The Extra Burden of Moslem Wives: Clues from Israeli Women's Labor Supply*

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I. Introduction

This article offers an empirical study of labor supply among married women belonging to the three major religions in Israel: Judaism, Islam, and Christianity. In addition, this article offers clues on how religion affects women's value of time in marriage by examining religious differentials in the effect of husband's income, number of children, education, and age on women's labor supply. There are no direct means by which the value of time in marriage can be accurately estimated. To compare women's value of time in marriage cross-culturally, one can examine ethnographic evidence, which is a very subjective methodology. Alternatively, one can study laws and customs, but this approach does not tell us much about how different laws and customs actually affect people's lives.

The idea that labor supply and wages can provide clues on the value of time in the home is central to the modern study of labor supply. Labor economics recognizes the importance of family and home. Any estimate of participation in the labor force by married women takes account of the presence of children and estimates the effect of a husband's income on a wife's labor supply. The most popular economic theory that places labor supply in the context of the family is the Becker-Mincer theory of household production, which views women and men as producers of valuable ''commodities'' in the home.[1] Accordingly, the value of time in the home is modeled as a function of productivity in the home, which is in turn a function of education and age and of the household's demand for an individual's time in home production (e.g., a function of income).

0013-0079/98/4603-0006$02.00

Traditionally, this theory takes household composition as given and ignores marriage-market forces and bargaining inside the household.

The importance of ethnicity and religion as influences on labor supply has been recognized in empirical models. For instance, most U.S. studies of women's participation in the labor force distinguish between Black and White women's behavior. Religion is included less often in empirical studies of labor supply in the United States, in part because of lack of data. Recent empirical studies using U.S. data indicate that religion is an important variable.[2] Some empirical models indicate that ethnicity and religion, as well as socioeconomic variables, interact in affecting labor supply, but these interaction terms have not been elaborated on in terms of an economic theory of marriage.[3]

This study offers a new way of interpreting religious differentials in the impact of women's education, age, number of children, husband's income, and husband's schooling on women's labor supply. Religious groups differ in the institutions they create to regulate marriage and divorce. In Section II, we derive rules of inference that enable us to learn more about how such institutions influence women's (and men's) value of time in marriage, on the basis of patterns of labor supply.

Section III applies our insights to a sample of Israeli women who belong to the three major religious groups in Israel: Jews, Moslems, and Christians. That section outlines the descriptive and statistical analysis and presents our findings. Our major finding is that the labor supply patterns of Christian Arab Israeli women resemble more closely those of Jewish women than those of Moslem Arab Israeli women. Given that such resemblance does not follow from institutional differences in labor markets, we conclude that institutional differences in marriage do play a role in explaining variations in labor supply across the religious groups. Our findings suggest that Moslem Israeli women living in a traditional setting find it relatively harder to translate their personal resources into a higher value of time in marriage than do Jewish or Christian women in Israel, that there are only minor differences in the value of time in marriage between Jewish and Christian women, and that the contrast between Moslem Israeli women and other Israeli women seems to dwindle at higher educational levels.

II. Labor Supply and Marriage Institutions

In this section, we explain why laws, customs, and other institutions that influence marriage and divorce may influence labor supply. We will discuss some marriage institutions that may possibly distinguish the major religions represented in Israel. On the basis of these observations, we derive five rules of inference that help us use the findings of the determinants of labor supply to obtain clues regarding cultural variations in the relative status of women in marriage.

A New Institutional Perspective on Labor Supply

Economic models of labor supply are based on the assumption of rational choice and view the decision to enter the labor force as a comparison between the attractiveness of work, measured by the wage or potential wage (w), and the attractiveness of staying home, which is typically called the ''reservation wage'' (w^*). Labor force participation (LFP) tends to occur if the wage for outside labor exceeds the reservation wage, that is, $w > w^*$.

Rational choice theories such as the Becker-Mincer theory focus on individual differences in resources, on the assumption that the institutional framework remains constant for all individuals who are being compared cross-sectionally or over time. The bulk of the economic literature on this subject makes this assumption and focuses the analysis on individual characteristics that affect either the wage rate, w, the reservation wage, w^*, or both.

Marriage and family have been incorporated into labor economics in the context of rational choice models, with the institutional background taken as given. Economic models of women's labor supply have included variables that are expected to influence LFP via their effect on reservation wages, such as the husband's income, the number of children, and the ages of children. In households with either more income or more children, there is a higher demand for a married woman's time in household production, and therefore her reservation wage is higher.

Other factors included in such models, such as education and age, are expected to influence both the wage and the reservation wage. Younger and more educated women are expected to be in higher demand in labor markets, leading to higher wages. These women could also be more productive in household production, leading to higher reservation wages. The net predicted effect of education and younger age on LFP (controlling for other factors) is therefore ambiguous. It will depend on whether the effect on wage exceeds the effect on reservation wage, or vice versa.

Household production models that lead to the above insights take many factors for granted. Households are assumed to exist and marital status is assumed to remain unchanged. Even though G. Becker is a major architect of the household production theory of labor supply and authored a pioneering economic analysis of marriage, he never tied the home production–based theory of labor supply to his theory of marriage.[4] As a result, economic analyses of marriage based on the Becker framework have led to few new insights regarding the effects of marriage and marriage markets on the reservation wage.[5] This may explain why most recent empirical research on labor supply, which has been heavily influenced by Becker-Mincer theories, is typically unaware of the potential impact of marriage institutions on the labor supply behavior of members of different cultures.

In the past, labor economists have recognized the role played by

institutions, but they have mostly focused their attention on labor institutions, such as labor unions. National policies affecting labor supply, such as child-care policies, or labor demand have also received a great deal of attention from researchers. It is this line of thought that has led cross-country and time-series empirical studies of women's labor supply to take account of differences in laws and policies such as family leave and child-care subsidies. However, in the past, labor economists were mostly unaware of the possible labor market effects of institutions that regulate the marriages of people living in a given culture. Each culture, which varies not only with nationality but also with ethnicity, language, and religion, tends to have its own marriage institutions.

Marriage Institutions

The reservation wage is a function of marriage market and bargaining-in-marriage conditions.[6] On the assumption that men earn more than women, a woman's access to her husband's income can be viewed as a material compensation for the value of her time in their marriage. The higher the value of time, the higher this compensation and the higher the reservation wage. The higher the reservation wage, the less likely married women are to participate in the labor force. Reservation wage and labor supply vary with conditions in marriage markets and rules for bargaining in marriage, which in turn depend on institutional constraints imposed by culture.

Religion and Marriage

Religions such as Islam, Christianity, and Judaism contribute to the establishment of institutions that influence the marriages of people living in a given culture. These institutions include laws and customs as well as the means by which they can be enforced. It is noteworthy that these world religions do not have exactly the same institutions in every country where they are represented. For instance, the institutions of Moslem Arabs are different from those of Moslem non-Arabs, and there are significant differences in the institutions found among Moslem Arabs living in different countries.[7] It is preferable to restrict comparisons of religious groups to a given country, at a given time.

The following marriage institutions related to religion are expected to affect value of time in marriage. Each of these institutions is predicted to have its own singular effect on the marriage market value of women and on the bargaining power in marriage. Women's actual value of time in marriage depends on the total effect of all institutions found in a given culture and is also a function of the prevalence of a market mechanism in the allocation of brides and grooms into marriages. The first five institutions discussed below will principally affect demand and supply of brides and grooms and thereby the market value of time in marriage.

1. Religious groups may differ in the value they place on having

children and especially on the value of having a large number of offspring. To the extent that in one particular religion men value children more than they would in another, men's aggregate demand for women as procreators would be larger, and therefore, for any given supply, the market value of time of women in marriage is expected to be higher. In Israel, fertility norms seem to be much higher for Moslems than for Jews or Christians. According to the *Statistical Annual of Israel*, in the period 1980–84 the fertility rate among all Moslem women stood at an average of 5.54 children per woman, whereas it was 2.80 for Jewish women and 2.41 for Christian women. In the past 10 years, fertility has declined among all groups, with the fastest decreases observed among Moslems and Christians. By 1994, the fertility rate stood at 4.60 for Moslem women, 2.60 for Jewish women, and 2.04 for Christian women.

2. Religious groups may differ in their rules about the age at which men and women may marry.[8] In all societies, on average, husbands are older than wives. Where the average age difference at marriage between husbands and wives tends to be greater, one expects that the value of young women in the marriage market will be higher because men over a wider continuum of ages are competing for young women than is the case among groups in which young men and younger women typically marry each other. Groups with significant age differences at marriage also often have strong male preferences for virginity in women, which can add to the value of time of young women in the marriage market. (However, women may never see this value, as discussed in points 6 and 7.) In groups that encourage marriages between young women and older men, the market value of time in marriage of older women will be lower than it is in groups that do not encourage such unions, as older women are particularly vulnerable to competition from younger women. From this point of view, the differences between the various religious groups in Israel are not dramatic. According to the *Statistical Annual of Israel*, in 1983, on average, at first marriage Jewish husbands were 2.9 years older than their wives, Moslem husbands were 3.3 years older than their wives, and Christian husbands were 4.3 years older than their wives. The average age at first marriage of women was 23.1 years among Jews and Christians, whereas it was 20.8 years among Moslems. The *Statistical Annual* also reports that in the period 1980–84, 24% of all Jewish women had entered their first marriage by 19 years of age, whereas 56% of all Moslem women had entered their first marriage by age 19. (No comparable statistic was available for Christian women.) Also, 3.9% of Jewish men and 7.7% of Moslem men were older than 35 years at first marriage. This indicates a higher proportion of Moslem marriages involving teenage wives and possibly a higher proportion of Moslem marriages involving large age differences at marriage.

3. Religious groups (and other groups, such as Indian castes) often have gender-asymmetric rules regarding exogamy (marriage outside

one's group). For instance, there is no religious restriction on Moslem men's marriages to non-Moslem women. In fact, it is even considered commendable when a Moslem man marries a non-Moslem woman. In contrast, Moslem women are not expected to marry outside their religion. Such asymmetry will hurt women's market value of time in marriage. This institutional aspect is related to the next institution, discussed below.

4. Religions often determine the rules for divorce: whether divorce is permitted, under what circumstances, who gets custody rights over children, an so on. Many countries recognize such religious laws, as was the case in Italy until recently. In Israel, everyone has to follow the marriage and divorce laws of his or her particular religion. The divorce laws in some of the religions appear to be relatively more favorable to husbands than to wives. For instance, according to the Koran, custody over children is clearly allocated to the husband at divorce, whereas the opposite is generally the case among Christians and Jews. Divorce laws that favor men imply a lower value of time for women; this is not the case for women who live in cultures where rules are more gender-symmetric.[9] This institutional feature interacts with the laws of exogamy discussed above. The possible costs of an interfaith marriage—being alienated from one's children's religion—are lower for men (who expect to obtain child-custody rights) and higher for women (whose husbands are expected to get child-custody rights).[10]

5. Some religious groups permit polygamy, whereas others do not. The availability of multiple marriage partners for men but not for women translates into a higher demand among men for women's time in marriage and at home, leading us to expect that under a polygamous regime women's market value in marriage and married women's reservation wages will exceed those of women in a monogamous regime.[11] That women in polygamous societies actually have a value of time in marriage exceeding that of women in monogamous societies does not necessarily follow, because there may be other institutional differences pointing in the opposite direction.[12]

The next two kinds of institutions we discuss principally determine whether a market mechanism or a command mechanism regulates the allocation of eligible men and women into marriages. In cases in which the command mechanism prevails, one expects more divergence from the (free) market value of time in marriage.

6. Religious groups also differ in their endorsements and punishments of physical domestic violence. In some cultures men may even kill their female relatives over issues of sexual behavior and expect to receive light or no punishment at all. The more lenient the punishment for such acts of violence, the more women's freedom to make their own marriage choices will be limited. This results in women's inability to capture the market value of their time as wives. Forced elopement is an-

other institutional feature that involves violence against women and leads to the same result.

The more prevalent violence against women is in a culture, the lower women's actual value of time is in marriage. Violence against women may be endogenous. For instance, endorsement of male domestic violence may be more prevalent in situations in which the market value of women's time would otherwise be very high, such as in polygamous societies and in marriages between young virgins and rich old men in a culture that promotes the ideal of virginity.

7. Religious groups differ in their endorsement of marriages forced by parents. Forced marriages are often related to parental violence. To the extent that parents, usually fathers, can force their children to marry a particular mate, the bride or groom is less likely to receive his or her market value of time in marriage and more likely to receive a mix of monetary and nonmonetary compensation for value of time in marriage, which satisfies the parents more than it does the children. Freedom of mating choice is also likely to be endogenous. For instance, men have a greater interest in restricting freedom of mating choice where the market value of young brides is especially high and where men stand to gain more from interfering with market mechanisms.

8. Further features of marriage often associated with religion, which are related to whether women are compensated at their market value in marriage, are the institutions of bridewealth and dowry. In cultures in which marriages entail bridewealth payments (i.e., transfer payments prior to marriage from the groom and his family to the bride's family) women's compensations in marriage are likely to be below the market value of their time in marriage. In contrast, dowry payments at marriage by the bride and her relatives may compensate for above-market level compensations for women's time in marriage.[13]

We have focused on institutions that could possibly help us interpret our findings. Depending on the context, one can modify this list of marriage institutions that may be related to an individual's value of time in marriage.

Inferring Value of Time in Marriage from Labor Supply

We will now reason backward.[14] There is no direct way of estimating reservation wage, and certainly no way to estimate value of time in marriage. We do observe labor supply, however, which is a function of reservation wage. Therefore, by comparing labor supply patterns across various individuals or groups, we can infer comparisons of the reservation wage and the value of time in marriage. In the following discussion, cultures *A* and *B* represent a religious group, nationality, or ethnic group.

Rule of inference 1: If married women of culture *A* are found to participate in the labor force at a lower level than do married women of culture *B*, we infer that (1) the reservation wages of married women are

higher in culture *A* than in culture *B* and (2) marriage institutions of culture *A* may have caused a higher value of women's time in marriage.

These two inferences do not necessarily follow. We recognize that instead of step 1 we could infer that wages available to women in culture *A* are lower. Instead of step 2 we could infer that in culture *A* fewer women are available for marriage. Even if the link connecting married women's LFP to value of time in marriage is not very strong, it exists and deserves to be analyzed.

Rule of inference 1 considers that all women in a given culture are part of a homogeneous marriage market. In every culture, marriage market values vary with individual characteristics, such as education, age, and income. The value of time in marriage of people with valuable characteristics is expected to be higher, because of both market forces and bargaining in marriage. In a culture in which marriage markets function freely with little regulation through coercive marriage institutions, one expects wide variations in the value of time in marriage of women of varying characteristics. In contrast, where coercive marriage institutions exist, one expects women to receive less than their market value of time in marriage. Such coercion hurts primarily the women who would otherwise receive higher compensations for the value of their time in marriage.

Husband's Income

Valuable characteristics make women more desirable as marriage partners. Women with such characteristics are more likely to marry rich men. We expect that there exists less of a gap between the value of time of women married to rich husbands and the value of time of women married to poor husbands in a culture in which marriage institutions are coercive to women than is the case in a culture with relatively free marriage markets.[15] Less variation in the value of time by husband's income implies less variation in the reservation wage by husband's income and therefore less variation in married women's LFP by husband's income. The next rule reverses the order of reasoning.

Rule of inference 2: If the LFP of married women is found to be less sensitive to husband's income in culture *A* than it is in culture *B*, we may infer that (1) the reservation wages of married women in culture *A* vary less by husband's income than they do in culture *B* and that (2) marriage institutions of culture *A* may prevent the value of women's time in marriage from reaching high levels, even when husbands earn a high income.

Another factor one expects to be positively associated with the value of a woman's time in marriage is the number of children.[16] One expects a positive association between number of children and reservation wage of women and a negative association with LFP.[17] The effect of the number of children on women's value of time in marriage and

LFP is expected to be lower in a culture with institutional mechanisms that favor men, such as pro-husband custody laws. Again, we can infer clues about the effect of children on women's value of time in marriage by examining children's effect on labor supply.

Rule of inference 3: If the LFP of married women in culture *A* is found to be less sensitive to the number of children than is the case in culture *B*, we infer that the marriage institutions of culture *A* may prevent women with more children from obtaining a value of time in marriage as high as the value they might have obtained had they lived in culture *B*.

Next, we consider two characteristics that are expected to affect both a woman's reservation wage and her wage in the labor market.

Age

Women older and younger than a particular age are typically considered less attractive for marriage (this optimal age varies across cultures). The more desirable a particular age is considered for marriage, the higher is the market-determined value of a woman's time in marriage if market forces operate. Young age is more likely to be an asset to a woman's value of time in Western society, in which brides and grooms allocate themselves more according to the market mechanism than in other societies in which the allocation of individuals into marriages operates principally on the base of command mechanisms.

The effect of age on a woman's wage in the labor market may differ from that effect on her reservation wage in the workplace. The wage rate is expected to increase with age, because of more experience in the labor market, up to an age of optimal earnings. The reservation wage based on the value of time in marriage is also expected to increase up to an optimal age, assuming that free market forces prevail. However, the age for marriage is likely to be much earlier than the optimal age for earnings in the labor market. Past the optimal age for marriage, we expect age to be associated with an intensified tendency to participate in the labor force, because the effect of age on wage and reservation wage reinforce each other.[18] Again, we can use findings about LFP to derive (cautiously) the next rule of inference.

Rule of inference 4: If the LFP of married women in culture *A* is found to increase less with age than is the case in culture *B*, we infer that in culture *A* marriage institutions may prevent women at a prime age for marriage from capturing their higher value of time in marriage more so than such institutions do in culture *B*.

Education

Education is a positive determinant of wages and is associated with higher satisfaction from work. This explains the generally greater participation of educated women in the labor force. The value of time in marriage and the reservation wage can also be positively affected by educa-

tion, to the extent that a substantial number of men in the marriage market perceive that education raises the productivity of women's time in marriage. This implies that more educated women will have a higher market value of time in marriage and a higher reservation wage and will be less likely to supply labor in the labor force. An additional reason that educated women may have a higher reservation rate is related to bargaining in marriage. To the extent that more educated women may translate this resource into a higher degree of bargaining power in marriage and then apply it to the attainment of better material living conditions, they will also have a higher reservation wage and be less likely to supply labor in the labor force.

Incorporating the effect of education on women's value in marriage therefore significantly weakens the commonly accepted hypothesis that more educated women are more likely to work in the labor force. Education may encourage women's labor supply at the highest levels of schooling, which are most likely to affect wage levels and satisfaction from work, and are not likely to have a positive impact on women's value of time in marriage and thus their reservation wages. However, at low levels of schooling, it is very possible that a year of schooling might add to a woman's value of time in marriage more than it does to her wages, which would imply that education would have a discouraging effect on labor supply.[19] Where marriage markets are relatively free to establish a woman's value of time in marriage, the value of education as a resource in marriage will be reflected in higher compensations received by women in marriage and therefore higher reservation wages. Education is not as likely to translate into a higher reservation wage where value of women's time in marriage is restricted by the equivalent of price controls or other coercive rules (unless coercion is less likely to occur in educated marriages). This leads to the next inference.

Rule of inference 5: If the LFP of married women in culture *A* is found to increase more with education than is the case in culture *B,* we infer that education contributes less to women's value of time in marriage in culture *A* than in culture *B,* possibly because marriage institutions of culture *A* may prevent women with optimal educational levels from capturing the full value of their time in marriage.

Our goal in this article is to apply these rules of inference in order to derive some conclusions as to the effect of religion on married women's value of time in Israel. In Israel, all three major monotheistic religions are represented and have relatively autonomous marriage institutions.

By considering the differences in Israel's religious institutions, we cannot reach an unambiguous prediction as to how women belonging to the various religious groups are treated in marriage. Points 1, 2, and 5 above lead us to predict that Moslem married women have a higher value of time than do their Christian or Jewish counterparts. In terms of point

1, Moslems seem to encourage fertility the most and actually have the highest fertility of the three religious groups (see table 1); in terms of point 2, the average age difference between husband and wife is higher among Moslems (expected to increase the value of time of young women) than among Christians and Jews; and in terms of point 5, Moslems have some degree of polygamy, whereas the other religious groups have none in the age groups we are covering.

However, points 3, 4, and 6–8 lead us to predict that Moslem married women have a lower value of time than their Christian or Jewish counterparts have. Exogamy laws favor men more among Moslems (point 3); rules of divorce favor men more among Moslems (point 4); domestic violence against women and restriction on freedom of mating choice are more common among Moslems (points 6 and 7); and bride-wealth payments are found among Moslems but not among Christians or Jews (point 8). In view of these contradictory influences, we do not have a clear prediction about the total effect of religion on the value of time in marriage.

As mentioned above, when applying rules of inference 4 and 5, which deal with women's age and education, one has to be aware of alternative links between women's LFP, age, and education. There could be religious differences in the effects of age and education on wages. However, when interpreting religious differences in the effects of age and education on women's LFP, it is difficult to disentangle religious differences in the effects of age and education on wages from religious differences in the effects of age and education on value of time in marriage. Neuman's study indicates no differences in the effect of education on women's wages across the three religious groups in Israel, which increases our confidence in rule of inference 5.[20]

III. Empirical Study

Data

In order to examine the labor force pattern of Israeli married women, we used the 20% sample of the Israeli 1983 Census of Population and Housing conducted by the Bureau of Statistics. This was the most recent census available at the time of our study. Our sample covers some 147,173 married Israeli women—89% Jewish, 9% Moslem, and 2% Christian (Druze and others excluded; see table 1). Each household member (15 years of age or older) was interviewed separately and personally and answered a battery of 40 questions relating to his or her socioeconomic background (age, sex, marital status, religion, place of birth and of residence, children, education, and work history). Our sample covers 146,173 first-time married couples: 130,082 Jewish couples, 13,103 Moslem couples, and 2,988 Christian couples. This composition is quite similar to the religious composition of the Israeli population.

The population of Israel is composed of two major ethnic groups:

TABLE 1

MEAN VALUES AND STANDARD DEVIATIONS (in parentheses), BY RELIGION, OF MARRIED ISRAELI WOMEN

VARIABLE	ALL WOMEN			WORKING WOMEN		
	Jewish	Christian	Moslem	Jewish	Christian	Moslem
Years of schooling	10.33	8.72	4.64	12.18	11.96	11.52
	(4.35)	(4.25)	(4.48)	(3.81)	(3.48)	(4.40)
Age (years)	42.93	39.67	35.18	37.40	36.05	30.81
	(14.62)	(12.81)	(12.30)	(10.60)	(9.90)	(7.35)
No. of children	2.81	3.64	5.32	2.39	2.27	2.94
	(2.01)	(2.61)	(3.62)	(1.58)	(1.68)	(2.47)
Employed (%)	46.9	22.7	4.5	. . .	. . .	. . .
Worked full time (%)	23.9	11.2	1.6	49.7	47.1	36.2
Years of schooling of husband	10.85	9.36	6.67	12.29	12.07	11.57
	(4.41)	(4.49)	(4.52)	(4.06)	(4.40)	(4.68)
Husband's monthly income (shekels)	29,752	20,304	15,729	35,210	26,026	24,586
	(38,400)	(22,382)	(15,826)	(40,808)	(20,959)	(27,906)
Immigrated before 1947 (%)	9.2	. . .	. . .	4.5	. . .	. . .
Immigrated 1948–64 (%)	41.8	. . .	. . .	34.4	. . .	. . .
Immigrated 1965–71 (%)	5.8	. . .	. . .	5.0	. . .	. . .
Immigrated after 1971 (%)	9.2	. . .	. . .	11.1	. . .	. . .
Of Western origin (%)	55.6	. . .	. . .	59.6	. . .	. . .
Of Eastern origin (%)	44.4	. . .	. . .	40.4	. . .	. . .

Economic sector (%):						
Agriculture and fishing	. . .	. . .	. . .	1.0	.5	1.9
Industry	. . .	. . .	. . .	13.8	14.5	7.4
Electricity and water	. . .	. . .	. . .	.5	.6	. . .
Construction	. . .	. . .	. . .	1.1	.8	.7
Commerce, restaurants, and hotels	. . .	. . .	. . .	9.2	9.8	3.0
Transport, storage, and communication	. . .	. . .	. . .	2.8	1.8	1.2
Finance and business services	. . .	. . .	. . .	12.9	5.3	2.6
Public and community services	. . .	. . .	. . .	54.4	63.5	80.9
Personal and other services	. . .	. . .	. . .	4.3	3.1	2.3
Occupation (%):						
Scientific and academic workers	. . .	. . .	. . .	9.2	5.8	3.2
Other professional, technical, and related workers	. . .	. . .	. . .	27.9	48.7	62.5
Administrators and managers	. . .	. . .	. . .	2.4	.2	.5
Clerical and related workers	. . .	. . .	. . .	32.5	16.5	7.7
Sales workers	. . .	. . .	. . .	4.5	3.2	1.2
Service workers	. . .	. . .	. . .	14.9	12.1	16.1
Agricultural workers	. . .	. . .	. . .	.5	.2	.9
Skilled workers	. . .	. . .	. . .	6.5	10.4	6.0
Unskilled workers	. . .	. . .	. . .	1.6	3.1	1.9
Sample size	130,082	2,988	13,103	52,264	620	571
Relative frequency of religious group (%)	89.0	2.0	9.0	97.7	1.2	1.1

SOURCE.—Israeli Census, 1983.
NOTE.—Ellipses points (. . .) indicate that the data are not relevant or that there were no observations.

Jews, who are the majority (3,412.5 thousand, or 82.86% of the population in 1983), and Arabs. The latter are subdivided into Moslems (542.2 thousand, or 13.6% of the population), Christians (95.9 thousand, or 2.33% of the population), and Druze and others (68.0 thousand, or 1.65% of the population).[21] Because of the small number of employed Druze women, this group is excluded from the following discussion.

Table 1 offers some additional information about our sample. It shows that the occupational distribution is different for the three groups of working women. The great majority of Moslem women (62.5%) is employed in technical jobs, mainly as primary school teachers (53.3%; not shown).[22] About half of the female Christian employees are also in technical occupations (34.3% are primary school teachers). Israeli Arabs have a separate educational system in which most Arab female employees are employed. The largest percentage of Jewish women is employed in clerical jobs (32.5%), and 27.9% of employed Jewish women are working in technical jobs. The second largest occupation for Moslem women is in services—16.1% of working Moslem women are employed in service jobs, mainly as nurses (13.1%). The percentages are a bit lower for Christians (12.1%) and Jews (14.9%). In all other occupations, the numbers of women from all religious groups are quite negligible.

Inspection of the distributions by economic sector reveals that the vast majority of all women is employed in the public sector: 54.4% of Jewish women, 63.5% of Christian women, and 80.9% of Moslem women. The very high share for Moslems and Christians in the public sector results from the fact that the education and health systems in Israel are public. The fact that the public sector is the major employer of all Israeli women, regardless of their religion, implies that insignificant differences in wages with respect to the different religious groups are expected. All the government workers have similar work contracts, implying similar wages for similar levels of human capital.

Jewish women appear to have considerably more schooling and fewer children than do Christian women, who in turn have more schooling and fewer children than do Moslem women. Moslem women had an average of 4.6 years of schooling and 5.3 children, in contrast to 10.3 years of schooling and 2.8 children for Jewish women and 8.7 years of schooling and 3.6 children for Christian women.[23] An estimation of wage equations reveals that the three religious groups of women had similar rates of return to education.

The very significant gaps in educational attainments and in fertility patterns of the three groups almost close when we focus on working women. The average number of years of schooling for Jewish, Christian, and Moslem women are 12.18, 11.96, and 11.52 years, respectively, as compared to 10.22, 8.72, and 4.64 years, respectively, for the entire female sample. The average number of children is also very similar for the three groups: 2.39, 2.27, and 2.94 children, respectively, compared to

2.81, 3.64, and 5.32 children, respectively, for the larger sample of all women. Years of schooling for husbands are also very similar when we look at the households with a wife in the labor force, compared to all households in the sample. The similarity in educational attainments leads to more similarity in monthly income of husbands of working women, as contrasted with husbands of all women.

For the Jewish women studied, we have a subdivision by ethnic origin: 59.6% of working women are of Western origin (from Europe or America) and 40.4% are of Eastern origin (from Asia or Africa). Eastern women have a lower tendency to join the labor force, and their share in the labor force is therefore smaller than their proportion of the population. About 50% of these women are Israeli born or immigrated before statehood in 1948, about 35% immigrated after statehood and up to 1965, and the rest did so after 1965.

Methodology

To test whether the effects of husband's income, children, age, and schooling on LFP rates of women differ for the various religious groups, we estimate regressions of employment with a pooled sample of women of all religious origins. The method of estimation is logit, an appropriate method in view of the dichotomous nature of the dependent variable.

A regression of participation in the labor force was estimated to include the following explanatory variables: age, age squared, schooling, number of children, husband's schooling, husband's income, and dummy variables for Christian and Jewish (Moslem being the reference group).[24] Husband's schooling was included either as an alternative measure of income—it has been used as a measure of permanent income in the past—or because of differences in the value of time in marriage of women married to husbands with higher education. Their value of time in marriage may differ for a number of reasons: educated men may be more supportive of their wife's career, women may appreciate educated husbands for other reasons, or educated men may have a different demand for women's work in marriage.

Each explanatory variable other than the religion dummies was entered three times and interacted each time with one of the three religions. We opted for this version of a full-interaction model so that when we translated the logit coefficients into partial derivatives we could obtain effects of each continuous explanatory variable for each group on the basis of the average probability of participation for each religious group. To transform the logit coefficients into partial derivatives, we multiplied each coefficient with $p_i\ (1 - p_i)$, where p_i is the average probability that a woman of religious group i participates in the labor force. The reported partial effects in tables 2 and 3 refer to a woman with an average probability to participate. In table 4 we report estimated probabilities of LFP for selected values of the explanatory variables.

TABLE 2

LOGIT REGRESSION OF A LABOR-FORCE-PARTICIPATION EQUATION, MARRIED ISRAELI WOMEN

Dependent Variable	Parameter Estimate	Standard Error	Partial Effect
Intercept	−18.6766	1.2199	. . .
Jewish	12.6201	1.2278	. . .
Jewish × schooling	.1670	.0031	.0416
Jewish × age	.2714	.0055	.0677
Jewish × age squared	−.00335	.00007	−.0008
Jewish × number of children	−.2258	.0067	−.0563
Jewish × husband's schooling	.0204	.0027	.0057
Jewish × husband's income (ln)	−.0315	.0124	−.0078
Moslem × schooling	.4324	.0203	.0237
Moslem × age	.4165	.0495	.0229
Moslem × age squared	−.0041	.0007	−.0002
Moslem × number of children	−.3348	.0367	−.0184
Moslem × husband's schooling	.0051	.0157	.0003
Moslem × husband's income (ln)	.4774	.1001	.0263
Christian	8.6454	1.7005	. . .
Christian × schooling	.2519	.0256	.0485
Christian × age	.3023	.0438	.0583
Christian × age squared	−.0036	.0006	−.0007
Christian × number of children	−.3718	.0435	−.0716
Christian × husband's schooling	.0199	.0187	.0038
Christian × husband's income (ln)	.1375	.0988	.0265

SOURCE.—Israeli Census, 1983.

NOTE.—Sample used for the regression is composed of 80,045 Jewish women, 8,873 Moslem women, and 1,931 Christian women. The reference group is ''Moslem.'' The partial effects have been calculated, using the approximation rule $b_i P(1 - p)$, where b_i is the regression coefficient, and p is the average probability to participate in the labor force. p is calculated for each group separately by use of a labor-force-participation equation for that group. An individual p has been estimated for each woman in the group, and then the average for the whole group has been calculated. This resulted in the following average probabilities: $p_{\text{Jews}} = .5259$; $p_{\text{Moslems}} = .0582$; and $p_{\text{Christians}} = .2605$. To calculate the partial effects of variables that refer to Jewish workers, p_{Jews} was used and the other two values of p were used for Moslem and Christian, respectively. The choice of independent variables in the above logit equation has been made in order to facilitate such an estimation procedure.

Findings

As mentioned in the introduction, Moslem women are significantly less likely to participate in the labor force than are Jewish or Christian women (see table 1). While 46.9% of Jewish married women are employed, the rate drops to 22.7% for Christian women and to 4.5% for Moslem women. The differences in full-time employment are even larger: 23.9%, 11.2%, and 1.6% for Jewish, Christian, and Moslem women, respectively.[25]

Table 4 presents the estimated probabilities of LFP for women with

TABLE 3

PARTIAL EFFECTS ON LABOR-FORCE PARTICIPATION (%), BY RELIGION, OF MARRIED ISRAELI WOMEN

Variable	Jewish Women	Christian Women	Moslem Women
Schooling	4.16*	4.85[a]	2.37
Age	6.77*	5.83	2.29
Age squared	−.08	−.07	−.02
No. of children	−5.63*,†	−7.16	−1.84
Husband's schooling	.57	. . .	. . .
Husband's income (ln)‡	−.0078*	. . .	.026‡

SOURCE.—Israeli Census, 1983.

NOTE.—Data are used on partial effects reported in table 2 and are estimated at the points of average probabilities. All reported partial effects are significant at $\alpha = .05$. Ellipses points (. . .) indicate an insignificant effect.

* Effect on labor force participation significantly different than corresponding effect for Moslem women.

† Effect on labor-force participation significantly different than corresponding effect for Christian women.

‡ Husband's income is transformed into ln, and therefore the respective partial effects measure income elasticities.

average characteristics based on the logit participation equations estimated in table 2. As shown in table 4, on average, Israeli Jewish women had an estimated probability of LFP of 43.6%. The corresponding LFP rates are 15.3% for Christian women and 1.1% for Moslem women. When one controls for the various explanatory variables, the participation rate of Jewish women in the labor force was 3.15 times that of Moslem women, and Christian women's participation was 167% that of Moslem women.

Rule of inference 1 stated that Moslem women may have a higher reservation wage and value of time in marriage than non-Moslem women. If that is the case, the marriage institutions found among Israeli Moslems would have caused a higher value of time for Moslem married women than for their non-Moslem counterparts. Alternatively, there are additional restrictions on the participation of Moslem married women in the labor force, such as greater distance to jobs (many Moslems live in villages that offer limited employment opportunities) or restrictions on interactions with men other than family members.

Tables 2–4 present the empirical findings on which we can apply rules of inference 2–5. Table 3 reports partial effects in percentage points for a woman with an average probability to participate (see table 2 note), and table 4 presents estimated probabilities to participate for women with selected characteristics. Husband's income had been used in logarithmic form in the logit regression, so the partial effects in table 2 can be interpreted as the husband's income elasticities of the wife's participation in the labor force.

TABLE 4

ESTIMATED PROBABILITIES OF LABOR-FORCE PARTICIPATION (%) FOR SELECTED VALUES OF THE EXPLANATORY VARIABLES

	Jewish Women	Christian Women	Moslem Women
Reference case:			
Women with average characteristics	43.56	15.27	1.13
Selected cases:			
Women's schooling:			
4 years	20.95	5.18	.84
8 years	34.08	13.01	4.58
12 years	50.21	29.06	21.31
16 years	66.29	52.97	60.43
Women's age:			
Average age −2 SD	18.32	3.66	.015
Average age −1 SD	63.79	18.52	.65
Average age +1 SD	41.66	16.05	2.37
Average age +2 SD	21.57	18.65	5.41
No. of children:			
0	58.41	38.15	4.34
Average no. −1 SD	52.84	29.84	2.27
Average no. +1 SD	31.23	6.22	.22
Average no. +2 SD	22.42	2.13	.058
Husbands' schooling:			
Average −2 SD	39.65	13.01	1.09
Average −1 SD	41.62	14.06	1.11
Average +1 SD	45.03	16.36	1.16
Average +2 SD	47.66	17.63	1.18
Husbands' income (ln):			
Average −2 SD	44.64	13.61	.63
Average −1 SD	44.25	14.43	.80
Average +1 SD	43.09	16.22	1.29
Average +2 SD	42.71	17.17	1.63

NOTE.—The estimated probabilities are calculated using the regression of table 2. The reference case is a woman with average characteristics, reported in table 1. The partial effects reported in tables 2 and 3 are at the points of average probabilities (see note in table 2). Here we refer to the probabilities of women with average characteristics. Because our model is not linear, the two sets of probabilities obviously are different. The various selected cases differ from the reference woman in only one characteristic, as indicated in the table.

Discussion

A positive elasticity of .026 of wife's LFP to husband's income was found in the case of Israeli Moslem women, and a negative elasticity of −.008 in the case of Jewish Israeli women (the husband's income was not significant in the case of Israeli Christian women).[26] Following rule of inference 2, it appears that the husband's income is associated with a higher reservation wage for Jewish Israeli women and that it is associated with a lower reservation wage for Moslem women. The case of Christian Israeli women is in-between. This suggests that marriage institutions in the Moslem Israeli culture prevent the value of women's time

in marriage from reaching higher levels when the husband's income is higher more so than is the case with Jewish marriage institutions. Alternatively, the positive effect of husband's income on wife's LFP among Moslems could simply be due to lack of control for other variables correlated with husband's income. For instance, Moslem women whose husbands earn more could also live closer to a major city than Moslem women whose husbands earn less. Unfortunately, we do not have information on local labor markets in our data set, so we cannot separate these alternative explanations.

The effect of husband's income on wife's LFP could be related to the effect of husband's schooling on wife's LFP. The reported regressions included both husband's income and husband's schooling. We found that the husband's variable schooling had a significant and positive sign only in the case of Jewish couples, with no parallel findings for Moslem or Christian couples. Because both the husband's income and his schooling are used, the coefficient of schooling represents a net effect of education beyond its effect via income. The positive effect of the husband's schooling that we report can be interpreted in at least two ways. First, husbands with more education may encourage their wives to enter the labor force. Second, Jewish Israeli men with more schooling may use this asset as a bargaining tool to allow them to lower their wife's value of time in marriage. Jewish women may pay more for the benefit of having an educated husband than do non-Jewish women.[27]

When income is excluded, the husband's schooling has a significant positive effect on the LFP of Jewish women, whereas it has no effect on the LFP of Christian and Moslem women. When the husband's schooling is excluded from the regressions, the husband's income has an insignificant effect on Jewish women's LFP, probably as a result of the opposite effects of schooling and income canceling each other. The husband's income continues to have an insignificant effect on Christian wives' LFP and continues to have a significant positive effect on Moslem women's LFP.

Our finding of a positive effect of husband's income for Moslem women thus does not depend on the inclusion of husband's schooling in the regression. This does not imply that the classical theory of a leisure-income trade-off needs to be discarded. It implies that Moslem marital institutions may prevent married women from benefiting much from their husband's higher income, whereas this is apparently not the case with Christian or Jewish marital institutions. It also implies that women's labor supply analysis should integrate classical labor supply theory with a theory of marriage.

We find that the number of children has a negative effect on the participation of Moslem, Jewish, and Christian Israeli women in the labor force. Table 4 shows that differences in the estimated LFP probabilities of Israeli women of different religions continue to be large at every

level of fertility. However, we find that the discouraging effect of children on married women's LFP is stronger for non-Moslems than for Moslems. Each additional child discourages mothers from participating in the labor force: by 1.84% for Moslems, 7.16% for Christians, and 5.63% for Jews. On the basis of rule of inference 3, this suggests that Moslem Israeli marriage institutions may prevent the value of time of mothers of more children from reaching higher levels to a greater degree than do non-Moslem marriage institutions.

The different effect of the presence of children on LFP of Moslem and non-Moslem women could also be due to differences in opportunities to combine income-generating work and child care, a function of the type of work and type of mother substitutes available. This does not seem to be the case here. There are, in fact, few child-care services in the Arab villages (mainly day-care centers), but Arabs tend to live in close proximity to their parents, siblings, and other members of the family, and they help each other with household work and child care. The Arab women in our sample also participate in types of work that facilitate combining work with motherhood—most of them work part time (this is particularly true for Moslem women of childbearing ages; see table 1), and many of them are primary school teachers.

A nonlinear relationship with age was found for all three groups. We find that, beyond a certain point, age is positively related to labor supply of women for all religious groups, which possibly indicates that there is a positive effect of age on wage and a negative effect of age on reservation wage or both. Age has a stronger effect on the labor supply of Jewish women than on that of Moslem women. Each year added to a woman's age increased her chances of participating in the labor force, less so for Moslem women than for Jewish women (2.29% vs. 6.77%). The effect of age is nonlinear. At higher ages, an additional year has a smaller positive effect on participation, a mitigating effect that is also stronger for Jewish women than for Moslem women. The effect of age on Christian women's LFP was not significantly different from that effect for women of other religions.

On the basis of rule 4, we infer that Israeli Moslem women may be less likely to benefit from the value of youth in marriage than is the case with their Jewish counterparts. Alternatively, there could be more generational differences in desire to work among Moslem women than among Jewish women. Younger Moslem women may have lost more of the traditional attitudes that kept their older counterparts from entering the labor force than is the case among Jewish women.

Finally, we found that education had a very strong and positive effect on the LFP of Israeli married women of all religions. This is especially obvious from table 4, which shows that differences across the religious groups disappear at the level of a college education. For all education levels, however, our tests indicate that the effect of education

on married women's LFP is less positive for Moslem women than for Jewish or Christian Israeli women. According to table 3, a year of schooling adds 2.37% to the probability that a Moslem woman participates in the labor force, whereas it more than doubles the likelihood that a Christian or Jewish woman participates in the labor force (4.85% and 4.16%, respectively). On the basis of rule of inference 5, we infer that Israeli Moslem women benefit more from the contribution of education to value of time in marriage than is the case for Christian or Jewish women. This, in turn, may indicate diminishing productivity of schooling in marriage or a weaker impact of traditional religious institutions when the level of education increases.[28] Alternatively, the finding of a weaker effect of education on Moslem women's LFP could be due to more opportunities for the educated Israeli non-Moslem women in the labor market or more labor market discrimination against educated Israeli Moslem women than against less educated Israeli Moslem women.

Each of the findings we have reported has alternative ad hoc explanations. What appears, however, is that all of the findings reinforce each other. Moslem Israeli culture seems to be more like culture *A* in our rules of inference, and non-Moslem Israeli cultures more like culture *B.* The finding about religious differences in the effect of education on labor supply does not contradict our other findings. It could be that the institutions that make the Moslem culture an *A*-type culture do not apply as much to more highly educated people.

Clues on Traditional Moslem Culture

One of our most striking findings is that the LFP of Christian Israeli Arab women resembles that of Jewish Israeli women more so than that of Moslem Arab Israeli women. Initially, we found this surprising, given that the Christian women's participation in the labor force appears to be closer to that of the Moslem women than to the Jewish women's participation rate. Our findings help us interpret the statistics reported in table 1 for working women only, where Christian women appear more similar to Jewish women than to Moslem women. The contrast between Moslem women, on the one hand, and both Christian and Jewish women, on the other, makes sense in terms of our analysis of marriage institutions and labor supply.

Our findings suggest that Moslem Israeli women are less able to translate resources in marriage into a higher value of time than is the case with Israeli Jewish and, at times, Christian women. This applied to resources such as husband's income, youth, and children. Education, however, is a resource that appears to be associated with greater variation in reservation wage among Moslem Israeli women than among their non-Moslem counterparts.

Our findings are consistent with the substantial differences that exist between the marital institutions of Moslem Israeli culture, on the one

hand, and Christian and Jewish Israeli culture, on the other. If Islamic laws and customs regarding marriage and divorce are significantly different from Christian and Jewish laws and customs, and the latter two religions are similar to each other, it is only natural that we find the labor supply of Christian and Jewish women responding similarly to differences in socioeconomic variables.

Our inferences indicate that Moslem marital institutions may interfere more with women's opportunities to benefit from their market value in marriage than do parallel Jewish and Christian marital institutions. These Moslem institutions include divorce laws that give automatic custody to fathers, exogamy rules favoring men, and relatively light punishment for men who use severe physical violence on female relatives for what are considered sexual transgressions.

This explanation also makes sense of the apparent contradiction between religious differences in the LFP effects of age, husband's income, and children, on the one hand, and of education, on the other. For the most part, education means Western education, and educated Moslem women may be a self-selected group marrying compatible men. These couples may not accept Moslem traditions as fully as do their less educated counterparts, enabling educated Moslem women to receive closer to their market value of time in marriage. If higher education discourages religious adherence, it is understandable why Moslem traditionalists argue that female education weakens the Islamic family unit.[29]

Another implication of our analysis is that labor-market factors, such as discrimination against the Arab minority, explain few of the differences in women's labor supply. If discrimination by Jews against Arabs played an important role, we would expect to find similar results for all Arab women, Moslem or Christian. Discriminatory Jewish Israeli policies—such as prohibition of army service—tend to discriminate against all Arabs and do not make distinctions between Moslem and Christian Arabs. However, if marriage factors explain the religious differences in determinants of women's labor supply, it makes sense that more similarities were found between Jewish and Christian women than between Christian and Moslem women.

IV. Conclusions

In this article, we compared patterns of married women's labor supply across religious groups in Israel. We used findings on differential impacts of the husband's income, the number of children, level of education, and age of women on LFP in order to infer how marriage institutions affect women's value of time in marriage. In view of the limited methods available to assess the value of time outside the labor market, this study is a valuable contribution.

Women belonging to different religious groups with different marriage institutions behave differently in the same national labor force.

More specifically, the effects of the husband's income, the number of children, and the wife's age were weaker on Moslem women's labor supply than they were for Jewish women. The effects of the wife's schooling and the husband's income on Moslem women's labor supply were also significantly different from those for Christian women. Only the effect of children on Christian married women's labor supply differed significantly from that for Jewish women. We relate these findings to contrast between laws and customs regulating marriage and divorce among Moslem Israelis and the equivalent laws and customs among Christians and Jews in Israel. Christian Arab Israeli institutions regulating marriage and divorce resemble more closely the institutions regulating marriage and divorce among Israeli Jews than those among Moslem Arab Israelis. Moslem women seem to be less likely to translate their resources into a higher value of time in marriage than are either Christian or Jewish women. However, this conclusion does not appear to hold for educated women. Also, our findings indicate that it is not simply the husband's income that influences the wife's labor supply but, rather, it is the amount of the husband's income that reaches the wife. Marriage institutions apparently govern the degree to which husbands and wives share their income. This is one of the many ways by which marriage influences labor supply.

Our economic analysis of religious institutions, marriage, and labor supply strengthens interpretations of religious institutions as products of political and historical factors. In both the Christian West and the Moslem East, there is a tendency to think about religion in black and white and to categorize Moslem religious institutions as rigid obstacles to modernity.[30] We found that educated Moslem Arab Israeli women have achieved some success in using their education toward the achievement of higher values of time in marriage relative to their uneducated counterparts. This possibly indicates that religious institutions related to marriage are not rigid but instead respond to changes in what people expect from marriage as they become more educated.

The command mechanisms of marriage in traditional societies are being challenged universally, including within Moslem societies. Educated women in other economically developed Moslem societies have started to challenge Islamic rulings that influence marriage and are seen to be detrimental to women. For instance, Malaysia, one of the most developed Moslem economies, in 1995 passed a national law against domestic violence. Malaysian Islamic feminists are now putting pressure on Moslem clerics to induce them to follow this law.[31]

Our study opens new avenues for related empirical research. It would be appropriate to apply the theoretical inferences and empirical methodology presented here to comparisons between other groups, whether they are classified by religion, ethnicity, or class and whether they are located in Israel or in any other country, such as the United

States. It is possible that our results showed significant religious differences because of the clearly different ways of life among the various religious groups in Israel, who live in separate institutional settings. Israel has few national laws governing marriage and divorce for all citizens. Other comparisons will indicate whether the results we show are valid elsewhere. For instance, it would be interesting to compare Jews from the West and Jews from Arab countries in Israel or Blacks and Whites in the United States.

Finally, this analysis makes a case for integration between marriage theory and labor-supply theory. We can learn more about labor supply by analyzing marriage and marriage institutions and more about marriage by analyzing labor supply.

Notes

* An earlier version of this article was presented at the annual meetings of the Population Association of America, San Francisco, April 1995. We gratefully acknowledge helpful comments of the editor, an anonymous referee, and Robert Taylor, as well as the econometric advice of Danny Steinberg and the financial help of the Schnitzer Foundation for Research on the Israeli Economy and Society.

1. Gary S. Becker, ''A Theory of Allocation of Time,'' *Economic Journal* 75 (1965): 493–515; Jacob Mincer, ''Labor Force Participation of Married Women: A Study of Labor Supply,'' in *Aspects of Labor Economics,* ed. H. Gregg Lewis (Princeton, N.J.: Princeton University Press, 1962), pp. 63–97; and Reuben Gronau, ''The Interfamily Allocation of Time: The Value of Housewives' Time,'' *American Economic Review* 63 (1973): 643–51.

2. See, e.g., Barry Chiswick, ''Labor Supply and Investment in Child Quality: A Study of Jewish and Non-Jewish Women,'' *Contemporary Jewry* 9 (1988): 35–61; and Evelyn L. Lehrer, ''The Effects of Religion on the Labor Supply of Married Women,'' *Social Science Research* 24 (1995): 281–301.

3. See Chiswick; Evelyn L. Lehrer, ''The Impact of Children on Married Women's Labor Supply: Black-White Differentials Revisited,'' *Journal of Human Resources* 27 (1992): 422–44. See also Shoshana Grossbard-Shechtman, ''An Integrated Analysis of Labor and Marriage and Explanation of Black/White Differences in Marriage, Labor, and Welfare Participation'' (paper presented at the Conference on Economics and Sociology in Honor of Gary Becker and James Coleman, San Diego, Calif., July 1995).

4. Gary S. Becker, ''A Theory of Marriage: Part I,'' *Journal of Political Economy* 81 (July/August 1973): 813–46, and ''A Theory of Marriage: Part II,'' *Journal of Political Economy* 82 (March/April 1974): 511–26. See also his *A Treatise on the Family* (Cambridge, Mass.: Harvard University Press, 1981).

5. Exceptions include Amyra Grossbard-Shechtman, ''A Theory of Allocation of Time in Markets for Labour and Marriage,'' *Economic Journal* 94 (1984): 863–82; Elizabeth H. Peters, ''Marriage and Divorce: Informational Constraints and Private Contracting,'' *American Economic Review* 76 (1986): 437–54; Shoshana A. Grossbard-Shechtman, *On the Economics of Marriage* (Boulder, Colo.: Westview, 1993); and Jeffrey S. Gray, ''Divorce Law Changes, Household Bargaining, and Married Women's Labor Supply'' (paper presented at the Population Association of America, Cincinnati, April 1993).

6. See Grossbard-Shechtman, *On the Economics of Marriage,* esp. chap. 2, for a more detailed analysis of how marriage markets influence reservation wage

and how marital institutions influence marriage markets. According to S. Grossbard-Shechtman, marriage markets are defined as markets for spousal labor. For an empirical study of how characteristics valued in the marriage market are related to the wife's labor supply, see Amyra Grossbard-Shechtman and Shoshana Neuman, ''Women's Labor Supply and Marital Choice,'' *Journal of Political Economy* 96 (December 1988): 1294–1302.

7. See Sondra Hale, ''Gender and Economics; Islam and Polygamy: A Question of Causality,'' *Feminist Economics* 1 (Summer 1995): 67–80.

8. A large age difference could also be endogenous in the sense that it is another result of relatively high demand for wives by husbands.

9. The impact of costs of divorce and remarriage faced by the spouses on value of time in marriage has been analyzed by S. Grossbard-Shechtman in *On the Economics of Marriage,* and ''Marriage Market Models,'' in *The New Economics of Human Behavior,* ed. M. Tommasi and K. Ierulli (Cambridge: Cambridge University Press, 1995), pp. 92–112. See also Peters. It can also be analyzed in light of the economic literature on bargaining in marriage. See Marilyn Manser and M. Brown, ''Marriage and Household Decision Making: A Bargaining Analysis,'' *International Economic Review* 21 (1980): 31–44; and Marjorie B. McElroy and M. J. Horney, ''Nash-Borg Bargained Household Decisions: Toward a Generalization of the Theory of Demand,'' *International Economic Review* 22 (1981): 333–49. All these economic theories of marriage were influenced by Becker's theory of marriage (see ''A Theory of Marriage: Part I,'' ''A Theory of Marriage: Part II,'' and *A Treatise on the Family*).

10. Also in Judaism, divorce costs are higher for women than for men, because men find it easier to circumvent their wives' unwillingness to consent to a divorce than is the case for women facing husbands who will not grant consent. However, in contrast to Islamic courts, Jewish religious courts tend to allocate custody to mothers more often than they do to fathers. Therefore, the prospective costs of divorce to Moslem mothers is higher than it is to Jewish mothers.

11. See Becker, ''A Theory of Marriage: Part I''; Amyra Grossbard, ''Towards a Marriage between Economics and Anthropology and a General Theory of Marriage,'' *American Economic Review* 68 (May 1978): 33–37; and S. Grossbard-Shechtman, *On the Economics of Marriage* (n. 5 above). Our Moslem sample consists of families with one wife only, but the fact that, according to Islam, it is possible for a man to marry more than one woman is expected to lead to a higher reservation wage for Moslem women.

12. If it is indeed the case that women in polygamous cultures are worse off than they are in monogamous cultures, it could be because of these other differences. The low status of women in polygamous societies does not prove that the demand-supply analysis of polygamy is wrong, as claimed in Barbara Bergmann, ''Becker's Theory of the Family: Preposterous Conclusions,'' *Feminist Economics* 1 (1995): 141–50. Other institutions may be designed to specifically prevent women from enjoying a higher market value, as suggested by Marcia Guttentag and Paul F. Secord, *Too Many Women: The Sex Ratio Question* (Beverly Hills, Calif.: Sage, 1983).

13. This follows reasoning first developed by Becker (n. 4 above). See also S. Grossbard-Shechtman, *On the Economics of Marriage,* chap. 4.

14. Similarly, Gronau (n. 1 above) provided estimates of value of time at home based on labor behavior. However, marriage markets and institutions did not appear in his analysis.

15. One expects married women's value of time to vary with husband's income for at least two reasons: (1) positive sorting between desirable qualities of men and women in the marriage markets and (2) men with more income

wanting more to be produced in marriage, an argument also found in most recent analyses of labor supply.

16. More children may indicate more resources on the part of either the husband or the wife and therefore be associated with a higher value of the wife's time. However, the divorce costs of a woman with more children are higher than the divorce costs of a woman with fewer children, especially if divorce laws are adverse to women's interests. The presence of children may create more of an asymmetry in the costs of divorce, as argued by Becker in his *Treatise on the Family;* and by Carmel U. Chiswick and Evelyn L. Lehrer, ''On Marriage-Specific Human Capital: Its Role as a Determinant of Remarriage,'' *Journal of Population Economics* 3 (1990): 193–213.

17. One also expects that mothers of young children will have a higher value of time than mothers of older children. In the United States, the depressing effect of children on women's labor supply was found to be stronger for Jewish mothers of children in preschool and in school, compared with women from other religions (see Chiswick [n. 2 above]).

18. One has to be careful not to mix age effects with cohort effects. Some cohorts face dimmer prospects in either the labor market or the marriage market or both (see S. Grossbard-Shechtman, *On the Economics of Marriage*). In turn, low values of time in marriage faced by a cohort such as the first baby-boomers imply low reservation wages and high rates of female LFP. See Shoshana Grossbard-Shechtman and Clive Granger, ''Women's Jobs and Marriage: Baby-Boom versus Baby-Bust,'' working paper (University of California, San Diego, Department of Economics, February 1996).

19. Evidence for positive effects of low levels of schooling on women's value of time in marriage has been provided using the likelihood of marriage versus cohabitation and the presence of other wives as indicators. See S. Grossbard-Shechtman, *On the Economics of Marriage* (n. 5 above), chaps. 3, 6, 9, and 11.

20. See Shoshana Neuman, ''Gender versus Ethnic Wage Differentials and Discrimination: Methodological Considerations and Evidence from Israel'' (Department of Economics, Bar-Ilan University, 1996, mimeographed).

21. Valid for the end of 1983, when the Census of Population and Housing, on which our empirical analysis is based, was conducted. The sample distribution by religion is quite similar to that of the population. We refer only to Israeli Arabs and not to those living in the occupied territories. Israeli Central Bureau of Statistics, *Populations and Localities: Census of Population and Housing, 1983,* Publication no. 12 (Jerusalem: Israeli Central Bureau of Statistics, 1985).

22. For the historical reasons for the entry of women into the teaching profession, see Miriam M. Mar'i and Sami Kh. Mar'i, ''The Role of Women as Change Agents in Arab Society in Israel,'' in *Women's Worlds,* ed. Marilyn Safir, Martha T. Mednick, Dafne Israeli, and Jessie Bernard (New York: Praeger, 1985), pp. 251–59.

23. These numbers are inferred from our sample. Number of children born includes those that died. The sample employed does not include data on age of children. Comparing the average number of years of schooling, based on the 1961 and 1983 censuses, reveals a dramatic rise for Moslem women—4.64 years of schooling in 1983 (table 1) as compared to 0.5 years in 1961 (more than 10 times as large!). For Christian and Jewish women the changes are smaller in percentage terms. For Christians 8.72 in 1983 compared to 4.6 in 1961, and for Jews 10.33 and 7.3, respectively. Checking fertility rates for the three religions, in 1960 and 1983, we have rates of 9.31 dropping to 5.32 for Moslems, 4.61 and 3.64 for Christians, and 3.49 in 1960 and 2.81 in 1983 for Jews.

24. The square of age is included to test for a possible nonlinear effect of

age on LFP. We did not include an estimated wage in our regressions. Wages are usually estimated as a function of age and schooling. This would have complicated our interpretations of religious differences in the effect of education and age on LFP.

25. These are, in fact, employment rates rather than LFP rates, since they do not include unemployed women. We use the two terms ''labor force participation rates'' and ''employment rates'' interchangeably. However, we always mean ''employment rates.''

26. The difference between the effect of income on Moslem women's LFP and that effect for either Jewish or Christian women is statistically significant.

27. The average years of schooling is much lower for Moslem women. The average for Christian women is almost double that for Moslem women, and approximately 2 years less than the average for Jewish women (see table 1). The point about selection of combinations of educational and religious levels was contributed by Robert Taylor.

28. See discussion on compensating differentials in marriage in S. Grossbard-Shechtman, *On the Economics of Marriage* (n. 5 above), chaps. 4 and 7–9.

29. See Theresa El-Mahairy, ''Status and Education of Women: A Perspective on Egypt,''in *Women's Worlds,* ed. Marilyn Safir, Martha T. Mednick, Dafne Israeli, and Jessie Bernard (New York: Praeger, 1985), pp. 239–45. Even social planners with a modern perspective concerning women's education are wary of copying the Western experience. In W. Hassouna, ''Education of Women: For What?'' in *The Cairo Papers in Social Science-Women's Health and Development,* vol. 1 (Cairo: American University in Cairo Press, 1977), Hassouna, a physician and development planner in the Ministry of Health in Egypt, states that the more educated women who tend to join the labor market are double losers: they suffer a reduction in their status in domestic roles and are assigned menial, cryptoservant jobs in the labor force. He relates this to Egyptian women, but such views may be prevalent among traditional Israeli Arabs as well. Such views are also shared by some observant orthodox Jews, but, since they compose a relatively small fraction of our sample (there is no possibility of identifying them in the sample as there is no question relating to religiosity), the average results for Jewish women are only marginally affected by this group.

30. Mohammed Arkoun, *Rethinking Islam* (Boulder, Colo.: Westview, 1995).

31. Seth Mydans, ''Blame Men, Not Allah, Islamic Feminists Say,'' *New York Times* (October 10, 1996), pp. A4.