HOUSEWORK VS. MARKETWORK: SOME EVIDENCE HOW THE DECISION IS MADE

BY MARIANNE A. FERBER AND CAROLE A. GREENE*

Empirical research using the opportunity cost approach to estimating the value of non-market work of women tends to focus on the value of actual or potential output produced at home and expected or actual earnings, and assume that a rational decision involves choosing the higher one. Evidence derived from data on young married women suggests that full-time homemakers frequently are unable to provide estimates either of their potential earnings or of the lowest wage they would accept to enter the labor market, and that such estimates as they do provide are not soundly based. We also found that using wages of women in the labor market to estimate the value of the home time of full-time homemakers involves upward bias. We conclude that there are good reasons for caution in using the opportunity cost approach.

Some years ago Hawrylyshyn (1976) concluded that there are serious difficulties with the opportunity cost approach to estimating the value of non-market work. One of the problems "is manifest in the following paradox: consider two housewives with equivalent family size and homes, and suppose that they are both equally good at the work, doing the same amount in the same number of hours. This suggests the output value in both cases is the same. Yet if one has an M.A. in micro-biology with a potential wage of $10/hour and the other is a former stenographer potentially employable at $4/hour, this method tells us the value of one's housework is $2\frac{1}{2}$ times that of the other!" (p. 112). Similarly, in a recent study Ferber and Birnbaum (1980) found that careful estimates for women with various patterns of labor force participation[1] lead to incongruous results.

Hawrylyshyn nonetheless argued that the opportunity cost of time valuation is the best one, because he believed it to be the most sophisticated and fully considered theoretical-analytical approach. He suggested that the paradox raised by the two housewives with varying opportunity costs can be solved by equating the value of "being at home" with the value of potential market earnings. This implies discarding the narrow concept of household services, and taking into account the total value of a housewife.

Such an interpretation seems plausible, especially on the assumption that this value includes whatever preference the family may have for the traditional division of responsibilities between husband and wife. By the same token, however, this approach does not lend itself to the valuation of hours at the margin, but rather to a comparison of total potential earnings with the total value of that time spent at home. For this reason, as well as others to be discussed in section II below, we confine ourselves to considering the decision whether or

*Marianne A. Ferber is Professor of Economics at the University of Illinois, Urbana-Champaign, and Carole A. Green is Assistant Professor of Economics, University of South Florida, Tampa. We would like to thank the Research Board of the University of Illinois, Urbana-Champaign, for its financial support, and Jane H. Leuthold for her helpful comments.

[1]Data derived from Ferber and Birnbaum, 1981.

not to participate in the labor force rather than the decision precisely how much time to spend in the labor market. But serious issues remain. One is whether (potential) earnings constitute a ceiling or a floor for estimating the value of home time. Others are related to the question how the decision whether or not to work in the labor market is actually made. Section III offers evidence on these subjects. In Section IV we present our conclusions, and some implications for future research. Empirical work in this paper is based on a small but unique data set described in section I.

I. Data

The information used here was obtained from a panel survey conducted by Robert Ferber with the assistance of the National Science Foundation. The sample consists of two cohorts of young couples. The first were married in the summer of 1968 in Decatur and Peoria, Illinois, the second in the summer of 1972 in Chicago. In all cases the husband was 30 years of age or less at the time of the marriage and the marriage was the first for both partners. Husbands and wives have been interviewed separately every six months since then. The original sample consisted of 311 couples in Peoria-Decatur, and 409 in Chicago. There has been considerable attrition as couples broke up, moved away, or merely decided not to participate any longer. The sample size for this study is 188 for Peoria-Decatur, 180 for Chicago, but sample members did not answer all questions they were asked, so the number of responses available for analysis varies. While some historic information was gathered earlier, data pertinent to our regressions were collected in 1979.

While this sample is not necessarily fully representative of all couples of that age married during the same period, their characteristics appear to make them reasonably typical. The mean age at marriage was 22.8 years for the men, 20.8 years for the women. The mean level of schooling was 12.8 years and 12.6 years respectively. Of the women who were working, 61 percent were in clerical, and 25 percent in professional-technical occupations. Among men, 30 percent were in professional-technical, 27 percent in semiskilled, 20 percent in skilled, 13 percent in clerical occupations.

Among the data gathered, in addition to the usual demographic characteristics, is information on occupational histories and earnings, attitudes toward the role of women in the family, satisfaction with the marriage, and the lowest wage each woman would accept to remain in or enter the labor market.[2] Those women not presently in the labor market were also asked how much they thought they could earn if they were to work for pay. Thus we have information about earnings of women in the labor force, expected earnings of women not in the labor force, lowest earnings each would accept to be in the labor force, and a number of variables that might be expected to influence these amounts.

II. Value of the Homemaker vs. Valuation of Time at the Margin

As suggested above, only by introducing the "value of a housewife" rather than simply the narrower concept of household services is it possible to solve

[2]This last question was originally suggested by Julian Simon.

the paradox of the widely varying dollar estimates for the same tasks done by different women (Hawrylyshyn, 1976). This alone would be adequate reason for skepticism about equating the average value of time with the wage rate, which is presumably equal to the value of time at the margin. But there are others.

First, as Gronau (1977) has pointed out, if time spent on home production does not display constant marginal productivity, although the wage rate may provide a close estimate of the value of time at the margin, it provides a poor approximation of the average value of non-market time. If, as may well be the case, marginal productivity declines as the number of hours devoted to housework increases, the wage rate would underestimate the average value.

A second reason why the wage rate considered adequate to compensate for giving up a unit of home time may not be independent of the number of hours spent in the labor market is that there may be fixed costs associated with labor market entry. Recent studies have suggested that this is the case (Cogan, 1981; Hausman, 1980). If so, a higher wage rate would be required to induce women to work part-time than to work full-time. This situation is illustrated in Figures 1 and 2. Figure 1 shows a hypothetical household production function for the simple case discussed by Gronau in which time is the only input. It can be seen that the value of the total product increases at a decreasing rate as additional hours are spent in household activities. The related curve depicting marginal productivity is shown in Figure 2. If we assume that the wage rate is W, only at precisely H_W hours spent on household production will the wage rate correctly measure marginal productivity. For every hour less than H_W, marginal productivity is clearly higher.

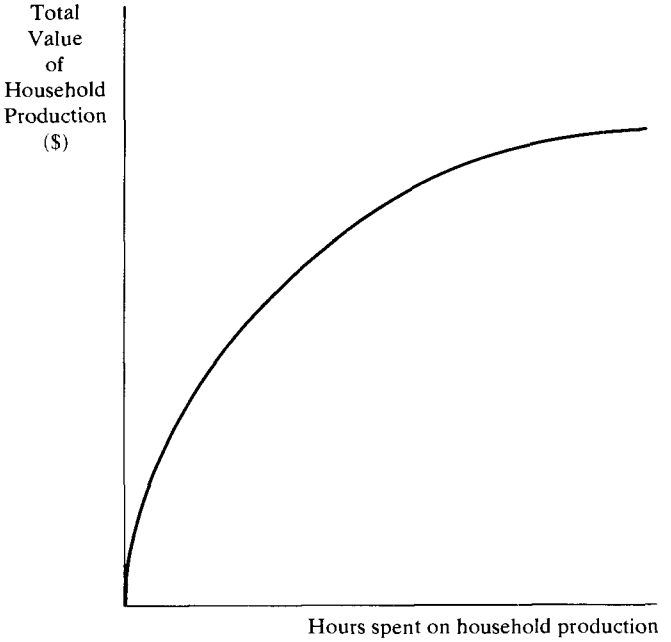

Figure 1

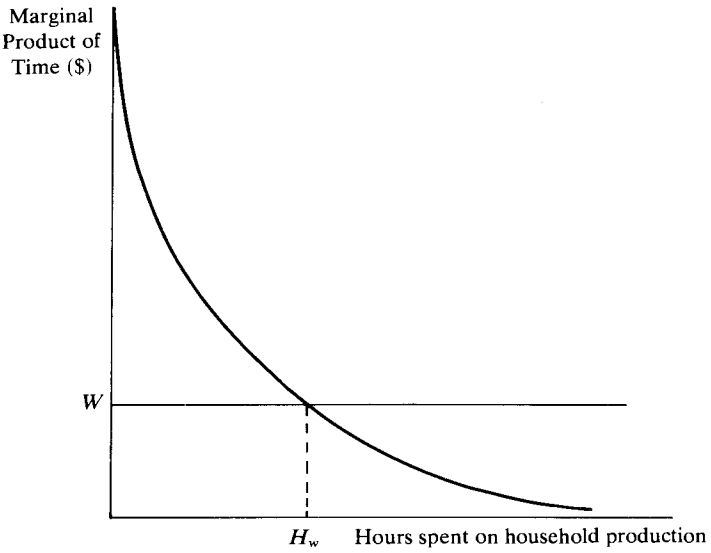

Figure 2

When women in our sample were asked the lowest wage rate they would accept for part-time as compared to full-time work, both those in and out of the labor market indicated they would require a higher rate for part-time work. This evidence indicates that fixed costs, indeed, are likely to be important, so much so that their effect more than offsets any possible effect of diminishing returns to housework. In any case, these results once again indicate that wage rate is not a useful measure of the average value of time.

Third, marginal analysis is acceptable only if it is assumed that the individual can choose how many hours to work in the labor market. When a woman who would prefer to work full-time can only find a part-time job there is no reason to suppose that the value of home time is at least equal to her wage. When a woman who would prefer to work part-time can only find a full-time job, there is no reason to suppose that the value of the additional time spent on the job is at least equal to the value of that time spent at home.

Among the women in our sample we find that a substantial proportion would prefer to work a different amount of time than they presently do. Of the 79 women working full-time who answered the question, 31 indicated they would prefer to work less than they do. Of the 34 working part-time, four indicated that they would prefer to work full-time. This implies that possibly 31 percent of these women were not able to choose the number of hours of work they would have preferred, and suggests that it is by no means entirely realistic to assume that workers can determine the precise amount of time they wish to spend in the labor market.

To avoid these difficulties we shall confine ourselves to a comparison of total earnings with the value of time at home gained by not working for pay. But a number of basic questions with respect to the opportunity cost approach remain to be examined.

III. Opportunity Cost as a Measure of the Value of Non-Market Time

Basic to the opportunity cost approach is the assumption that the participation decision is made by comparing (1) the utility from work at home, consisting of the value of actual or potential output produced, plus or minus the (dis)utility of having a full-time homemaker, and of the work itself; (2) the utility from work in the market, consisting of the value of actual or potential earnings, minus job-related expenses, plus or minus the (dis)utility of the work itself. While this is the theory, in practice it is common to simply focus on the value of actual or potential output produced at home and expected or actual earnings, and assume that a rational decision involves choosing the higher one. It is this empirical approach that our work addresses.

A. *Market earnings—ceiling or floor*

As is generally recognized, the opportunity cost approach at best provides only a lower limit of the value of housework of the full-time homemaker,[3] for her decision to stay at home is rational as long as her worth to the family is equal to or greater than her potential earnings. To determine the actual value we need to know what would be the least amount she would accept to enter the labor market. But by the same token, the earnings of the woman who is in the labor market only provide an upper limit of the value of the work she could be doing at home instead, for her decision to work in the labor market is rational as long as her earnings are equal to or greater than the value of her potential contribution at home. To determine the actual value we again need to know what would be the least amount she would accept to stay in the labor market.

The lowest earnings each woman would accept to be in the labor market should be equal to the value of the housework she does or would do instead of market work, if the opportunity cost approach is valid. Our data provide some evidence on the extent to which potential earnings underestimate the total value of housework of full-time homemakers, and on the extent to which actual earnings overestimate the value of potential housework by wives in the labor market. In 1979 the women in our sample who were not in the labor market expected, on the average, that they could earn $6,446 if they had been working full time, but would only have been willing to do so if they had been paid, on the average, $8,719, an amount 35 percent higher. Similarly, women working full time earned $12,671, but would have been willing to continue to do so if they were paid, on the average, no more than $10,647. The former amount is 16 percent higher than the latter. These are substantial differences which show clearly that traditional methods of using (expected) earnings as a measure considerably overestimate the difference in the value of home time of homemakers and of potential home-time of women in the labor market.

[3]Weinrobe (1974), "The wife's decision to remain outside the market labor force reveals that she values her time at home at least as equal to what she could earn in the market place." (pp. 89–102)

B. *The decision to work in the labor market*

Three important questions arise with respect to the decision whether or no to enter the labor market.

1. Are women able to provide estimates of the value of their household time, and are women not in the labor market able to provide estimates of their expected earnings? Only if they are is a comparison between the two values possible.

2. Does valuation of home time appear to be based on productivity, as is generally assumed in the opportunity cost approach? If variables that would be expected to influence productivity do not have the anticipated effect, or if variables which cannot plausibly be expected to influence it do have an effect suspicion arises that factors not taken into account by the opportunity cost approach must play a part.

3. Are the estimates of expected earnings in the labor market realistic? Only if they are will even a rational process of decision making produce rational results.

Our findings provided some answers to these questions.

1. Of the 169 women who were full-time homemakers, 36 were not able to answer the question what wages they would expect if they did go to work and 15 the question what would be the lowest pay they would accept to go to work. Of the 218 women in the labor market, on the other hand, only 2 did not answer what would be the lowest pay they would accept to stay in the labor market. We conclude that there is evidence that a considerable proportion of full-time homemakers do not behave as the opportunity cost approach assumes,[4] though the same is probably not true for women in the labor market.

2. Evidence with respect to variables that are and are not significantly related to the value women place on home time, as shown by the lowest earnings women would accept for working full-time, is provided in Table 1. One of the most striking findings is that children, who in our sample were quite young[5], do not have a positive effect. On the contrary, the coefficients for numbers of children are consistently negative, though only one of them is significant even at the 10 percent level. Since there can be no doubt that the presence of young children increases the value of the wife's household contribution,[6] we conclude that other factors must balance or outweigh this consideration. Other studies have found that older children do not have a significant negative effect on the mother's labor force participation.[7] Presumably their presence causes financial needs which serve to offset the effects of need for household work. It may be that the same is true even for mothers of young children in our sample. That

[4]It might be argued that these women do know that the value of their work at home is so far in excess of what they could earn in the market that a precise calculation is not necessary. But we did not ask for a precise calculation, only an estimate, and a person who thinks in terms that the opportunity cost approach suggests should be able to provide that.

[5]The couples in Peoria-Decatur were married in 1968, those in Chicago in 1972. Thus, the oldest children of the former would be 10 years of age in 1979, of the latter 6 years (assuming they were born after the marriage).

[6]Robinson, 1977; Walker and Gauger, 1973.

[7]For instance Hill, 1977, and Leuthold, 1978, even suggest that older children may have a positive effect on mother's labor force participation.

TABLE 1

DETERMINANTS OF LOWEST ACCEPTABLE EARNINGS FOR WOMEN TO BE IN THE LABOR MARKET FULL-TIME

	($N = 199$) Women in Labor Market			($N = 150$) Women not in Labor Market		
	Coefficient	Standard Error	Mean	Coefficient	Standard Error	Mean
1 Child	−1,767.2[a]	938.8	0.23	−341.8	1,128.2	0.27
2 Children	−579.8	973.5	0.39	−689.2	1,1100.9	0.50
3 or more Children	−1,629.8	1,239.8	0.12	581.4	1,245.8	0.17
Education[d]						
Less than high school	−1,419.9	1,396.5	0.07	−1,437.5	1,155.9	0.06
Vocational training	2,324.1[a]	1,235.2	0.08	251.5	978.3	0.07
B.A. degree[e]	403.8	1,046.1	0.20	−1,444.2	933.5	0.25
Graduate degree	2,275.6[a]	1,357.1	0.09	679.0	2,910.6	0.01
Unspecified	686.0	2,037.6	0.03	−828.1	1,350.6	0.04
Husband's earnings[f]						
$16,000 or less	467.0	991.2	0.21	−705.4	960.5	0.11
$20,001–28,000	729.3	921.3	0.29	−214.2	726.9	0.42
More than $28,000	3,600.4[c]	1,234.9	0.10	−92.7	828.4	0.21
Unspecified	1,667.5[a]	1,002.3	0.20	−825.4	1,058.6	0.09
Years full time experience since marriage	504.1[c]	125.0	4.80	168.9	134.2	3.09
Years part-time experience since marriage	107.3	159.3	1.59	104.7	209.0	0.75
Occupation[g]						
Managers	−2,481.1	1,903.2	0.07	1,316.8	2,594.7	0.01
Professionals	−1,306.4	1,600.6	0.26	3,552.8[b]	1,553.6	0.26
Clerical	−3,277.5[b]	1,603.7	0.48	667.9	1,363.1	0.55
Blue Collar	−3,419.8[a]	1,757.3	0.14	1,142.3	1,548.7	0.14
Unspecified	−4,080.7	4,798.0	0.01			0.00
Age	397.7	1,081.0	30.52	1,486.5	1,573.9	30.20
Age^2	−7.4	16.2	2,943.99	−21.0	25.4	920.55
Chicago residence	1,323.7	977.4	0.47	1,705.0[b]	752.4	0.51
Constant	4,323.4	18,133.7		−18,706.3	24,484.7	
Lowest acceptable full-time earnings			10,647.99			8,719.67
R^2	0.3315			0.2425		

[a] Significant at the 10 percent level
[b] Significant at the 5 percent level
[c] Significant at the 1 percent level
[d] Omitted category is High school diploma
[e] Includes graduate work short of degree
[f] Omitted category is $16,001–20,000
[g] Omitted category is Sales

would explain their willingness to enter the labor force at wages no higher than women with no children. If this interpretation is correct, it would indicate a significant shift in attitudes, mothers now taking more responsibility for carrying a share of the financial burden of supporting children, and feeling less obligation to be at home full-time even when their children are young.

What of the implications for the opportunity cost approach? If the same (or lower) earnings are large enough to make a woman who has young children enter the labor market as a woman without children, it would appear that the latter are inclined to be full-time homemakers even when the value of their work would be somewhat lower than their market earnings. Several possible explanations come to mind. One is that the absence of children, which means there are fewer dependents, increases the tax the family would have to pay on the wife's earnings. To the extent this is the case it would simply show that it is take-home pay, rather than gross pay, that is relevant. Second, to a considerable extent it is leisure rather than housework that is given up when the woman enters the labor market. She would be more inclined to do that when there is greater financial need. Neither of these conclusions is inconsistent with the opportunity cost approach. Another interpretation, however, would raise more serious questions for this approach. It may be because of traditional attitudes that some women would stay at home even if the value of their time at home is lower than their potential earnings. Increasing financial pressures, however, would tend to act as a counterweight. In this instance the implication is that the value of work at home may be less than potential earnings, to the extent that value is attached to tradition.

A second variable one would expect to influence the value of a woman's time at home is her level of education. This is true mainly because education has been found to raise the value of time spent with children.[8]

There is only very modest evidence to support the hypothesis that more education increases a woman's perception of the value of her home time, and hence increases her reservation wage. Only one of the coefficients is significant, and that only at the 10 percent level. In the case of women not in the labor market the sign on the coefficient for a BA degree is actually in the wrong direction. Here again there is a plausible explanation that is at odds with the opportunity cost approach. Sociological studies show a negative relation between education and traditional attitudes. More educated women would therefore be increasingly willing to enter the labor market with earnings no higher than the value of their work at home.

For women in the labor market the reservation wage is considerably higher when husbands' earnings are above $28,000. This might be because a woman's earnings are subject to a higher tax rate, reducing her take-home pay. Also the higher family income would increase the value of her leisure. The puzzle here is why the same relationship is not found for women who are full-time homemakers. As we shall see, this is only the first of a series of instances leading us to suspect that the behavior of this group is particularly difficult to interpret and shows little consistency with any plausible hypotheses.

[8]Leibowitz, 1974.

We turn next to variables that would not be expected to influence the reservation wage if it were based only on the value of housework. There is no obvious reason why a woman's occupation should affect the quality or quantity of what a woman does at home. The data nonetheless indicate that some occupational categories appear to have a significant effect. This would suggest that women are to some extent influenced by their preference for particular types of work, presumably because the amount of direct (dis)satisfaction is not the same for different occupations.

For women presently in the labor market there is also a significant positive relationship with the amount of full-time work experience they have had since they were married.[9] This would not be expected to influence the value of home time, but might well make a person believe that she was worth more in the labor market, and that it would be an indignity to work for less.

On the basis of these findings we conclude there is some evidence that women's reservation wage is to some extent determined as the opportunity cost approach postulates, especially if we take into account that take-home pay rather than gross pay is the relevant measure of value of time spent in the market, and that the (dis)utility of work enters the equation. But there is also evidence which strongly suggests that the decision whether or not to be in the labor market is influenced by variables which cannot be reconciled with the simple opportunity cost model.[10]

3. In order to make a rational decision whether or not to be in the labor market the woman needs to know her market wage. Women working for pay obviously know this, but full-time homemakers can only make estimates. How reliable are they likely to be? Data in Table 2 suggest they should be viewed with considerable caution.

The left-hand side shows a regression for earnings of women in the labor market. Using the standard variables that are expected to influence earnings, to the extent they are available for our sample, we find an R^2 equal to 0.3412.[11] Few variables are statistically significant, very likely in part because of the small sample size.[12] Those that are significant conform to reasonable expectations. Years of experience and having received vocational training have the anticipated positive effect. If the husband's earnings are very high, wives earn more. This is plausible because of selection bias. Such women would not be expected to work unless they receive relatively high wages. Last, there is some evidence of negative effect of children, generally assumed to be caused by the constraints they impose on the mother's flexibility.

[9]We do not have information on their work history before they were married.

[10]We ran similar regressions with an index of traditional attitudes and marital satisfaction as additional variables. While the R^2 increased somewhat to 0.3942 for employed women, it remained about the same for full-time homemakers, and the coefficients for the variables were not significant in either case.

[11]In fact respondents were only asked to indicate the range within which their earnings fall (under \$4,000; \$4,000–\$7,999; \$8,000–\$11,999; \$12,000–\$15,999; \$16,000–\$19,999; \$20,000–\$23,999; \$24,000–\$27,999; \$28,000 and over). We used midpoints, except for the highest category ($N = 2$) where we arbitrarily used \$30,000.

[12]Since respondents were only asked whether they worked less than full-time, and not what proportion, we were not able to determine their full-time equivalent wage. Therefore only women working full-time are included in this regression.

	($N = 93$) Women in Labor Market			($N = 131$) Women not in Labor Market		
	Coefficient	Standard Error	Mean	Coefficient	Standard Error	Mean
1 Child	−4,088.7[b]	1,820.2	0.23	3,359.8[a]	1,924.6	0.27
2 Children	−1,607.8	2,410.3	0.31	2,218.1	1,870.7	0.50
3 or more children	−3,402.4	3,222.7	0.05	3,517.4	2,181.4	0.16
Education[d]						
Less than high school	1,936.4	2,763.6	0.08	954.9	2,252.7	0.05
Vocational training	5,337.0[b]	2,383.4	0.09	−161.7	1,808.3	0.07
B.A. degree[e]	−2,635.5	2,684.6	0.19	1,016.4	1,571.0	0.27
Graduate degree	−404.5	2,628.7	0.15	14,955.5[b]	7,012.1	0.01
Unspecified	3,051.1	4,784.0	0.02	636.2	2,290.8	0.05
Husband's earnings[f]						
$16,000 or less	515.3	2,135.4	0.17	−451.8	1,593.6	0.14
$20,001–28,000	860.2	1,918.3	0.25	853.6	1,311.7	0.41
More than $28,000	6,542.9[c]	2,488.5	0.10	2,698.5[a]	1,547.6	0.18
Unspecified	583.5	1,905.9	0.25	760.3	1,848.2	0.10
Years full time experience since marriage	667.1[b]	336.1	6.41	550.4[b]	245.1	3.21
Years part-time experience since marriage	270.1	327.8	1.06	177.7	359.9	0.81
Occupation[g]						
Managers	−5,090.6	4,856.5	0.09	−2,811.1	4,298.6	0.02
Professionals	−3,414.0	4,640.5	0.34	−5,430.9[b]	2,391.9	0.27
Clerical	−6,211.8	4,523.9	0.41	−6,425.3[c]	2,095.4	0.52
Blue Collar	−5,096.5	4,828.1	0.14	−5,298.6[b]	2,512.3	0.14
Age	841.4	2,622.7	30.62	1,361.0	3,123.6	30.01
Age^2	−11.2	39.7	950.24	−23.0	50.7	908.42
Chicago residence	2,960.2	2,670.9	0.49	98.2	1,364.9	0.53
Constant	−3,198.1	42,848.8		−13,721.1	48,316.0	
Actual or expected salary			12,670.97			6445.80
R^2	0.3412			0.2245		

[a] Significant at the 10 percent level
[b] Significant at the 5 percent level
[c] Significant at the 1 percent level
[d] Omitted category is High school diploma
[e] Includes graduate work short of degree
[f] Omitted category is $16,001–20,000
[g] Omitted category is Sales

What of the regression for expected earnings of women not in the labor market? The R^2 here is considerably lower, only equal to 0.2245. Of the significant variables, the effect of experience is positive as would be expected. Beyond that, however, there is little evidence of a realistic view of the situation. The potential positive effect of vocational training is ignored, while great value is ascribed to a graduate degree, which our data on actual earnings do not support.[13] There is also evidence that wives of husbands with very high earnings expect higher wages. In view of the absence of any selectivity bias for them, there is no reason to anticipate this.[14] Somewhat surprising, in comparison with the employed women, are the positive coefficients on the variables for children. While the presence of children might be expected to have a strong influence on the decision about labor force participation, there is no theoretical reason for this factor to influence wages once education and experience have been taken into account. Perhaps women not in the labor market have not given any thought to the possible problems and subsequent influence on wages caused by a lack of flexibility in scheduling. At any rate, none of the coefficients on the variables for children are significant at the 5 percent level.

It is interesting to note that if we take the characteristics of the women currently not in the labor market and use them in the equation predicting the lowest acceptable salary derived from the sample of working women, we find that the mean is $8,491, which is within 3 percent of their reported mean. If, however, we perform the same exercise for expected salary, we find that the mean of their expected salaries was $6,446, 35 percent less than the $8,748 mean predicted using the equation for working women. While part of the difference can be attributed to a failure to allow for selection bias in the imputation of wages, it appears that some part must be attributed to ignorance on the part of nonworking women of some of the determinants of wages.

On the basis of all this evidence we conclude it can by no means be taken for granted that full-time homemakers have a very good idea of how much they could earn if they entered the labor force.

Conclusions

While our findings are suggestive rather than conclusive, especially in view of the small sample size, they nonetheless shed some light on the questions we raised.

The divergence between the amount of time women work and would prefer to work, and the fact that the lowest acceptable wage rate is not independent of the number of hours worked both provide evidence that the wage rate is not necessarily an acceptable measure of the average value of time. We therefore conclude that an approach which merely relies on the assumption that total earnings must exceed the value of home time she has to give up if a woman is

[13]The absence of a positive influence of a high level of education would be surprising, if it were not for the occupational distribution of the members of our sample. Of the women who were working, 52 percent were employed in clerical jobs; 10 percent in service jobs; 5 percent in sales; 10 percent in skilled jobs; and 1 percent in unskilled jobs. Graduate degrees are not highly rewarded in these types of jobs.

[14]Unless you assume that their husbands' connections and influence would be helpful.

to enter the labor market, and that she will not do so if total earnings are lower than her value as a full-time homemaker, is more reasonable. But we find there are problems here as well.

The minimal requirement for making the kind of logical decision about labor force participation which provides the rationale for the opportunity cost approach is that it be based on a comparison of the value of time spent at home and in the labor market. When a substantial minority is unable to formulate estimates of one or both of these, the foundation of the whole line of reasoning is undermined. This is clearly true of women not presently in the labor market.

There is also considerable doubt about the degree of realism in the formulation of both the reservation wage and the expected market wage for women who are not working for pay. According to our data, they both fail to take into account variables that would be expected to influence them, and ascribe influence to variables which would not be expected to do so. Similarly, their estimates of what they could earn if they entered the labor market show few signs of being soundly based. This evidence again raises serious question about the validity of the opportunity cost approach.

The picture is rather more promising when it comes to women in the labor market. Almost all of them were able to provide information about their reservation wage, and all would be expected to have reasonably good knowledge of their earnings. There is even evidence that they were taking into account take-home rather than gross pay, and counted the value of leisure as well as housework. Thus the use of an appropriate opportunity cost approach appears to be considerably more suitable for this group.

We also found, however, that using actual or expected wages as the opportunity cost of home time appears to provide substantially biased estimates, though the bias is in opposite directions for women in and out of the labor market. For this reason it would be most useful if more research were done to determine how reliable are estimates of lowest acceptable earnings.

On the basis of all the evidence we conclude that there are good reasons for caution, even if such a modified opportunity cost approach is developed, particularly for women who are not in the labor force. This also implies, however, that as labor force participation continues to rise, the importance of tradition may recede, decisions may increasingly be made by comparing the value of homework and market work, and on the basis of sounder estimates. In other words, while theory to date has not reflected the world, the world may be changing in the direction of reflecting the theory.

Bibliography

Cogan, John, F., Fixed Costs and Labor Supply, *Econometrica*, Vol. 49, No. 4, July 1981, pp. 945–964.

Ferber, Marianne A. and Birnbaum, Bonnie G., Housework: Priceless or Valueless? *Review of Income and Wealth*, Series 28, No. 4, December 1980, pp. 387–400.

———, Labor Force Participation Patterns and Earnings of Women Clerical Workers, *Journal of Human Resources*, Vol. 16, No. 3, Summer 1981, pp. 416–26.

Gronau, Reuben, Leisure, Home Production, and Work—The Theory of the Allocation of Time Revisited, *Journal of Political Economy*, Vol. 85, No. 6, December 1977, pp. 1099–1123.

Hausman, Jerry A., The Effect of Wages, Taxes, and Fixed Costs on Women's Labor Force Participation, *Journal of Public Economics*, Vol. 14, October 1980, pp. 161–94.

Hawrylyshyn, Oli, The Value of Household Services: A Survey of Empirical Estimates, *Review of Income and Wealth*, Series 22, No. 2, June 1976, pp. 101–132.
Hill, Daniel, Labor Force Participation Decisions of Wives, in Greg J. Duncan and James N. Morgan (eds.), *Five Thousand American Families—Patterns of Economic Progress*, Vol. 5, Survey Research Center, Institute for Social Research, The University of Michigan, 1977.
Leibowitz, Arleen, Education and Home Production, *American Economic Review*, Vol. 64, No. 2, May 1974, pp. 243–250.
Leuthold, Jane H., The Effect of Taxation on the Probability of Labor Force Participation by Married Women, *Public Finance*, Vol. 33, No. 3, 1978, pp. 280–294.
Robinson, John P., *How Americans Use Time: A Social Psychological Analysis of Everyday Behavior*, N.Y.: Praeger Special Studies in U.S. Economic and Political Issues, 1977.
Walker, Kathryn E. and Gauger, William H., *The Dollar Value of Household Workers*, Information Bulletin 60, N.Y. State College of Human Ecology, Cornell University, Ithaca, June 1973.
Weinrobe, Maurice, Household Production and National Production: An Improvement of the Record, *Review of Income and Wealth*, Series 20, No. 1, March 1974, pp. 89–102.