twins with regard to average age, weeks worked per year, hours worked per week, and percentage married. In addition, consistent with previous studies, we find that unmarried men earn less, are younger, are less educated, and have lower job tenure than their married counterparts.

TABLE 1—COMPARISON OF MINNESOTA TWIN SAMPLE AND THE CURRENT POPULATION SURVEY

	Twins sample		CPS	
Variable	Unmarried	Married	Unmarried	Married
Hourly wage	17.2	21.5	15.2	18.8
	(10.3)	(10.4)		
Age in years	45.3	47.5	46.0	47.1
	(5.2)	(5.2)		
Weeks worked per year	51.0	50.5	49.8	50.7
	(2.5)	(4.0)		
Hours worked per week	44.6	46.0	43.3	45.5
	(11.0)	(9.5)		
Less than high school	0	0.9	12.1	9.9
		(9.3)		
High school	63.4	53.7	59.6	54.8
	(48.8)	(50.0)		
College	19.5	25.1	18.2	20.0
	(40.1)	(43.5)		
More than college	17.1	20.3	10.0	15.4
	(38.1)	(40.3)		
Tenure	11.7	14.6	—	—
	(9.3)	(9.8)		
Northeast	0	0.4	18.7	20.5
		(6.6)		
Midwest	82.9	86.6	22.2	24.1
	(38.1)	(34.2)		
South	2.4	4.3	33.9	34.4
	(15.6)	(20.4)		
West	14.6	8.7	25.1	20.9
	(35.7)	(28.2)		
N:	41	231	3,736	13,862

III. Results

The first column of Table 2 presents the cross-sectional regression results of the logarithm of wages on the marriage indicator and our other explanatory variables. The coefficient on marital status is 0.19 (t statistic = 1.98). Thus, in the cross section, married men earn a 19-percent higher wage than unmarried men, controlling for other characteristics. In line with other cross-sectional work on the returns to schooling, the parameter estimates also indicate wages increase with education (e.g., Ashenfelter and Krueger, 1994).

The second column of Table 2 reports the within-twin coefficient estimates of the return to

[4] We also explored including an indicator for divorced and widowed, and the results are not qualitatively different from those we report here.

TABLE 2—REGRESSION OF LOGARITHM OF WAGES ON MARITAL STATUS

Variable	Cross section	Within MZ twins
Currently married	0.19*	0.26**
	(0.096)	(0.098)
High school	0.49	0.15
	(0.25)	(0.40)
College	0.85**	0.21
	(0.26)	(0.42)
More than college	0.85**	0.25
	(0.27)	(0.42)
Age	0.10	—
	(0.10)	
Age-squared	−0.00087	—
	(0.0011)	
Tenure	0.011	0.017
	(0.011)	(0.014)
Tenure-squared	−0.00030	−0.00045
	(0.00034)	(0.00043)
Midwest	0.083	0.51
	(0.081)	(0.55)
South	0.17	0.22
	(0.16)	(0.57)
West	0.12	0.31
	(0.12)	(0.57)
N:	272	136
R^2:	0.20	0.10

* Statistically significant at the 5-percent level.
** Statistically significant at the 1-percent level.

marriage. The coefficients indicate that men who are married earn 26 percent more than unmarried men (t statistic = 2.69). Furthermore, under the assumption that within-twin differences in marital status are exogenous, then the 26-percent increase in wages associated with marriage has a causal interpretation. The estimated returns to education are positive but substantially smaller than the OLS estimates. Since, these education coefficients are imprecisely estimated, we cannot infer much about the returns to education.

A well-known problem with first-differencing equations (2) and (3) is that doing so tends to exacerbate the biases caused by measurement error, especially if the right-hand-side variables are highly correlated within twins (Zvi Griliches, 1979). Fortunately, marital status can be inferred from two separate questions in the survey. In only two cases does the respondent give conflicting answers, and our results do not change when we drop these individuals from our analysis. In addition, we have estimated β both in the cross section and within twin pairs using each twin's report of the other's schooling as an instrument (here education is treated as a continuous variable) using a strategy suggested by Ashenfelter and Krueger (1994). The results are very similar to the non-instrumental-variables estimates.

It is noteworthy that the implied marital wage premium from the within-twin-pairs regression is similar in magnitude to the cross-sectional estimate, suggesting that men are not selecting into marriage based on unobserved heterogeneity in earnings capacity. Thus, we find no evidence that the observed marital wage premium arises due to the selection of more productive men into marriage. In addition, the estimated coefficient on marital status remains above 0.21 when wage at first full-time job, wife's full-time work experience, or number of children is included in our analysis.

IV. Conclusion

In this paper, we examine why married men earn more than men who are not currently married. We use data on monozygotic twins to distinguish between the selection hypothesis (that more productive men are more likely to marry) and the hypothesis that marriage causes men's wages to rise. Our results provide little support for the selection hypothesis. Even within MZ twins, the marital wage premium remains large, and the point estimate is on par with that from cross-sectional regressions. Thus, the answer to the question posed in the title of our paper, appears to be "no." Not all the good men are married. Rather, our results suggest that marriage causes men's wages to rise.

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