

Labor Supply Behavior of Married Women : The Determinants of Hours of Work*

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〈 Contents 〉

I . Introduction	III. Data and Methods
II . Research Model and Hypotheses	IV. Results and Interpretation
	V . Summary and Conclusion

I. Introduction

One of the remarkable changes appeared in Korean labor market since 1980's is that married women's labor force participation has been drastically increasing. Compare to 35.6% in 1980, the rate of married women's participation in the labor market as of 1992 shows 47.0%, increased by 11.4% point. While, the labor force participation rate for male has been slightly decreased from 76.4% to 75.3%, and single women's participation rate has also been declined from 49.1% to 48.1% during the same period. Therefore overall increase of female labor force participation rate from 42.8% in 1980 to 47.3% in 1992 is totally due to the upsurge of married women's participation.

However there have not been sufficient attempts to uncover the factors that affect married women's labor supply behavior, including the work participation decision and employment patterns. Only a few studies (e.g. Hong, 1979 ; Koo, 1979 ; Kim and Shim,

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1984 ; Park, 1984) examined Female labor force participation in general, without distinguishing married women as a separate group. The most recent attempt by the Korean Women's Development Institute (KWDI, 1986) still remains at a descriptive level. It might be due to the fact that married women's active joining in the labor force is a relatively recent phenomenon.

The purpose of this study is to investigate the determinants of married women's hours of work in the labor market in Korea. Most analyses of labor force participation are limited to descriptions of whether or not one is in the labor force. That is, they often take current employment status as the only dependent variable. However, the work participation patterns of married women are much more complicated than the simple dichotomous distinction between working and not working (Collver and Langlois, 1962 ; Junsay and Heaton, 1989). Having or not having a job is only one aspect of work participation. In less developed countries, according to Junsay and Heaton, the distinctions are made even more complex by the various ways in which women conduct their economic activities. Many of their informal economic activities could not be distinguished from their household duties. Thus they suggest, one must look at other aspects besides employment status, particularly for developing countries. In this study, quantitative dimension of the labor force participation, the amount of work measured by weekly work hours, is examined.

II. Research Model and Hypotheses

II. 1. Dependent Variable : Hours of Work

The hours devoted to work represents a quantitative aspect of participation and has an important implication for time allocation behavior. More time on the job implies more commitment to work, but means less time available for other activities (Junsay and Heaton, 1989). Unlike men, women, especially married women, allocate their time among market work, unpaid household work, and leisure (Mincer, 1962 ; Becker, 1965). Under these given time constraints, an increase in market work reduces both leisure time and commitment to household production. Likewise, the time allocated to market

work or leisure would be decreased if there is greater household responsibilities. Therefore, measuring time devoted to work would allow more detailed information on time allocation by wives, than a simple measure of participation vs. non-participation.

A wide variety of family and individual factors influence women's labor supply behavior. The factors employed in the framework of the present study are divided into two groups : 1) background variables, and 2) household characteristics are included as the explanatory variables.

II. 2. Background Variables

Age : Cross-sectional studies (e.g. Bowen and Finegan, 1969 ; Sweet, 1973 ; Waite, 1976, 1980) showed an inverted U-shaped relationship between married women's labor force participation and age (women aged 14-54). Sorensen (1983) argues that those results are consistent with the hypothesis that the pattern of role specialization is an important way for women in postindustrial society to combine family and market work. Age is closely interrelated with the presence of young children. The effects of a woman's age on labor force participation behavior appeared to depend upon the number of preschool children (Bowen and Finegan, 1969 ; Stolzenberg and Waite, 1977). Smith-Lovin and Tickamyer (1978) argue that pressures from the normative timing of life course events mandate early adulthood as a period of family building. This normative pressure is even stronger in Korea. The vast majority of young married women intend to have children and carry out these intentions during the early years of marriage, showing a relatively lower rate of labor force participation. The participation rate will keep increasing as women complete their fertility and as their children grow, until it drops again about age 50 to 55. Therefore the impact of age on women's work participation is likely to be curvilinear.

Education : In general, educational attainment is often found to improve employment opportunities, and to raise earnings potential. However, Standing (1978 : 285) argues, "the mere fact that education improves women's employment opportunities does not mean that they will necessarily wish or be able to take advantage of them." He also raises objections to the opportunity cost argument : 1) There may be an inverse relation-

ship between women's educational attainment and their labor force participation, since educated women typically marry educated men who have potentially high earnings (which tend to reduce women's financial incentives to seek employment); 2) Within the constraints of the nuclear family, the opportunity cost of non-participation in the labor force may even be lower for an educated women with children, because an educated woman is probably better able to take care of child in vitally important early education of her children than a less educated one (1978 : 284). The former argument is consistent with the 'income effect'; and the latter argument is consistent with Leibowitz's findings (1975) that wives' educational level is negatively related to the allocation of their time to market work, i.e. women with high education invest more time in child-care activities. He further emphasizes that this is particularly likely to be the case in low-income countries where institutionalized educational facilities for young children are relatively undeveloped.

Standing (1978) also views that education may, to a certain extent, increase the propensity of women to participate in the labor force by raising income aspirations and the degree of dissatisfaction with any given level of family income. However, he further sees that since education also raises income and occupational expectations, a positive relationship cannot be presumed because those expectations cannot always be realized. Instead, he presents the 'status frustration' effect. The work available to educated women is often of a lower status and is less well paid than that to which they feel entitled and for which their education qualifies them. In many cases they have to accept jobs inferior to those of men with levels of education comparable to even inferior to their own. This may lead to a pronounced 'status frustration' effect, whereby many women who feel entitled to a certain level of income withdraw from the labor force, rather than accept some lower-paying, low-status job. In these circumstances the tendency to withdraw is probably strongest for educated women whose husbands have high-income, high-status jobs. He concludes that this status frustration effect may be particularly common in urban areas of low-income countries. It is frequently observed that in such areas the highest unemployment rate is among young people, who also tend to be the most educated group. For the educated, it may even be rational to withdraw for a short time rather than take a low-paying, low-status job which may have an unfavorable effect on their subsequent earnings potential.

Place of Residence : Areal influence has to do with areal variations in the acceptability of women working, in the occupational structure and in the local labor market circumstances. In Korea, women in rural areas tend to show higher rate of labor force participation. This is associated with labor shortage in rural areas due to rural-urban migration, started in the late 1960's. Therefore it is expected that urban areas are negatively related with the amount of work.

Work Experience before Marriage : Whether or not a woman worked before marriage should influence her future working life, since work participation is a process involving stages of labor force experience.¹⁾ Kahne (1978) indicated that studies using data from National Longitudinal Survey (NLS) showed a strong relationship between women's work participation and the extent of earlier work experience. Likewise, Rosenzweig (1976) emphasized that past employment experience is an important correlate of current labor market behavior. It is thus expected that women with prior work experience have a greater possibility of participating in the market, and will have high status jobs. Work experience may be an indicator of one's employability and positive taste for market work.

To sum up, the relationship between background variables and labor market participation patterns is hypothesized as follows :

- H1. Age is likely to have a curvilinear relationship with the time devoted to market.
- 1) The relationship is likely to be positive as women complete their fertility, gradually being free from child responsibility.
 - 2) There will be a negative association after reaching the highest participation rate at about their late fifties.
- H2. The educational level of women is likely to be negatively related with the hours of work. That is, the higher the educational level, the less time she spent her time in the labor market.
- H3. A woman in urban areas is less likely to participate in market work.

1) Standing (1978) proposed the greater use of historical approaches in the study of work participation by considering the long-run interactions between individual behavioral patterns and labor market factors. Junsay and Heaton's study(1989) also employed a life-course perspective to describe women's economic participation. They specifically emphasized the timing and process of female labor force experience by exploring the influence of early experience on current aspects of economic behavior.

H4. The more work experience a woman had before, the more hours per week she will work.

II. 3. Household Characteristics

For women, particularly wives and mothers, household conditions are major considerations in making decisions concerning work participation. Economic condition are of particular importance. Women may decide to work out of economic necessity. When they are faced with economic pressures or economic squeezes, they are likely to work. Economic pressures result either from low family income or from a discrepancy between life-style aspirations (i.e. consumption aspirations) and the available economic resources to afford such aspirations (Oppenheimer, 1982).

Husband's Employment Status: Among women with husband present, husbands' employment status, whether currently employed or unemployed, greatly influences wives' work participation pattern. It is anticipated that women with unemployed husbands are likely to spend more time in market work. Husband's occupational status and educational level (indicating household income level) are often regarded as exerting a negative influence on the wife's decision to work according to the level of economic pressures. Yet, the relationship may not always be negative. It is not inconceivable that high socioeconomic status on the husband's part promotes his wife's employment partly as a result of egalitarian attitudes and the higher educational attainment of wives (Lustig and Rendon, 1979).

There has been another line of argument. As discussed above, economic pressure might arise out of the relative economic deprivation, i.e. the gap between life-style aspirations and the economic ability to achieve desired consumption goals. Therefore, relative economic status as well as the absolute amount of family income should be considered. Oppenheimer (1982) conceives of occupations as important reference groups, providing life-style models and values. For instance, college professors are more likely to use each other as a reference group for life-styles than they use the businessmen or craftsmen they occasionally encounter in the course of their daily activities. Occupation is also the major determinant of one's socioeconomic position in society, and it provides

a reference group for the establishment of status-determined life-styles.

Thus, Oppenheimer suggests that occupation provides a means of studying one type of relative economic deprivation, since the occupational group often constitutes a positive reference exhibiting life-style models that one's family will desire. She shows that families of men in white-collar occupations have certain shared life-style aspirations that sometimes involve more expensive consumption patterns than those considered obligatory among manual workers' families. However, families of men in lower-paid white-collar occupations are not in any better position economically to achieve these white-collar life-styles than many blue-collar worker families. Hence, families of men in lower white-collar occupations are likely to find themselves in a chronic squeeze -- caught between relatively high life-style aspirations and the very limited economic resources of the husband to achieve these aspirations (Oppenheimer, 1982 : 8). It may lead their wives to work.

However, Oppenheimer's argument is not appropriate for the Korean case. Korea is still a fundamentally male-dominant society and thus a traditional and conservative concept of sex-role is prevalent. Under such circumstances, work by the wife may threaten men because it symbolizes their own failure or inadequacy. This is even more true among middle and upper classes. Therefore, husband's socioeconomic status is more likely to have negative impact on women's decision on working vs. not working. Yet, among working women, husband's educational level and/or occupational prestige will show a positive influence on wife's occupational status.

Family Income : Generally, married women work to supplement an inadequate family income. Thus, the lower the family income, the greater is the economic pressure for the wife to work. This is often called the 'income effect'. Numerous studies have supported the income effect on labor supply behavior. Family income (other than wife's) has been found to have a negative impact on the wife's participation in the labor market (Mahoney, 1961 ; Cain, 1966 ; Bowen and Finegan, 1969 ; Sweet, 1973 ; Joseph, 1983). An increase in the family's other sources of income would increase the demand for the wife's leisure and home goods, so that eventually the wife could drop out of the labor force and devote her time exclusively between home production including child care, and leisure.

Presence of Young Children : It has been a common recognition among different traditions of researchers that a wife's childbearing and childrearing responsibilities constrain her labor force activity, indicating that fertility determines labor force participation. Presence of young children, particularly those age under six, constrains married women's employment, since children are time-intensive,²⁾ and the very young children are the most time-intensive. Child-care responsibilities demand a substantial amount of wives' and mothers' time, which otherwise could be spent in gainful employment (Mason and Palan, 1981). Smith-Lovin and Tickamyer (1978) explain that, given the priority of traditional roles, extrafamilial activities will be arranged around them. Normative expectations about childrearing for women traditionally require that precedence be given to the parental role. Moreover, the inflexibilities of young children's schedules make working a less preferred and extremely difficult activity for women. Presser and Baldwin (1980) found that the presence of young children negatively affects married women's labor market activities, especially in less-developed societal settings where there is a shortage of child-care workers or day care facilities. Therefore, it is easily hypothesized that married women are less likely to work if they have young children present.

To sum up, the impact of household characteristics on women's labor supply is hypothesized as follows :

- H5. A woman whose husband is currently employed, is likely to spend less time in market work.
- H6. The higher the family income, the less likely a woman is to devote time to market work.
- H7. The more young children the mother has, the more likely she will work fewer hours in the labor market.

2) Yet the negative impact decreases as children get older, since older children are relatively more goods-intensive than time-intensive(Chamnivickorn, 1988).

III. Data and Methods

III. 1. Data

The present study utilizes the data collected from a nation-wide household survey done by Korea Women's Development Institute (KWDI). Nation-wide interviews were conducted between September 11 and October 23, 1985 with married women, including the divorced and separated, between 14 and 65 years of age (and their spouses in 1/5 of the households), and were completed with 4,316 women and 676 men (KWDI, 1986 : 8).

The sample drawn for the survey is the nation-wide self-weighting sample based on the sampling units of the 'economically active population survey' by the Economic Planning Board (EPB).³⁾ Fifty sampling units (which correspond to 1/9 of EPB's units), and thirty-one units (which is equivalent to 1/3 of EPB's units) were selected in urban and rural areas, respectively, on the basis of systematic sampling. From each sampling unit in both urban and rural areas (a total of 81 sampling units), 60 households were extracted. As a whole, one-third of EPB's survey sample was drawn. Among the total respondents of 4,316 married women, 40.5 percent (1,750) were rural inhabitants and 59.5 percent (2,566) were urban residents.

Up to now, the survey by KWDI was the first and the only attempt that carried out at the individual household level, nation-wide. Before then, most studies were done on the basis of aggregate data, such as the population census or 'economically active population survey' conducted annually by the Economic Planning Board (Kim and Shim, 1984 ; Park, 1984). The data from KWDI's survey contains an extensive amount of information on married women's labor force participation and employment pattern in Korea. The questionnaire on 'married women's employment condition', as a survey instrument, contains questions on general household circumstances and individual characteristics. For example, items on each household member's personal items and economic activities, the parental background of married women, education and economic activities of both women and their spouses, and fertility were asked. It also includes retrospective

3) The sample in EPB's survey is a nationwide self-weighting sample, using a stratified two-stage sampling method involving primary sampling units and secondary sampling units. For more detailed information, see *Annual Report on Economically Active Population*(National Bureau of Statistics, EPB, 1986 : 14-5).

information on women's work history by life-cycle period. Time allocation behavior and housework shared between husband and wife were added. Attitude, including that of spouse, on women's social role and women's labor market participation was also included.

III. 2. Statistical Methods

The variable of weekly work hours involves the problem of censoring, since the dependent variable can be observed only in a limited range, not having negative values. Women who are not currently working apparently have zero value for observed work hours. However, they might have different intensity in terms of not working in the market. In other words, although they all have the same zero value for observed work hours, their potential hours of work might be different. Therefore, a censored regression analysis which takes into account this fact will be conducted, instead of simple OLS.

The Censored Regression (Tobit) Model for Weekly Work Hours : The dependent variable, hours of work, is observed in a limited range. The minimum value would be zero and cannot have a negative value. This is true because women in the sample who are not currently working were assigned zero for hours of work. Thus, there exists a threshold in the dependent variable. Those observations of currently not-working women (i.e. zero hours of work) may, however, have different potential value for work hours, regardless of the assigned observed value of zero. In other words, even though a zero was assigned for the observed value for all women who are not presently employed, they might have a different propensity towards work. Since the potential or latent value of work hours is influenced by the probability of having non-zero hours of work, using simple OLS without considering this problem might misspecify the true relationship between predictors and the dependent variable, hours of work. One possible model in this situation is the censored regression (tobit) model, first introduced by Tobin (Maddala,

4) Mare and Chen(1986 : 407) explains that the tobit model separates the total effect of a set of independent variable on hours of work into two parts : 1) a linear effect of the independent variable of hours of work given the non-zero range of the dependent variable; 2) a non linear effect of the independent variable on the probability of women working in the market (i.e. the probability of having non-zero hours of work).

1983 : 149-62 ; Mare and Chen, 1986 : 403-12) which recognize that some observations are crowded at zero hours of work.⁴⁾ The tobit model takes into account the probability of having non-zero hours of work (i.e. the probability of working in the market) to predict the observed hours of work.

The observations are censored in terms of work hours (Y_i) as follows :

$$Y_i = Y_i^* \quad \text{if } Y_i^* > 0$$

$$Y_i = 0 \quad \text{otherwise (i.e. } Y_i^* \leq 0)$$

where Y_i = observed value of hours of work after censoring

Y_i^* = latent value of hours of work before censoring

Then, the tobit model is defined as follows :

$$Y_i = B_i'X_i + U_i \quad \text{if } Y_i^* > 0 \text{ (i.e. } Y_i = Y_i^* \text{)}$$

$$Y_i = 0 \quad \text{otherwise}$$

By doing so, we use all the observations on Y_i (hour of work), instead of using only the non-zero observations (Maddala, 1983 : 159).

The simple OLS regression provides an estimate of the effect of unit changes in the exogenous variables on hours of work, for all the observations including working and nonworking women in the sample (i.e. zero and non-zero hours of work), without considering the latent values (treating all the zero's equally). The tobit analysis, on the other hand, provides three different coefficients according to different expectation functions. Each estimate denotes the slopes of the different curves according to different expectation functions :

$$B_i = d E(Y_i^*) / d X_i$$

$$B_i * F(Z) = d E(Y_i) / d X_i$$

$$\text{PARTIAL} = d E(Y_i | Y_i^* > 0) / d X_i :$$

Firstly, B_i 's represent the effect of each exogenous variable on the "latent or poten-

tial" values of hours of work (Y'), assuming that the sample is not censored. Secondly, $B_i * F(Z)$'s are the effect of exogenous variables on the all "observed" values (Y_i) including zero and positive hours of work, after the sample is censored in terms of work hours. Here, $F(Z)$ is the cumulative normal function of the corresponding (Z), representing the probability of having non-zero hours of work (i.e. the probability of participating in market work). Finally, the partials stand for the effect of independent variables on hours of work within the selected group of positive work hours (i.e. for working women only).

Table 1 presents both OLS and tobit estimates for the hours of work. As shown, both estimates have the same sign, and t -values are very similar across all the predictors in the analysis. Yet, the magnitude of each coefficient show the considerable difference. Among the tobit estimates, the slopes are greatest for the latent Y 's (Y') and smallest for the group of positive Y 's only. However, the effect on the "observed" hours of work, taking into account the probability of having non-zero work hours ($B_i * F(Z)$) is of main concern, since we are interested in all the women in the sample, not just currently working women. These effect on observed Y 's are most comparable with OLS estimates, in that OLS also include both zero and positive work hours. Yet OLS tends to underestimate (smaller slopes) the effect. This is true because OLS does not consider the potential negative values of work hours.

Contextual Effect: contextual effect of region will be examined in two ways. In order to control different regional effect or areal influence, the separate regression analysis between urban and rural as well as a dummy variable analysis will be conducted. The separate analysis allows more comprehensive comparison between areas, including the relative strength of the causal impact among independent variables, and the magnitude of the effect of each independent variable across regions. The dummy variable analysis, on the other hand, permits a direct comparison between urban and rural by providing the overall mean difference in terms of the dependent variables.

IV. Results and Interpretations

Hours of work devoted to the market is expected to be more influenced by immediate household surroundings (e.g. presence of young children, husband's employment sta-

tus, the level of family income, etc.) than by the individual woman's background characteristics.

Impact of Background Variables : Hypotheses H1, H2 and H3 state the curvilinear impact of age, and the negative effects of education and urban residence on amount of market work. The impact of age is curvilinear and also significant. However, the shape of the curve is the opposite of the earlier expectation of an inverted U-curve. According to OLS results, negative impact reaches zero at about age 39, and then the effect becomes positive thereafter. Thus, the curve appears to be a U-curve. The significant negative impact of education and urban residence are consistent with the hypotheses (b 's for education and urban residence are -4.950 and -1.071 respectively, significant at $p < .001$). That is, urban women with more education are found to work much less than rural women and less educated women.

Household Characteristics : Hypotheses of H5 and H6 relate household's economic situation (i.e. husband's employment status and household income) on women's time spent in market work. As expected, women with currently employed husband and those with higher levels of household income work less. Yet the impact of husband's employment status is not statistically significant, and is smaller than that of household income (β 's are $-.019$ and $-.104$, respectively). This may be the case if the household has other income sources than husband's employment. Therefore, the impact of husband's employment status becomes insignificant when the household income is controlled. Family size shows a positive influence on weekly work hours. Family size is expected to have a mixed result : 1) A larger family may have a negative impact because it implies a greater amount of housework to be done by women ; 2) But, at the same time, a larger family can have a positive impact for economic reasons. The result supports the positive impact.

The presence and number of young children was hypothesized (in H7) to have a significant negative influence on hours of market work. The result is that higher fertility during the 1980-85 period strongly reduces the weekly hours of work, which supports my earlier expectation. I suspected that the impact of children may depend on women's educational levels. Yet the negative impact of children remains strong and statistically

highly significant even after the education and the urban residence variables are controlled.

Lagged Effects of Fertility and Work : Both lagged effects of work (H4) and fertility in 1980 show significant positive impacts. Most noticeably, work in 1980 has the strongest and the most powerful influence on the amount of time women invest in the market. This is contrasted with the significant negative impact of work experience before marriage on hours of work. Premarital work experiences negatively influence mainly because clerical and factory jobs held before marriage can not be continued after marriage.

Table 1. Regression Analysis of Hours of Work : Results by OLS AND TOBIT

Variable	OLS ^a			TOBIT			
	b	(beta)	t	B _i ^b	B _i *F(Z) ^c	PARTIAL ^d	t
Age	-.101	(-.035)	-1.242	-.230	-.133	-.094	-1.501
Age-square	-.048	(-.192)	-11.784	-.083	-.048	-.034	-10.631
Urban area	-4.285	(-.064)	-3.963	-8.531	-4.950	-3.496	-4.281
Education	-1.034	(-.136)	-6.795	-1.845	-1.071	-.756	-6.498
Husband's employment status	-1.460	(-.019)	-1.185	-1.001	-.581	-.410	-.448
Family size	.710	(.036)	2.020	1.500	.870	.614	2.322
Household income	-.113	(-.104)	-6.594	-.287	-.166	-.118	-8.034
Work experience before marriage	-2.906	(-.043)	-2.952	-5.678	-3.295	-2.327	-3.130
Work in 1980	18.506	(.280)	18.575	34.959	20.284	14.328	18.415
Fertility in 1980	.967	(.070)	2.454	1.606	.932	.658	2.246
Fertility change, 1980-85	-4.611	(-.105)	-5.578	-9.649	-5.598	-3.955	-5.934
Intercept	43.976	(0)	10.807	37.575	21.802	15.400	4.949

^a b's in OLS estimates are unstandardized coefficients and betas in parentheses are standardized coefficients.

^b B_i's represent the effect of each exogenous variable on potential or latent dependent variable (Y*).

^c B_i*F(Z)'s stand for the effect of each exogenous variable on observed dependent variable (Y).

^d Partials denote the effect of each exogenous variable only on non-zero or positive dependent variable (Y | Y* > 0).

Urban-Rural Comparison The separate tobit analysis of urban and rural areas shows a noticeable difference between areas, in terms of the determination of weekly work hours of married women. Comparing the effect of each variable on "observed" hours of work (i.e. second column in each area) in Table 2, the absolute size of the impacts of independent variables is mostly greater in urban areas than in rural areas, except the lagged effect of work in 1980. The positive lagged effect of work is much higher in rural areas. One noticeable difference can be seen in the effect of increase in fertility on hours of work. The negative influence of additional children on work hours in urban areas is remarkable, showing almost three times that of rural areas (-6.557 and -2.329 in urban and rural areas, respectively). Since, in rural areas, most of the farming work can be carried out with the housework, the presence of children seems to make little difference. The discussion below will shed more light on the areal difference of the impact of fertility increase on hours of work.

Instead of a simple presentation of various coefficients for the exogenous variables, it would be helpful to provide the predicted work hours for some interesting cases. As discussed earlier in this section, in the tobit framework, the hours of work can be predicted three different ways by expectation functions, for given value of independent variable (Maddala, 1983 : 158-61) :

- (1) the predicted "latent or potential" work hours without censoring :

$$E(Y_i^*) = B'X_i$$

- (2) the predicted "observed" hours of work after censoring :

$$\begin{aligned} E(Y_i) &= P(Y_i > 0) * E(Y_i | Y_i > 0) + P(Y_i = 0) * E(Y_i | Y_i = 0) \\ &= F_i (B'X_i + \sigma * f_i/F_i) + (1-F_i) * 0 \\ &= F_i B'X_i + \sigma * f_i \end{aligned}$$

- (3) the predicted hours of work for the group of working women only :⁶⁾

$$E(Y_i | Y_i^* > 0) = B'X_i + \sigma * (f_i/F_i)$$

Based on those expectation functions, the different expected work hours for selected

6) The relationship between (2) and (3) is derived by Maddala as follows :

$$E(Y_i) = F_i * E(Y_i | Y_i^* > 0)$$

Table 2. Results of Tobit Analysis of Hours of Work : Urban and Rural Areas

Variable	URBAN			RURAL		
	B_i^a	$B_i * F(Z)^b$	t	B_i^a	$B_i * F(Z)^b$	t
Age	-.933	-.386	-3.435	.437	.358	2.435
Age-square	-.102	-.042	-7.136	-.079	-.065	-9.065
Education	-2.242	-.927	-4.761	-1.400	-1.148	-4.064
Husband's employment status	-3.200	-1.323	-.769	.743	.610	.310
Family size	2.186	.904	1.655	1.016	.833	1.607
Household income	-.362	-.150	-6.369	-.158	-.130	-3.055
Work experience before marriage	-8.869	-3.665	-2.726	-2.283	-1.872	-1.164
Work in 1980	40.090	16.569	12.988	31.518	25.844	13.088
Fertility in 1980	3.321	1.372	2.232	.491	.403	.709
Fertility change, 1980-85	-15.866	-6.557	-5.551	-2.841	-2.329	-1.527
Intercept	52.901	21.864	4.024	9.104	7.465	1.055

^a B_i 's are the effect on latent Y (Y^*)'s.

^b $B_i * F(Z)$'s are the effect on observed Y 's (including positive and zero work hours).

cases can be calculated. Table 3 presents three different predicted hours of work corresponding to fertility change during 1980-85 by region, holding all other variables at their means. As seen in the table, the expected potential work hours ($E(Y^*)$) are smaller and show a more steep slope, whereas the predicted work hours for working women only ($E(Y | Y^* > 0)$) are larger and show a flatter slope. For example, the expected or predicted value for observed hours of work at point of means of all the variables is 24.40 hours per week. In other words, if a woman happens to have mean values for all the variables, then her predicted hours of work per week is about 24 hours. A woman who lives in urban areas with one additional child during 1980-85 period and has the mean values for all other variables, is expected to work 15.51 hours per week. The areal difference between urban and rural areas is salient. Paying attention to "observed" hours of work, the expected work hours at the mean of fertility change in rural areas is twice as large (36.40) that of urban areas (18.37). Also, the rate of decrease in work hours due to additional children is much smaller in rural areas. Therefore, it is obvious that the ferti-

ity increase in rural area shows a relatively smaller negative impact in terms of women's weekly hours of work.

Table 3. Predicted Hours of Work by Fertility Change and by Region

Fertility Change	B'X	Z	F(Z)	f(Z)	Expectation Function		
					E(Y')	E(Y)	E(Y Y')0)
Whole Sample							
at mean (.496)	9.70	.202	.580	.392	9.70	24.40	42.05
at 0	14.48	.302	.626	.381	14.48	27.35	43.69
at 1	.05	.001	.504	.399	.05	19.18	38.06
at 2	-9.60	-.200	.421	.391	-9.60	14.72	34.96
at 3	-19.25	-.401	.341	.368	-19.25	11.10	32.55
Urban Area							
at mean (.534)	-13.46	-.219	.413	.389	-13.46	18.37	44.48
at 0	-4.98	-.081	.468	.398	-4.98	22.12	47.26
at 1	-20.84	-.339	.367	.377	-20.84	15.51	42.26
at 2	-36.70	-.597	.274	.334	-36.70	10.47	38.21
at 3	-52.56	-.855	.195	.277	-52.56	6.77	34.72
Rural Area							
at mean (.439)	32.89	.915	.820	.262	32.89	36.40	44.39
at 0	31.64	.880	.811	.271	31.64	35.40	43.65
at 1	28.80	.801	.788	.289	28.80	33.08	41.98
at 2	25.96	.722	.764	.307	25.96	30.87	40.41
at 3	23.12	.643	.739	.324	23.12	28.73	38.88

^a standard errors of regression (sigma) are 47.999, 61.444, and 35.950 for the whole sample, urban and rural areas, respectively.

V. Summary and Conclusion

The present study investigated the determinants of married women's hours of work in the labor market in Korea. Considering the nature of censoring effects, weekly work hours were estimated by a tobit (i.e. censored regression) analysis framework which takes the floor effect generated by non-working women (assigned zero values for work hours)

into account.

Table 4 summarizes the results of hypothesis testing on hours of work. Overall, the results have confirmed the hypotheses drawn from economic theories and demographic approach. That is, hours of work married women devote to the market is negatively influenced by education, urban residence, household economic conditions and the presence of young children, and positively influenced by lagged effect of work. Noticeably, the negative impact of increase in fertility is much stronger in urban areas. In short, the group of younger women with high education having preschool kids in urban area shows the least amount of market work.

These results imply two important points. One is the fact that to utilize married women's labor force, various child care centers which can resolve the major obstacle of their economic activities should be enlarged. The other implication comes from the neg-

Table 4. Results of Hypothesis Testing on Hours of Work

Variable	Hypothesized Relationship	Theoretical Background	Findings
Age	curvilinear (H1)	microeconomic theory & demographic approach	confirmed
Education	negative (H2)	Standing's 'status frustration thesis'	confirmed
Urban residence	negative (H3)	Standing's 'status frustration thesis' & Boserup's argument	confirmed
Premarital work experience	positive (H4)	Kahn & Rosenzweig	disconfirmed
Husband's employment status	negative (H5)	microeconomic theory	? (statistically insignificant)
Household income	negative (H6)	microeconomic theory	confirmed
Presence of young children	negative (H7)	microeconomic & demographic approach	confirmed

ative relationship between education level and the amount work in the market. The unemployment and underemployment of urban women with high education is, to a large extent, related with the discriminatory employment practice in the demand side of the labor market, rather than related with self-selection in the supply side of the market. For these women, enlarging child-caring facilities might be the necessary condition, but not a sufficient condition. Therefore, in order to induce these highly educated women's labor force into the market, discriminatory employment practice against married women should be eliminated.

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