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Women's Marriage Satisfaction: An Empirical Research on the Effect of Women's Agency in Their Marriages

1. Introduction

As times change, so have the terms of marriage in the typical heteronormative American household. These days, women are becoming more educated than they ever were and have much more of a say in their careers, changes that are rippling through to their marriages and households. However, at the time of the 1984 Detroit Study, this was not always the case as much as it is currently. This study in addition, marriage satisfaction can be a difficult aspect to measure and becomes harder to maintain the longer you are married (Sorokowski, 2017). Although there are many factors that contribute to what makes married couples happy in their marriage, we wanted to focus on the women's side and perception of satisfaction in her marriage. In fact, men report being more satisfied with their marriages compared to women, but this disparity can be mitigated with sex egalitarianism (Sorokowski, 2017).

First, we were interested in what aspects of the women, such as education, race, familial influence will have on the women's perception of marriage satisfaction. After finding the Detroit Study, we speculated that women's agency (level of education, reproductive choices, independence) would have a bigger effect on women's satisfaction in their marriages. Because of the changes in women's agency in their marriages and society's strife to reach sex egalitarianism, we believe that women's agency had a higher effect on women's satisfaction in their marriages during the time of the study than now.

Previously, there haven't been many studies that looked at various variables of women's agency and their effects on marriage satisfaction. There are a couple of studies that focus on the education level or employment status of women and their effects. An older study found that full-time employed women reported being happier in their marriages than if they were full-time housekeepers or part-time workers (Hall & Gordon, 1973). We hope to gauge a better understanding by having both the individual woman's aspects of agency along with the effects of her family's as a holistic approach to her agency in a marriage.

2. Data

We constructed the data on women's marriage satisfaction in the following way. First, we got our dataset from the Detroit Area Study, 1984: The Process of Mate Choice and Nuptiality in Detroit (Whyte, 1992) from Resource Center for Minority Data, which focused on those ever-married women who are between the ages of 18 and 75 and residing in housing units located in the Michigan counties of Wayne, Macomb, or Oakland. The data provided information of women who are now married, separated, divorced, and widowed. In this research, we only include women who are now married, and reclassified some variables with too many categories and delete some variables that made no sense or were hard to define. *Satisfaction of marriage* was selected as dependent variable to study how women's agency would affect their marriage satisfaction and was sorted into two categories, not satisfied and satisfied, to facilitate our research. The data description of variables and their predicted effect on *Satisfaction of marriage* is shown in Table.1 below.

To measure the influence of women's own conditions, women's *education level*, *total income in 1983*, *age*, *number of children*, and *race* were selected as some of the independent variables. We reclassified women's *education level* into three groups: high school graduate or lower, college graduate, and beyond college graduate. Income was also reclassified into three groups: no income, income between 0 and \$15,000, and income beyond \$15,000 according to the mean personal income in the United States in 1984, which was \$14,412. Due to the nature of the data given, we subtracted the actual number of months between women's own birth and the date of the interview and divided the data by 12, to calculate the *age* of women (in years). And we also reclassified *race* into two categories: non-white and white.

The women's families are also an indication of how independent they are outside of their marriage to their husbands. To measure family effects, we selected women's closeness with her mother or father, parents' education level, and family class as the rest of the independent variables. Then we reclassified closeness of mother and closeness of father into close and not close. In addition, we sorted fathers' education level and mother's education level into high school graduate or lower and beyond high school graduate.

Table 1. Variables with Definitions and Summary Statistics

Variables	Variable Description	Statistical Description	Effect
<u>Dependent variables</u>			
Satisfaction of marriage	Women's satisfaction of marriage 0 = not satisfied 1 = satisfied	121 (33.80%) 237 (66.20%)	-
<u>Independent variables</u>			
From women's perspective:			
Number of children	Number of children the women have	Min.: 0; Max.: 9; Mode: 2	Unsure
Age	Women's age	Min.: 19.42; Max.: 83.25; Mean: 44.15	Negative
Education level	Women's education level 0 = high school graduate or lower 1 = college graduate 2 = beyond college graduate	229 (63.97%) 78 (21.79%) 51 (14.24%)	Positive
Income	Total income of the women in 1983 0 = no income 1 = income between 0 and 15,000 2 = income beyond 15,000	120 (33.52%) 162 (45.25%) 76 (21.23%)	Positive
Race	Whether the woman is white or not 0 = not white 1 = white	41 (11.45%) 317 (88.55%)	Positive
Family Effects:			
Closeness with mother	Women's closeness with mother 0 = not close 1 = close	79 (22.07%) 279 (77.93%)	Positive
Closeness with father	Women's closeness with father 0 = not close 1 = close	111 (31.01%) 247 (68.99%)	Positive
Mother's education level	Education level of women's mother 0 = high school graduate or lower 1 = beyond high school graduate	294 (82.12%) 64 (17.88%)	Positive
Father's education level	Education level of women's father 0 = high school graduate or lower 1 = beyond high school graduate	311 (86.87%) 47 (13.13%)	Positive
Family class	1 = poor 2 = working class 3 = middle class 4 = upper-middle-class 5 = upper class	31 (8.66%) 158 (44.13%) 133 (37.15%) 32 (8.94%) 4 (1.12%)	Positive

3. Empirical Analysis

Two specifications are presented to estimate the effect of women's agency on their marriage satisfaction (in Table 2). The dependent variable in each specification is women's satisfaction (Y), as is measured in binary form of feeling satisfied or not. The independent variables are classified into two categories: women's own characteristics and their family backgrounds.

3.1 Variables of Women's Agency

From the perspective of women themselves, education level, income, number of children and race are critical internal elements of their agency in marriage.

(1) Education level (Edu)

Women's education level reflects their capability and wisdom both in society and in marriage. Women with higher education level tend to win more social recognition and reputation, which has a great impact on their agency in marriage. Especially because women with master's degree or PhD were relatively rare at that time, they will be much more respected by their husbands and thus have a higher satisfaction. They will also have more knowledge and higher self-esteem in their marriages.

(2) Marriage age (Age)

The younger the woman is at the time of the marriage, the less agency she has because of her dependence on her husband is greater than if she were older and more experienced in life.

(3) Income: the interviewee's total income in 1983(Ic)

As income is the financial foundation of women's agency, women with higher income should have better control over resources, which makes it easier to have freedom and happiness in marriage.

(4) Number of children (Cd)

Raising children is energy consuming and may threaten a woman's freedom in marriage. In addition, the more children a woman has, the less time she will have for a job or herself and more time she needs to spend with her children. The higher the number of children, the less satisfied she will be in her marriage.

(5) Race: whether the interviewee is white or not (R)

The race of women is an important factor of women's agency in 1980's since white women are more likely to have a voice in society along with a higher level of satisfaction.

3.2 Variables of Family Effect

From the perspective of women's family background, the interviewee's closeness with parents and the education level of parents are important external resources of women, which perform as elements of agency in marriage.

(1) Closeness with parents (Cm, Cf)

Parents can offer financial and emotional support to their daughter. Also, women who are closer to their parents are more likely to learn from their parents. So, the closeness with parents will have a positive impact on marriage satisfaction.

(2) Parents' education level (Medu, Fedu)

Father's education level decides the family's social status, in turn affects daughter's agency in marriage; and mother's education level has potential effects on daughter that would impact her capability when she grows up. The higher level of education her parents have, the higher level of education she will have. As a result, her marriage satisfaction will increase.

(3) Family class (Fcl)

Family class directly affects the women's marriage status, as she will, in general, have more mobility and say in the marriage. Therefore, family class has a positive effect on women's marriage satisfaction.

3.3 Model Selection

To estimate the binary dependent variable, we can choose from three models including linear probability model, probit and logit models. The linear probability model is excluded because it does not truly reflect the non-linear characteristics of the overall regression function. Ultimately, the logit model is finally chosen to estimate the dependent variable because it was easier to implement in R. And estimates of two regressions are presented in Table 2. The first regression includes all the ten independent variables in the model 1 below:

Model 1: $\Pr(Y = 1|X) = F(\text{Edu, Age, Ic, Cd, R, Cm, Cf, Fedu, Medu, Fcl})$

However, the variables *marriage age* and *family class* are not statistically significant to the women's satisfaction, so we deemed them insignificant after revisiting the results. The variable *age* is related to *the number of children* to some degree, because women with more children tend to be older than women with no children. Meanwhile, the variable *family class* is closely related to *education of father*, as parents with higher education tend to have a higher income. It was also statistically verified by Pearson's Chi-squared test. Therefore, the final model excluding the two variables *marriage age* and *family class* is shown below:

Final Model: $\Pr(Y = 1|X) = F(\text{Edu, Ic, Cd, R, Cm, Cf, Fedu, Medu})$

Table 2. Estimate results of Model 1 and Model 2

	<i>Dependent variable:</i>	
	Satisfactory of Marriage	
	<i>logistic</i> (1)	<i>logistic</i> (2)
Education Level		
college graduate	0.301 (0.33)	0.292 (0.321)
beyond college graduate	1.105** (0.502)	1.092** (0.493)
Income		
between 0 and \$15,000	-0.129 (0.287)	-0.062 (0.279)
beyond \$15,000	-0.881** (0.375)	-0.781** (0.363)
Number of Children		
	-0.160** (0.077)	-0.187*** (0.072)
Race		
White	0.875** (0.368)	0.887** (0.361)
Closeness with Mother		
Close	0.862*** (0.299)	0.762*** (0.283)
Closeness with Father		
Close	0.861*** (0.263)	0.861*** (0.257)
Father's Education Level		
beyond high school graduate	0.409 (0.426)	0.512 (0.395)
Mother's Education Level		
beyond high school graduate	-0.504 (0.434)	-0.494 (0.418)
Family Class		
	Yes	No
Age at Interview		
	Yes	No
Constant		
	-0.075 (0.724)	-0.791 (0.537)
Observations	358	358
Log Likelihood	-201.223	-204.907
Akaike Inf. Crit.	434.446	431.814
<i>Note:</i> * p<0.1; ** p<0.05; *** p<0.01		

3.4 Empirical Results

To better explain statistical results of logits model, we applied average margin effect (AME) and the results are shown in Table 3. The *education level* of interviewee has a positive effect on marriage satisfaction, which means women with higher education are more likely to be satisfied with their marriage. The results show the possibility women get satisfied with marriage will increase by 5.9% and 19.2% on average for every unit change from education *below college graduate* and *beyond college graduate* respectively.

The variable *income* has a negative impact on women's marriage satisfaction. The result is surprising as the negative coefficient is opposite to that of our hypotheses. Specifically, women with income below \$15,000 reduce the probability of satisfaction by 1.2% if they gain more salary; women with income beyond \$15,000 reduce the probability of satisfaction by 15.7% if they gain more.

In addition, to rule out the possible influence of *education level* on *income*, we looked into the AME of different education level with fixed income, and the AME of different income with fixed education level (in Table 4). According to the results presented in Table 4, we can safely conclude that women with higher education level get higher marginal increase of satisfaction no matter what income they have; and women with larger income get bigger marginal decrease of satisfaction no matter what education level they are. This is interesting because one would expect that the higher income a woman has, she will be more satisfied with her marriage.

The *number of children* has a negative impact on women's marriage satisfaction as well, and average of predicted changes in marriage satisfaction is reduced by 3.6% for one more child. *Race* has a positive coefficient to women's marriage satisfaction, and woman who is white has 18.5% more probability of marriage satisfaction than women in other races.

When it comes to family background, the closeness to parents is more statistically significant than their education level, which is further verified in the linear hypothesis test. The *closeness with mother* is positively related to marriage satisfaction, and the women who were close to their mothers are 15.7% more likely to feel satisfied with marriage than those who were not close to their mothers. The *closeness with father* is positively related to marriage satisfaction too but with a higher marginal effect. Women who were close to their fathers are 17.9% more likely to feel satisfied with marriage than those who were not close to their father.

Table 3. Average marginal effects of variables in Model 2

Variables	Average marginal Effect	Absolute value
Education Level		
college graduate	0.059	5.90%
beyond college graduate	0.192	19.20%
Income		
between 0 and \$15,000	-0.012	1.20%
beyond \$15,000	-0.157	15.70%
Number of Children	-0.036	3.60%
Race		
White	0.185	18.50%
Closeness with Mother		
Close	0.157	15.70%
Closeness with Father		
Close	0.179	17.90%
Father's Education Level		
beyond high school graduate	0.095	9.50%
Mother's Education Level		
beyond high school graduate	-0.1	10.00%

Table 4. AME of Fixed Income and Fixed Education Level

<u>A. Fixed Income</u>		
Income	college graduate	beyond college graduate
no income	5.55%	17.75%
Income below \$15,000	5.66%	18.22%
Income beyond \$15,000	6.46%	22.66%
<u>B. Fixed Education Level</u>		
Education level /Income	Income below \$15,000	Income beyond \$15,000
high school graduate or lower	-1.25%	-16.76%
college graduate	-1.14%	-15.85%
beyond college graduate	-0.78%	-11.85%

4. Conclusion

The analysis in this paper interpreted the effect of women's agency on their marriage from two sides. From the internal perspective, women's education level and race have positive effects on marriage satisfaction; and women's income and number of children have negative effects on marriage satisfaction. Moreover, women with a bachelor's degree or higher degree would have larger marginal increase in marriage satisfaction when education level increases. The most important result is that women's marriage satisfaction is negatively related to their income, and that women with \$15,000 or higher income have 15 times of marginal effects on satisfaction than those with no income or below \$15,000. It is obvious that women's agency has risen when they have higher income and higher education, but the effects on marriage satisfaction did not reflect on income aspect. It is surprising that women with lower income are more satisfied with their marriage. This is probably due to the fact that at that time, a woman who made an above average income could have felt tension in the marriage due to the husband's insecurities or the woman's feeling that the husband was not making enough.

From the external perspective, women's *closeness with father* and *closeness with mother* are statistically significant to their marriage satisfaction. In summary, the family class or parents' education has little impact on women's satisfaction, but the closeness to parents is a rather important aspect of marriage satisfaction. We can safely conclude that parents' support is significant to women in marriage and would greatly impact their marriage satisfaction.

However, there were some limitations, specifically limitations in the sample data. There were very few continuous variables. Most of the independent variables were either binary or categorical variables. The dataset we used was also a closed database because it was a data collected from a survey, which means that we cannot study what wasn't included in the original questionnaire or further analyze the counter intuitive result of women's income having a negative effect on their marriage satisfaction. Overall, our model is not complete, not only because of the limitation on the data, but because the nature of agency is difficult to completely gauge. A woman's agency can be based on "decisions related to an individual's own activities, such as deciding to work outside of the household ... can also relate to others' activities, particularly in the home, such as household savings or children's education" (Donald, 2016). Also, it would have been helpful if there were variables that pertained to the woman's employment status. There are also other factors that will be difficult to completely capture for a woman in her marriage. Moreover, this research's reference to the present is relatively small because the data used is quite outdated.

References

Donald, Aletheia, et al. *Measuring women's agency*. The World Bank, 2017.

Hall, D. T., & Gordon, F. E. (1973). Career choices of married women: Effects on conflict, role behavior, and satisfaction. *Journal of Applied Psychology*, 58(1), 42–48.
<https://doi.org/10.1037/h0035404>

Rhine, Darla. “Bases of Marital Satisfaction among Men and Women.” *Journal of Marriage and Family*, vol. 43, no. 4, 1981, pp. 941–955. JSTOR, www.jstor.org/stable/351350.

Sorokowski, Piotr et al. “Marital Satisfaction, Sex, Age, Marriage Duration, Religion, Number of Children, Economic Status, Education, and Collectivistic Values: Data from 33 Countries.” *Frontiers in psychology* vol. 8 1199. 21 Jul. 2017, doi:10.3389/fpsyg.2017.01199

Whyte, Martin K. “Detroit Area Study, 1984: The Process of Mate Choice and Nuptiality in Detroit” Ann Arbor, Inter-university Consortium for Political and Social Research 17 Feb. 1992,
<https://doi.org/10.3886/ICPSR09306.v1>