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Reexamining the Economics of Marital Infidelity

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Abstract

This study utilizes data from the National Youth Survey to reevaluate key conclusions made by Fair (1978). While Fair (1978) used data collected from mail-in surveys, the National Youth Survey was collected using standard probability techniques. This paper also extends Fair (1978), by including an explicit variable for wage rate. While this study supports some of Fair's empirical findings, other estimates contradict Fair in several key ways. For example, this paper finds that the coefficients of occupation and education are both statistically significant but the signs are opposite to those in Fair (1978). An even more noteworthy contradiction is the negative relationship between years of marriage and infidelity; this suggests that marriage longevity is positively related to that of match quality of the relationship.

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1. Introduction

Extramarital affairs are common in the U.S. According to one scientific survey, 1 out of every 6 married Americans have cheated on their spouse. Through blind paternity tests, Buss (2000) finds that 10% of children have genetic fathers that are different than the person claiming fatherhood. The Global Sex Survey reveals that 50% of Americans have slept with 'someone else' while *still* in a relationship with a partner.

Given the prevalence of extramarital affairs, the corresponding body of economic research is small. Fair's (1978) seminal research explains the phenomenon by deriving a simple utility maximization model. Relying on mail-in surveys from popular magazines, Fair (1978) estimates that extramarital affairs are influenced by factors such as religiosity and marital satisfaction.

Two strains of research have developed since Fair (1978). The first strain uses Fair's (1978) dataset to test new econometric methods (Wang, 1997; Yen 1999; Wells, 2003; Li and Racine, 2004). The second strain uses data to test economic theory based on biology (Cameron, 2002; Elmslie and Tebaldi 2008).

This paper is the first to test Fair's economic theory with a previously unexplored dataset. Instead of using mail-in surveys, I use the National Youth Survey (NYS). Employing NYS data is ideal for the following reasons: (1) the NYS is collected with probability sampling techniques; (2) the NYS includes all variables that Fair (1978) *did* possess; (3) the NYS includes important variables that Fair (1978) *did not* possess.

Contradicting Fair (1978), empirical estimates show a negative association between years of marriage and infidelity, suggesting that marriage longevity is a signal for the match quality of a relationship. In addition, this paper is able to explicitly control for individual wage rates in the regression analysis. While the wage rate has a theoretically ambiguous effect on the decision to cheat, estimates show that cheating is not influenced by wages.[1]

2. Data and the Econometric Model

Variables unobserved by Fair (1978) are located in the National Youth Survey, 1987. This dataset includes the response to survey questions about many aspects of life. All respondents during were 21-28 years old. Out of the 1,725 respondents, 553 were married and living with their spouse so the relevant population is 553. The survey asks the following: "How often have you slept with your spouse in the past year?" and "How often have you slept with someone that was not your spouse in the past year?" If all the respondents were faithful to their spouses, the answers to these questions would be mutually exclusive; however, as some individuals reported, they had slept with their spouse *and* somebody else during the previous year. This "somebody else" is what Fair (1978) defines as a paramour, and my definition for an extramarital affair is the following: the individual is currently married, living with the spouse, and has reported sexual

[1] Refer to Fair (1978) for relevant theoretical derivations.

relations (at least once) with a paramour during the past year. Roughly ten percent of the sample satisfy the above three criteria. The variable chosen to represent the theoretical variable, t_s, is *AffairRate*.

Survey respondents were asked specifically about their rate of sexual encounters with the paramour. Their answers were coded with values ranging from 0 to 7. If the respondent did not engage in an affair they received a 0 value while a respondent received a 7 if they had relations with their paramour every day. Intermediate levels of activity with a paramour were coded from 2-6 depending on the frequency of encounters. The mean value for the dependent variable is 0.29.

This dependent variable is quite similar to the one used in Fair (1978). It is expected that *AffairRate* is correlated with the theoretical term t_s. The general form of the full Tobit model is given by:[2]

$$\begin{aligned} AffairRate = {} & \alpha_0 + \alpha_1 Occupation + \alpha_2 Education + \alpha_3 SpouseOccupation \\ & + \alpha_4 MaritalSatisfaction + \alpha_5 Kids + \alpha_6 Religiousness + \alpha_7 Male \\ & + \alpha_8 YearsMarried + \alpha_9 Age + \varepsilon \end{aligned} \quad (1)$$

Since measures of occupation were needed for many of the regressions, non-employed individuals were removed from the sample.[3] Independent variables are described below along with the theoretical prediction of their signs.

Occupation was derived from the Hollingshead index in reverse order. Essentially, the *Occupation* variable measures social status from 1-7 with a 7 being the highest social status possible. This measure is positively correlated with education and Fair (1978) hypothesized that it was also positively correlated with wages. The expected sign of the coefficient is ambiguous.

As in Fair (1978), *Education* is equal to 9 if the individual was a high school dropout, 12 if they only completed high school, 14 if they did some college work, 16 if they graduated with a college degree, and 17 if they did some post-graduate work. This variable is also correlated with wages so the expected coefficient of *Education* is also ambiguous.

SpouseOccupation is similar to that of *Occupation*, the only difference is that it measures the socio-economic status of the respondent's spouse. The coefficient for this variable is expected to be negative.

The variable *SpouseSatisfaction* was taken from a list of six questions that ranged from "How satisfied are you with your spouse?" to "How much do you have in common with your spouse?" Each answer ranged from 1-5, with the value of 5 rating the spouse in the most favorable way. The six measures were summed and divided by six in order to obtain an average. This serves as a more accurate measure of overall satisfaction than an answer to a single question. The coefficient of *Spouse_satisfaction* is expected to be negative since the variable is positively correlated with E_1.

Kids is a dummy variable equal to one when the respondent reported having at least one child. As this variable is correlated with E_1, the coefficient is expected to be negative.

[2] The Tobit is used since the dependent variable is left-censored.
[3] This will reduce the relevant sample size to 434.

The variable *religiousness* is used to measure how religious an individual is. Each respondent answered the following questions. "During the past year, how often did you attend religious services?" An answer of 5 indicates the individual attended a religious service several times a week. Secondly, "how important has religion been in your life?" An answer of 5 indicates that religion is very important. The average of the answers to the above questions is used for the variable named *religiousness*. The coefficient of *religiousness* is expected to be negative since a highly religiousness individual will presumably derive less utility from ending the marriage, *ceteris paribus*.

Male is a dummy variable that is equal to one when the respondent reported being a male. Fair (1978) does not make a prediction on the effect of being male.

The *yearsmarried* variable is calculated as the number of years since marriage. This is perhaps the most controversial variable in Fair (1978); he hypothesizes that the number of years married will be *positive* since the longer someone is both married and monogamous, the more the utility they will yield from introducing "variety" into life. An alternative explanation is that marriage longevity will be negatively related with the number of affairs since it is a signal of match quality. Although Fair (1978) finds that the coefficient of years married is positive, when Li and Racine (2004) use non-parametric techniques with the same data, they conclude years married does not predict extramarital encounters.

3. Results

There are both similarities and differences between my estimates and those from Fair (1978).[4] For example, the marital happiness coefficient is negative in both studies. As spousal satisfaction increases, the rate of extramarital affairs decrease. Also in agreement is the degree of religiosity; as religiosity increases, the rate of extramarital affairs decrease. Both marital satisfaction and religiousness have negative and statistically significant coefficients as theory predicts. These results hold for each of the regressions in this paper. The male coefficient has the same sign as Fair (1978), although my coefficient is larger and has a higher degree of statistical significance. It is well-documented that men cheat more than women on average, and my estimations provide evidence that this holds even when other factors are held constant.

However, there are notable differences across studies. In both, the signs for the occupation and education coefficients oppose each other. Theory suggests these two coefficients will have matching signs since they are both positively correlated with the wage rate, yet the estimation results in table 3 reveal opposing signs. Occupational status is negative with the NYS data and positive in Fair (1978), while educational attainment is positive with NYS data and negative in Fair (1978). Any economic interpretation for these results is allusive.

Estimates for the length of marriage do not support Fair (1978). He finds that years married is positively correlated with the dependent variable. Conversely, I find that the length of marriage coefficient is negative and statistically significant; my results suggest that match quality dominates the effect of increased utility yielded by sexual variety.

Since the age range for respondents in the NYS dataset is narrow, the necessity of including an age variable in the regression was not immediately clear. Table 3 in the appendix includes regressions with and without the age variable. The age coefficient is negative and

[4] Table 4 compares Fair (1978) with results from NYS data.

statistically insignificant. Also, given the nature of the data, multicollinearity could be an issue (e.g. kids and yearsmarried are correlated). However, the correlation matrix of independent variables reveals that correlation between independent variables is not severe. For example, the correlation coefficient of kids and yearsmarried is 0.4. Furthermore, signs and statistical significance of the independent variables are largely robust to alternative specifications.[5]

4. Inclusion of Theoretically Important Variables

The NYS dataset provides two theoretically important variables, wages and spousal income, that were not available to Fair (1978). Wage is the most important variable in his theoretical model, because as seen previously, the proxies (occupation and education) for wage rate are not consistent with each other. The Tobit model is specified as follows:

$$AffairRate = \beta_0 + \beta_1 wage + \beta_2 SpouseIncome + \beta_3 SpouseOccupation + \theta X + \varepsilon \qquad (2)$$

Where the respondent's reported hourly wage rate at their primary job during 1986 (reported in 1986 dollars) is defined as *wage*. *SpouseIncome* is the respondent's answer to the total amount of income earned by their spouse in 1986. The theoretical prediction of the wage coefficient is ambiguous according to Fair (1978). Meanwhile, theory predicts that the spousal income coefficient will be negative since there is a likely positive relationship with the theoretical value, E_1. X is a matrix of control variables similar to those used in the table 3 regressions.[6] Table 5 shows the results from estimations that include the wage variable.

Interestingly, both the wage and spousal income coefficients are not statistically different from zero. For the wage coefficient, this suggests that neither the substitution nor income effect is dominating. However, since the Pseduo-R2s are smaller than those in the first set of regressions, the inclusion of these theoretically important variables do not add much strength to the empirical investigation. The signs and magnitude of the original variables in the X matrix are robust to model specification.

5. Conclusion

Fair's (1978) model of an individual's decision to "betray" their spouse describes marital happiness as one of the key exogenous variables that will affect ones decision to "cheat." Fair (1978) describes the value of marital happiness as having a causal effect on the amount of cheating. My research confirms this conclusion. However, the empirical estimates of this study contradict Fair's study in several key ways. For example, this paper finds that the coefficients of

[5] For example, when the kids variable is dropped from the table 3 regressions, the years married coefficient is -0.53*** in regression 1, -0.44** in regression 2, and -0.55** in regression 3. Since the years married coefficient is essentially unchanged when the kids variable is dropped, multicollinearity does not appear to be an issue. Data and regressions are available from the author upon request.

[6] Since education and occupation serve as a wage proxy in Fair (1978), they are dropped from the X matrix.

occupation and education are both statistically significant but the signs are the opposite of those in Fair (1978). Even more noteworthy is the negative relationship between years of marriage and infidelity; this result suggests that marriage longevity is positively related to that of match quality of the relationship. Fair (1978) suggested a positive relationship is expected between marriage longevity and infidelity since the marginal utility of cheating will increase the longer one remains monogamous. Since previous research needed proxies for the wage rate, including a true measure for wage contributes to the literature. My estimates suggest that the wage does not influence extramarital relations.

Even though marital satisfaction is negatively related with the number of affairs, it is not clear whether individuals are having affairs because they are unhappy with their spouse, unhappy in general with their lives, or a combination of the two. This paper only tests for the former effect.

Sociologists such as Glenn and Weaver (1981) contend that marital happiness is positively correlated with global/overall happiness. However, there are many other determinants that also influence an individual's global happiness such as health. One key question concerns which factors of happiness relate to engaging in extramarital relations. It is not immediately clear whether or not determinants of well-being will be positively or negatively related with the decision to cheat. For a factor such as general health, it is quite conceivable that this will have a positive effect on the decision to cheat.[7] For example, Halpern et al (1999) found that young women with higher body fat counts were less likely to date. Thus, unhappiness as a result of poor health might decrease the likelihood of cheating. It is likely that the previous literature regarding extramarital affairs has not examined data sources rich enough to fully address the complexities of the situation. A natural extension from this research is to find variables that can account for heterogeneity across individuals, particularly concerning characteristics that might be correlated with extramarital affairs. In addition, although the NYS does not contain data relating to who makes financial decisions in the family, a recent literature has developed (e.g. Smith, McArdle and Willis, 2010) showing the importance of financial decision making for different dimensions of "family outcomes." Hence, this literature could prove relevant to future research on extramarital affairs.

[7] Hence, if an individual is unhappy because they are overweight, we might expect them to be less eager to cheat because it might be more difficult for them to go on a date, *ceteris paribus*.

Table 1: Summary Statistics

Variable	*Observations*	*Mean*	*Standard Deviation*
Occupation	434	3.59	1.52
Education	434	13.06	2.01
Wage	434	7.40	4.01
Spouse Occupation	386	3.52	1.55
Marital Satisfaction	434	4.21	0.52
Kids	434	0.62	0.49
Religion	434	3.09	1.13
Male	434	0.49	0.50
Age	434	24.29	1.89
Spouse Income (in thousands)	429	13.98	10.77
Years Married	434	3.79	2.29
Affair_rate	434	0.29	1.04

Table **Error! No text of specified style in document.**- Description of Dependent Variable

Affair _ rate	Value of Dependent Variable
No affair	0
1-3 encounters for the year	1
4-9 encounters for the year	2
Once a month	3
Once every 2-3 weeks	4
Once every week	5
Two or Three times a week	6
Once a day	7

Table 3: Regressions Utilizing National Youth Survey Data

Variable	*(1)*	*(2)*	*(3)*
Constant	5.91**	10.35**	8.72
	(1.73)	(1.88)	(1.38)
Occupation	-0.49**	-0.45**	-0.40
	(1.79)	(1.67)	(1.32)
Education	0.19	0.25	0.32
	(1.01)	(1.25)	(1.41)
Spouse	-----	-----	-0.24
Occupation			(0.79)
Marital	-1.76***	-1.78***	-1.83**
Satisfaction	(2.72)	(2.76)	(2.40)
Kids	-0.46	-0.45	-0.39
	(0.57)	(0.56)	(0.43)
Religiousness	-1.14***	-1.13***	-1.13***
	(3.11)	(3.09)	(2.76)
Male	1.12*	1.21*	1.23*
	(1.52)	(1.63)	(1.49)
Years Married	-0.50***	-0.42**	-0.55**
	(2.78)	(2.15)	(2.37)
Age	-----	-0.23	-0.16
		(1.04)	(0.63)
Observations	434	434	381
LR- Chi squared	42.45	43.54	37.89
Pseduo-R2	0.0851	0.0873	0.0872

t-statistics are in parenthesis. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table 4: Comparing Empirical Results

Variable	NYS Results	Fair (1978)	Agreement?
Occupation	Negative	Positive[8a]	No
Education	Positive	Negative[a]	No
Marital Satisfaction	Negative	Negative	Yes
Age	Negative (insignificant)	Negative	Yes (weak)
Kids	Negative (insignificant)	Negative[a]	Yes (weak)
Religion	Negative	Negative	Yes
Male	Positive	Positive (insignificant)[b]	Yes (weak)
Years Married	Negative	Positive	No

[a] Coefficient was insignificant when the Psychology Today dataset was used.
[b] The Redbook dataset did not contain a gender variable.

Table 5: Regressions that Include More of Fair's Ideal Variables

Variable	*(1)*	*(2)*	*(3)*
Wage	-0.04	-0.02	-0.04
	(0.43)	(0.18)	(0.29)
Marital Satisfaction	-1.70***	-1.71***	-1.70**
	(2.62)	(2.59)	(2.18)
Kids	-0.44	-0.52	-0.53
	(0.55)	(0.63)	(0.59)
Religiousness	-1.11***	-1.11***	-1.10***
	(3.07)	(3.03)	(2.65)
Male	1.31*	1.09	1.18
	(1.72)	(1.19)	(1.19)
Years Married	-0.43**	-0.40**	-0.53**
	(2.22)	(2.07)	(2.23)
Age	-0.20	-0.27	-0.16
	(0.96)	(1.19)	(0.62)
Spouse Income	------	-0.012	-.009
		(0.28)	(0.17)
Spouse Occupation	------	------	-0.20
			(0.63)
Constant	11.26**	12.84**	11.23*
	(2.01)	(2.20)	(1.67)
Observations	434	424	371
LR- Chi squared	40.53	39.40	33.88
Pseudo-R2	0.0813	0.0805	0.0796

t-statistics are in parenthesis. **** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

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