



## Women's Labor Supply and Marital Choice

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# Women's Labor Supply and Marital Choice

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Shoshana A. Grossbard-Shechtman

*San Diego State University*

Shoshana Neuman

*Bar-Ilan University*

This paper hypothesizes that value of time, and consequently labor force participation, can vary with circumstances specific to a marriage or a marriage market. Wives' traits valued in the marriage market are expected to be associated with lower labor force participation, whereas husbands' traits valued in the marriage market are expected to be associated with lower participation rates on the part of wives. Evidence for these hypotheses is found on the basis of regressions of labor force participation for a sample of Israeli married women. Inclusion of traits valued in the marriage market and marital sorting patterns increases the explanatory power of the regressions.

## I. Theoretical Background

The decision to participate in the labor force varies directly with wage opportunities expected in the labor market and inversely with the value of time in the home. In a general way the decision to enter the labor force can thus be modeled as a function  $g(w, w^*)$ , where  $w$  is the expected wage and  $w^*$  is the value of time in the home. The value of time is usually considered a function of household characteristics

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such as marital status and presence of young children (see, e.g., Mincer 1962; Becker 1965; Heckman 1974). This paper pursues the idea stated in Becker (1973) that the share of household income going to a particular spouse, and consequently that spouse's value of time, can vary with circumstances specific to a marriage or a marriage market. It follows that any trait of the wife or husband associated with a higher wife's share of household income also implies a higher value of time and therefore a lower likelihood that she participates in the labor force.

Formally,  $w^*$  is viewed as a function  $w^* = k \cdot \mathbf{I}$ , where  $w^*$  is the value of time of a spouse,  $\mathbf{I}$  is a vector of household income sources other than that spouse's income from work, and  $k$  is the proportion of such income that spouse obtains for her own benefit. We are assuming that spouses' well-being depends on the extent to which they control the household's income. In turn, this implies that spouses purchase at least some private (as opposed to public) goods and that they do not get as much utility out of their spouse's consumption as they get out of their own.

Proportion  $k$  of the household's income obtained by one spouse is established as a result of marriage market forces and internal bargaining between husband and wife (see Becker 1973; Grossbard-Shechtman 1984). This is represented as  $k = k(\mathbf{V}_{if}, \mathbf{V}_{im})$ , where  $\mathbf{V}$  are vectors of traits, and subscript  $i$  stands for individual traits such as age or education,  $f$  for wife and  $m$  for husband. As stated here, function  $k$  is very general. It could possibly include multiplicative terms such as the product of wife's and husband's age or ethnicity or differences between wife's and husband's age. In any case, it is hypothesized that the relative traits of a wife in comparison with those of her husband influence the strength of her bargaining power  $k$ . For example, if she is relatively well endowed in a trait lacked by her husband, the value of  $k$  would be raised and therefore the value of her time.

Turning this around, we get the hypothesis of compensating differentials in marriage. A husband with traits that are relatively undesirable in comparison with his wife's traits has to compensate her materially by letting her have a larger proportion  $k$  of his income or of some joint income. When such compensating differentials in marriage occur, wives' material needs are more likely to be satisfied by marriage and married women are less likely to enter the labor force. The hypothesis thus states that the presence of compensating differentials in marriage is likely to discourage a married woman's labor force participation (hence called the "compensating differentials hypothesis").<sup>1</sup>

<sup>1</sup> Another application of compensating differentials in marriage can be found in Grossbard-Shechtman (1983).

The extent to which a trait is likely to affect proportion  $k$  and, therefore, a woman's value of time depends not only on the tastes of this household but also on preferences in the marriage market in general. If a trait  $i$  is generally considered as attractive, the holder of such a trait is more likely to translate this into bargaining power  $k$  than if such a trait is specific to the marriage and therefore attractive only to the spouses. Duration of marriage may be a factor influencing  $k$  since it is positively related to marriage specificity and might reduce the (general) market value of a person's traits.

In our empirical tests we control for ethnicity: European-American (Western) versus Asian-African (non-Western) in the context of Israeli Jews. Being Western is presumably an asset in both the marriage market and the labor market, so the wife's ethnicity is expected to raise both  $w$  and  $w^*$  and therefore has an ambiguous impact on labor force participation. We can expect compensating differentials on the part of non-Western husbands married to Western wives and therefore lower participation in the labor force on the part of intermarried Western wives. However, a trait such as ethnicity is problematic since it might mean different things to different people, and therefore the  $k$  function may show discontinuities. For instance, Western Jews might discriminate against marriage to non-Western men and women, while simultaneously non-Western Jews might discriminate against Western Jews. Consequently, we do not have clear predictions regarding ethnicity but include the ethnic variables for control purposes.

In the following empirical section we report an empirical test of the compensating differentials hypothesis using a number of traits of husband and wife. We test for a higher participation rate for women with lower  $k$  and, consequently, lower  $w^*$ . Lower values of time could result from a woman's deprived social background or recent arrival to Israel. We also test for lower participation rates for women married to men considerably older than themselves. Such men are expected to give their wives compensating differentials, and consequently  $k$  is expected to be high and labor force participation low.

The predictions derived from the compensating differentials hypothesis differ from those one could infer from an alternative theory based on the relationship between mismatches and divorce probabilities. According to such a theory the more a couple is mismatched, for example because the husband is much older than the wife, the higher the probability of divorce and the more the wife is likely to enter the labor force.

## II. Empirical Study

This theory of labor supply and marital choice was tested using data from the mobility survey conducted by Israel's Bureau of the Census

in 1974, the only version of the annual labor force survey that includes information on the fathers of husbands and wives that were interviewed. The hypotheses stated above assume that the more income derived from marriage, the less married women choose to work. That would be true only if financial considerations play a major role in women's decision to work. Women who enjoy working outside the home on the basis of work's intrinsic rewards tend to be more educated and often do not work full-time. Therefore, to capture women driven primarily by work's financial rewards, our study was restricted to women who had not graduated from high school, and we defined our dependent variable as full-time participation in the labor force. As is apparent from table 1, 12.8 percent of all married women in the sample worked full-time. The independent variables defined in table 1 include variables that have been included in previous empirical estimations of labor supply—wife's age, earning potential, years of schooling, husband's schooling and income, number of children, and years of residence—and innovative independent variables such as father's occupation low, husband-wife ethnicity combinations, and husband-wife age combinations (husband older).

Models of full-time labor force participation were estimated using the logit method of estimation. The first model we estimated (regression 1 in table 2) is one commonly found in the literature.<sup>2</sup> It can be seen that once the effect of education on potential earnings is captured, years of schooling has no impact on full-time labor supply. This could reflect a nonlinear effect of schooling on individual success in the marriage market.<sup>3</sup> We find that women who have resided more years in Israel are less likely to work outside the home.<sup>4</sup> In the light of the present theory, years of residence could be interpreted as a desirable characteristic that increases a woman's marriage opportunities, thereby raising her  $w^*$  and reducing her need for income from outside work. This effect does not seem related to earning potential and discrimination by employers since residence was used as a determinant of potential wife's earnings.

Regression 2 in table 2 includes variables that are not commonly included in studies of labor supply: a dummy capturing the wife's father's low occupational status and a variety of combinations of husband's and wife's characteristics. Such variables reflecting marital

<sup>2</sup> Most previous studies, including Gronau's (1981) study using Israeli data, include number and age of children in regressions of married women's labor force participation. We followed most previous literature in ignoring the fact that fertility and labor force participation may be simultaneously determined.

<sup>3</sup> See Grossbard (1976, 1980) and Grossbard-Shechtman (1982) for discussions of the effect of schooling on indicators of  $w^*$ .

<sup>4</sup> Gronau (1981) also found lower participation rates for women having resided longer in Israel, but he has no explanation for this.

TABLE 1  
MEANS AND DEFINITIONS OF THE VARIABLES

Variable	Mean	Definition
Wife's characteristics:		
Worked full-time	12.8%	Worked at least 40 hours in the last week
Age	39.8	Years
Young	21.7%	Dummy = 1 if age between 22 and 29
Years in Israel (residence)	22.7	...
Earnings (ln)	1.57	Predicted natural logarithm of hourly wage based on subsidiary regression*
Father's occupation low	47.7%	Father engaged in occupation ranked 30 or less according to Tyree's (1981) prestige score (maximum: 87)
Schooling	7.1	Years (maximum: 11 years by definition)
Husband's characteristics:		
Schooling	8.3	Years
Income (ln)	9.6	Includes regular and supplemental yearly income of the husband
Wife-husband combinations:		
Wife AA * husband AA	51.5%	{ AA = born in Asia (except Israel) or Africa or born in Israel and father born in other parts of Asia or Africa (non-Western); EA = born in Europe or America or born in Israel of father born in Europe, America, or Israel (Western)
Wife AA * husband EA	5.8%	
Wife EA * husband AA	3.8%	
Wife EA * husband EA	38.9%	
Husband older	4.69	Difference between husband's age and wife's age if that difference is larger than 3 years
Optimal age difference	.40	Dummy = 1 if the difference between husband's and wife's age equals 3 or less (includes 10 cases in which wife is 3 or more years older)
Children (number):		
Age 0-4	.56	Number of children aged 4 or younger
Age 5-13	.90	Number of children between ages 5 and 13
Age 14-17	.40	Number of children between ages 14 and 17

\* The regression's equation is

$$\ln \text{ earnings} = -.19 + .144\text{schooling} + .051\text{experience} + .0005(\text{experience})^2$$

(7.89)                      (3.20)                      (2.52)

$$-.002\text{experience} \cdot \text{schooling} + .0118\text{residence.}$$

(3.59)                                      (5.80)

$N = 394$ ;  $R^2 = .4$ ;  $t$ -statistics are in parentheses. The results are similar to those in Gronau (1981).

TABLE 2  
LOGIT REGRESSIONS OF WIFE'S LABOR FORCE PARTICIPATION

Variable	Regression 1	Regression 2
Wife's characteristics:		
Age	-.21 (1.28)	-.25 (1.45)
Age squared	.002 (1.09)	.002 (1.29)
Schooling	-.25 (1.19)	-.29 (1.34)
Years in Israel	-.11* (2.55)	-.12* (2.68)
Father low occupation	...	.55* (2.06)
Earnings (ln)	7.36* (2.11)	8.31* (2.28)
Asian-African (AA)	-.67 (1.54)	...
Husband's characteristics:		
Schooling	.01 (.30)	0 0
Income (ln)	-.08 (.26)	-.66 (1.53)
Asian-African (AA, non-Western)	.45 (1.01)	...
Wife-husband combinations:		
Wife AA * husband AA	...	-10.29** (1.69)
Wife AA * husband EA	...	-19.20 (1.58)
Wife EA * husband AA	...	-4.30 (.35)
Wife AA * husband AA * husband income	...	.99 (1.57)
Wife AA * husband EA * husband income	...	1.87 (1.54)
Wife EA * husband AA * husband income	...	.61 (.48)
Husband older	...	-.12** (1.77)
Wife AA * husband AA * husband older	...	.12** (1.85)
Wife AA * husband EA * husband older	...	.25* (2.13)
Wife EA * husband AA * husband older	...	-.07 (.47)
Optimal age difference	...	-.60 (1.26)
Children:		
Age 0-4	-.68* (2.73)	-.79* (2.97)
Age 5-13	-.25 (2.55)	-.28** (1.65)
Age 14-17	-.10 (.42)	-.08 (.33)
Constant	-3.06	2.6
$-2(\log L_1 - \log L_2)^a$	43.43	67.77
Predictive accuracy	.499	.526
Number of observations	635	635

NOTE.—See table 1 for explanations of variables. Asymptotic *t*'s are in parentheses.

<sup>a</sup>  $L_1$  is the likelihood for the model containing only the intercept ( $-2 \log$  likelihood is 484.78);  $L_2$  is the likelihood for this particular model.

\*  $P < .05$ .

\*\*  $P < .10$ .

choice appear to improve the model's predictive power. A log likelihood test comparing regressions 1 and 2 shows that the inclusion of these additional variables significantly improves the model's predictive power (chi-squared significant at the 0.5 percent level). Some of the signs of the coefficients in regression 2 also seem to confirm our hypotheses. The dummy reflecting the wife's relatively deprived

background (her father was employed in an occupation of low prestige and generally low income), which can be viewed as a nondesirable trait in the marriage market, is found to be significantly positive.<sup>5</sup>

It also appears from regression 2 that if a woman is married to a man at least 3 years older than she is, the older he is the less likely she is to work full-time. This is consistent with our compensating differentials hypothesis. Older men are relatively penalized in the marriage market and have to "buy" themselves the services of a wife by offering high pecuniary  $w^*$  and thus making it unnecessary for women to work full-time.<sup>6</sup>

Interestingly, this negative relation between older husband and labor supply varies with ethnicity.<sup>7</sup> Asian-African Jewish women are less likely to receive compensating differentials from husbands much older than they are. By using the approximation rule  $bp(1 - p)$ , where  $b$  is the regression coefficient and  $p$  the probability of participation (see Pindyck and Rubinfeld 1981), we found that for European-American women each additional year of their husband's age (beyond a 3-year difference) reduces full-time labor force participation by 1 percent; that is, older husbands seem to "pay" compensating differentials. In contrast, the net effect of older husband among Asian-African women married within their own ethnic group is zero, which may reflect the fact that the average age difference at first marriage tends to be much higher than 3 years (the Israeli average) among Jews of Asian-African origin. Asian-African Jewish women appear to be willing to marry older European-American men without asking for any pecuniary compensation at all. In fact, the net effect of older husband on the labor supply of Asian-African wives married to European-American husbands is to raise their participation rate 1 percent above that of European-American women married within their own group.

It is difficult to find alternative explanations for this older husband effect. It has been argued in a Belgian economic study of married women's labor supply that older husbands have higher incomes and can therefore afford a housewife (DeWachter 1982). But husband's

<sup>5</sup> The positive sign of wife's father in low occupation can also be interpreted as a negative income effect. We do not have a good measure of nonwage income. The father low occupation variable is based on a ranking by social status as well as income. It is likely that women whose fathers had been employed in low-status occupations might also have lower nonwage income at the time of the survey.

<sup>6</sup> Separate regressions in which husband older was measured as the ratio of the age difference between husband and wife to the wife's age showed that it is not the absolute difference in age that matters, but that difference in proportion to the wife's age.

<sup>7</sup> The statistical significance of the interaction terms with ethnicity can be questioned. Large samples are needed in order to assume asymptotic normality and consistency. We had only small numbers of couples in which one spouse is Western and the other is not, but we had large numbers of people married to spouses of their own ethnicity.

schooling and income are included in the regressions. Granted, our income measure is current income and may be an imperfect measure of permanent income. But that would strengthen our argument. If permanent income matters more than current income and men are generally in the upward-sloping part of their lifetime earnings profile, older men earning the same income as younger men would have a lower permanent income, and their wives would be more likely to work full-time! Also, it was not the age of the husband that was found to matter, but a particular function of the age difference between husband and wife. A culturally oriented alternative explanation is that older husbands want their wives to fit the stereotype of the traditional housewife. Again, that would not explain why we found this particular function of the age difference or why it varies by husband-wife ethnic combination.

Inclusion of variables reflecting marital choice also modifies the coefficients of regressors included in traditional models of female labor force participation. Some coefficients that were insignificant become significant after the inclusion of marital choice variables. For example, in regression 2, children are found to deter mother's labor force participation not only if the children are 4 or younger but also if they are between ages 5 and 13.<sup>8</sup>

### III. Summary and Conclusions

Husband's characteristics valued in the marriage market are positively related to wife's labor supply through a mechanism of compensating differentials. Women with qualities valued in the marriage market are less likely to work outside the home. Biases in the effect of husband's or wife's characteristics on wife's labor supply may be caused by insufficient control for other characteristics and marital sorting patterns. This suggests that female labor supply studies should include determinants of success in marriage markets in addition to the variables that are usually included.

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<sup>8</sup> We experimented more with variables related to fertility. The introduction of interactive terms between the presence of a young child and some traits of husbands and wives did not add predictive power. In other regressions not presented here, we found that when the number of children was excluded, most coefficients retained the same degree of significance they had when children were included.

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#### <sup>3</sup> **A Theory of Marriage Formality: The Case of Guatemala**

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