Is Marriage Premium Distributed Equally to Everyone?
Heterogeneous Returns to Marriage for Individual Well-Being in China*

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Abstract

This study aims to examine how returns to marriage differ across individuals with varying tendencies to get married, who are heterogeneous on unobserved characteristics. This speaks to the endogeneity issue for the marriage-wellbeing relationship by comparing individuals with similar propensities towards marriage. Specifically, using 2006 China General Social Survey, I apply Brand and Xie's (2010) framework of heterogeneous treatment effect and evaluate marriage premiums regarding a variety of well-being outcomes, within different strata determined by estimated propensities to get married. Moreover, I investigate how the returns to marriage differ across gender as well as well-being outcomes. Preliminary results show that men consistently benefit from marriage. However, women suffer in terms of socioeconomic status, life satisfaction and happiness, while receive premium regarding satisfaction with self health status. There is some evidence for negative selection regarding socioeconomic status and satisfaction with self health status, and positive selection regarding life satisfaction and happiness.

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Introduction

Marriage has long been one of the most important institutions that build the foundation of social performance and production (Becker 1981; Bumpass 1998; Cherlin 2009). There has been a widely established relationship between marriage and individual well-being (Clarkberg 1999; Waite and Lehrer 2003; Loughran and Zissimopoulos 2009). Within the literature, marriage brings benefits to the couple either by enabling division of labor within the household (Becker 1981; Waite 1995; Gorman 1999, 2000) or by the emotional support it provides through the intimate contacts with one's spouse (Waite and Gallagher 2000). However, field of marriage premium is also a contested terrain within the literature as some studies argue marriage premium could be a mere artifact driven by self-selection into marriage (Waite 1995; Nock 1999). For example, those healthier and richer individuals are more attractive within the marriage market and thus are more likely to get married (Xie et al. 2002; Sweeney 2002). Some other studies provide evidence for the reciprocal relationship between marriage and individual well-being (Smock and Manning 1997; Rogers 1999; Sweeney 2002; Xie et al. 2003; Kalmijn and Luijkx 2005; Smock, Manning and Porter 2005). Therefore, the conventional multivariate analysis can hardly address the above issues due to their inability accounting for counterfactuals (Brand and Xie 2010; Xie 2011) and also their tendency drawing inappropriate comparisons between individuals highly different in characteristics that may influence likelihood of marriage.

Brand and Xie's (2010) framework of heterogeneous treatment effect provides an ideal device to settle this endogeneity issue. Based on this framework, individuals are divided into strata with differential propensities to get married, as estimated by an array of variables depicting one's profile as a marriage candidate. Then we can evaluate marriage premium within strata, among those who are comparable to each other regarding likelihood getting married. This may not only produce better justified estimation of marriage premiums, but also could provide examination of the evolution of the premiums along marriage tendency and draw conclusion on the directions of the selection into marriage.

Gender is also crucial within this story and I will compare marriage premiums across gender as well. It has been concluded that returns to marriage differ for men and women (Dougherty 2006; Killewald and Gough 2011). The key agreement reached argues that men may benefit (Loh 1996; Nock 1998; Hersch and Stratton 2000; Chun and Lee 2001; Cohen 2002) while women may suffer from marriage (Sorenson and McLanahan 1987; Holden and Smock 1991; Gershuny 1996; Waldfogel 1997; Budig 2001; Crittenden 2001; Avellar and Smock 2003; Edin and Kefalas 2005; Glauber 2007), mainly

due to their heavier responsibilities for housework and child caring (Hochschild and Maching 1989; Taniguichi 1999; Noonan 2001). However, women can also benefit when the norm of female employment gains in power (Smock, Manning and Gupta 1999; Killewald and Gough 2011; Oppenheimer 1997b) and men's benefit may decrease accordingly, especially under the context of rising inequality (Oppenheimer 1994, 1997a). Note that those changes are most likely to happen among women with stronger employment qualifications, who are also more likely to rank high as a marriage candidate. Therefore, the framework of heterogeneous treatment effect also enables us to locate those women within the distribution of the marriage likelihood.

Furthermore, returns to marriage differ across outcomes due to differential mechanisms for the various aspects of individual well-being (Waite 1995; Waite and Gallagher 2000). For example, although women may suffer financially from responsibilities for child care, they may simultaneously benefit emotionally from the same process (Waite and Gallagher 2000). Therefore, examining marriage premiums regarding various types of well-being may aid investigation of the underlying mechanisms.

To recapitulate, this study contributes to the literature of marriage premiums by accounting for the self-selection issue and providing evaluation of "true" returns to marriage. It also facilitates a gender perspective and provides the possibility to explore mechanisms of the premiums through comparison of the premiums across differential well-being outcomes. Moreover, China, as a country undergoing tremendous social changes in the past decades, facilitates thorough examination of marriage premiums with both traditional and modern family practices existing.

Data and Methods

Data from the 2006 China General Social Survey (CGSS 2006) are used for this analysis. CGSS is an annually or biannually conducted survey since 2003. It aims to investigate the changing relationship between social structure and quality of life in China among Chinese adults. It is nationally representative with a sampling frame consisting of 2,801 county- or district-level administrative units and including 22 provinces, 4 autonomous regions and 4 central municipalities. The CGSS 2006 sample includes 10,151 individuals aged 18 to 69. The sample is restricted to respondents married or single at the time of the survey. This restriction leaves us with 4,437 men and 5,082 women.

As abovementioned, heterogeneous treatment effect framework (Brand and Xie 2010; Xie 2011) will be used for the main analysis. In the first step, to estimate the propensity score, a rich array of pre-marriage variables (rural/urban status, minority status, education before marriage, party membership and religion) will be included. Secondly, individuals will be divided into strata based on propensity score and

I will conduct multiple balance tests to ensure both the number of observations and individual characteristics are well comparable within each stratum. Then heterogeneous marriage premiums will be estimated within each stratum and seven well-being outcomes within three aspects will be used: Socioeconomic status (natural logarithm of income for salary earners, natural logarithm of income for business owners, self-rated individual socioeconomic status and self-rated family socioeconomic status), emotional well-being (overall life satisfaction and happiness) and health (satisfaction with self-health).

Future Directions

This study will be further developed by (1) finding better measurements for well-being outcomes, especially for socioeconomic and health outcomes; (2) selecting more pertinent predictors for propensity scores; (3) specifying propensity score strata with more thorough and systematic balance tests.

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Table 1. Propensity Score Estimation with Logit Model

VARIABLES	(1) Men	(2) Women
rural (Ref=urban)	-0.628***	-0.972***
	(0.105)	(0.124)
minority (Ref=Han)	-0.294†	-0.582**
	(0.173)	(0.200)
Education (Ref=Senior high school)		
Primary school and below	1.731***	3.675***
	(0.150)	(0.251)
Junior high school	0.987***	1.428***
	(0.116)	(0.136)
Associate college	-1.256***	-1.423***
	(0.141)	(0.140)
College and above	-1.451***	-1.881***
	(0.164)	(0.176)
Other	-2.934*	-1.772†
	(1.405)	(1.004)
Pary member(Ref=non party member)	2.220***	1.447***
	(0.204)	(0.273)
theist (Ref=atheist)	-0.226	-0.209
	(0.138)	(0.147)
Constant	1.361***	1.772***
	(0.086)	(0.094)
Observations	4437	5082

†<0.10, *p<0.05, **p<0.01, ***p<0.001. Numbers in the parentheses under the coefficients are their respective standard errors.

Table 2. Married-Ln(income1) Relationship

Variables	Men		Women	
	Homogeneous	Heterogeneous	Homogeneous	Heterogeneous
Married (Ref=single)	-0.213	0.324	-0.265	-0.080
	(0.141)	(0.254)	(0.180)	(1.805)
Strata (Ref=3 for men; Ref=4 for women)				
Strata1		0.736*		0.898
		(0.291)		(1.790)
Strata2		-0.590		-0.253
		(0.739)		(1.822)
Strata4 for men; 3 for women		2.030**		-0.263
		(0.661)		(1.879)
Strata5		0.239		-1.278
		(0.904)		(3.559)
Interactions: Married				
**Strata1*		-0.514		-0.284
		(0.319)		(1.819)
**Strata2*		1.095		0.612
		(0.829)		(1.856)
**Strata4 for men; 3 for women*		-2.460***		0.633
		(0.697)		(1.907)
**Strata5*		-0.552		1.213
		(0.916)		(3.577)
Constant	7.386***	6.869***	7.160***	6.576***
	(0.131)	(0.238)	(0.168)	(1.780)
N	2730	2730	2687	2687

†<0.10, *p<0.05, **p<0.01, ***p<0.001. Numbers in the parentheses under the coefficients are their respective standard errors.

Notes: Models estiamted on 2006 CGSS. Dependent variable: natural logarithm of income for salary earners.

Table 3. Married-Ln(income2) Relationship

Variables	Men		Women	
	Homogeneous	Heterogeneous	Homogeneous	Heterogeneous
Married (Ref=single)	-0.588	-0.604	-1.390*	-4.441
	(0.394)	(0.684)	(0.556)	(5.119)
Strata (Ref=3 for men; Ref=4 for women)				
Strata1		-0.020		-3.596
		(0.811)		(5.080)
Strata2		3.071		-6.261
		(2.634)		(5.157)
Strata4 for men; 3 for women		-3.213†		-5.153
		(1.691)		(5.311)
Strata5		1.468		-1.764†
		(1.917)		(1.049)
Interactions: Married				
**Strata1*		-0.351		2.438
		(0.885)		(5.170)
**Strata2*		-2.952		5.079
		(2.756)		(5.249)
**Strata4 for men; 3 for women*		3.281†		3.739
		(1.758)		(5.395)
**Strata5*		-1.257		0.000
		(1.957)		(0.000)
Constant	10.877***	10.940***	11.792***	16.118**
	(0.367)	(0.645)	(0.529)	(5.038)
N	1122	1122	933	933

†<0.10, *p<0.05, **p<0.01, ***p<0.001. Numbers in the parentheses under the coefficients are their respective standard errors.

Notes: Models estiamted on 2006 CGSS. Dependent variable: natural logarithm of income for business owners.

Table 4. Married-Self-rated Individual SES Relationship

Variables	Men		Women	
	Homogeneous	Heterogeneous	Homogeneous	Heterogeneous
Married (Ref=single)	-0.053	0.045	-0.189***	-0.053
	(0.038)	(0.073)	(0.042)	(0.475)
Strata (Ref=3 for men; Ref=4 for women)				
Strata1		0.276***		0.275
		(0.081)		(0.470)
Strata2		-0.255		0.029
		(0.208)		(0.478)
Strata4 for men; 3 for women		-0.294*		-0.032
		(0.142)		(0.491)
Strata5		-0.195		-0.750
		(0.270)		(0.810)
Interactions: Married				
**Strata1*		-0.016		0.061
		(0.090)		(0.478)
**Strata2*		0.287		0.081
		(0.226)		(0.487)
**Strata4 for men; 3 for women*		0.057		0.006
		(0.149)		(0.498)
**Strata5*		0.251		0.605
		(0.273)		(0.815)
Constant	2.870***	2.733***	2.962***	2.750***
	(0.035)	(0.068)	(0.039)	(0.468)
N	4437	4437	5082	5082

†<0.10, *p<0.05, **p<0.01, ***p<0.001. Numbers in the parentheses under the coefficients are their respective standard errors.

Notes: Models estiamted on 2006 CGSS. Dependent variable: self-rate individual socioeconomic status 1=NA; 2=low; 3=mid-low; 4=middle; 5=high.

Table 5. Married-Self-rated Family SES Relationship

Variables	Men		Women	
	Homogeneous	Heterogeneous	Homogeneous	Heterogeneous
Married (Ref=single)	-0.051	0.045	-0.187***	-0.053
	(0.038)	(0.072)	(0.042)	(0.474)
Strata (Ref=3 for men; Ref=4 for women)				
Strata1		0.271***		0.270
		(0.081)		(0.469)
Strata2		-0.255		0.029
		(0.207)		(0.478)
Strata4 for men; 3 for women		-0.294*		-0.032
		(0.142)		(0.491)
Strata5		-0.195		-0.750
		(0.269)		(0.809)
Interactions: Married				
**Strata1*		-0.011		0.066
		(0.090)		(0.477)
**Strata2*		0.268		0.075
		(0.226)		(0.486)
**Strata4 for men; 3 for women*		0.057		0.006
		(0.149)		(0.498)
**Strata5*		0.247		0.605
		(0.273)		(0.814)
Constant	2.867***	2.733***	2.958***	2.750***
	(0.035)	(0.068)	(0.039)	(0.467)
N	4434	4434	5079	5079

†<0.10, *p<0.05, **p<0.01, ***p<0.001. Numbers in the parentheses under the coefficients are their respective standard errors.

Notes: Models estiamted on 2006 CGSS. Dependent variable: self-rate family socioeconomic status 1=NA; 2=low; 3=mid-low; 4=middle; 5=high.

Table 6. Married-Life Satisfaction Relationship

Variables	Men		Women	
	Homogeneous	Heterogeneous	Homogeneous	Heterogeneous
Married (Ref=single)	0.034	0.094*	-0.097***	0.205
	(0.024)	(0.046)	(0.027)	(0.307)
Strata (Ref=3 for men; Ref=4 for women)				
Strata1		0.165**		0.335
		(0.052)		(0.304)
Strata2		-0.284*		0.163
		(0.135)		(0.310)
Strata4 for men; 3 for women		-0.199*		0.013
		(0.090)		(0.318)
Strata5		0.013		-1.000†
		(0.172)		(0.524)
Interactions: Married				
**Strata1*		-0.135*		-0.334
		(0.058)		(0.309)
**Strata2*		0.269†		-0.121
		(0.146)		(0.315)
**Strata4 for men; 3 for women*		0.189*		-0.048
		(0.095)		(0.323)
**Strata5*		0.056		0.873†
		(0.174)		(0.528)
Constant	2.681***	2.602***	2.780***	2.500***
	(0.022)	(0.043)	(0.025)	(0.303)
N	4417	4417	5054	5054

†<0.10, *p<0.05, **p<0.01, ***p<0.001. Numbers in the parentheses under the coefficients are their respective standard errors.

Notes: Models estiamted on 2006 CGSS. 1=very unsatisfied with own life; 2=unsatisfied; 3=satisfied; 4=very satisfied.

Table 7. Married-Life Happiness Relationship

Variables	Men		Women	
	Homogeneous	Heterogeneous	Homogeneous	Heterogeneous
Married (Ref=single)	0.082**	0.150**	-0.127***	0.515
	(0.028)	(0.054)	(0.031)	(0.355)
Strata (Ref=3 for men; Ref=4 for women)				
Strata1		0.175**		0.645†
		(0.060)		(0.352)
Strata2		-0.048		0.465
		(0.155)		(0.358)
Strata4 for men; 3 for women		-0.414***		0.308
		(0.106)		(0.368)
Strata5		-0.309		-0.500
		(0.201)		(0.606)
Interactions: Married				
**Strata1*		-0.109		-0.566
		(0.067)		(0.357)
**Strata2*		-0.056		-0.436
		(0.169)		(0.364)
**Strata4 for men; 3 for women*		0.310**		-0.452
		(0.111)		(0.373)
**Strata5*		0.334		0.369
		(0.204)		(0.610)
Constant	2.379***	2.309***	2.587***	2.000***
	(0.026)	(0.051)	(0.029)	(0.350)
N	4437	4437	5082	5082

†<0.10, *p<0.05, **p<0.01, ***p<0.001. Numbers in the parentheses under the coefficients are their respective standard errors.

Notes: Models estiamted on 2006 CGSS. Dependent variable: 1=respondent unhappy with overall life; 2=neutral; 3=happy; 4=very happy.

Table 8. Married-Satisfaction with Self-Health Relationship

Variables	Men		Women	
	Homogeneous	Heterogeneous	Homogeneous	Heterogeneous
Married (Ref=single)	0.124***	0.035	0.270***	-0.045
	(0.027)	(0.052)	(0.030)	(0.336)
Strata (Ref=3 for men; Ref=4 for women)				
Strata1		-0.144*		-0.396
		(0.058)		(0.332)
Strata2		0.016		-0.483
		(0.148)		(0.339)
Strata4 for men; 3 for women		0.419***		-0.301
		(0.101)		(0.348)
Strata5		-0.061		1.250*
		(0.192)		(0.573)
Interactions: Married				
**Strata1*		0.088		0.207
		(0.064)		(0.338)
**Strata2*		0.039		0.275
		(0.161)		(0.344)
**Strata4 for men; 3 for women*		-0.279**		0.259
		(0.106)		(0.353)
**Strata5*		0.175		-1.034†
		(0.194)		(0.577)
Constant	1.926***	1.984***	1.856***	2.250***
	(0.025)	(0.048)	(0.028)	(0.331)
N	4436	4436	5080	5080

†<0.10, *p<0.05, **p<0.01, ***p<0.001. Numbers in the parentheses under the coefficients are their respective standard errors.

Notes: Models estiamted on 2006 CGSS. Dependent variable: 1=very unsatisfied with own health; 2=unsatisfied; 3=satisfied; 4=very satisfied.