

## Do Economic Variables Affect Fertility? A Critical Review on the Income Theory and Relative Economic Theory

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### I. Introduction

Since the beginning of this century American fertility swing showed an enormous demographic transition. American fertility, after declining in the 1920s, reached an all time low during 1930s, and it moved upward, reaching a peak in 1957, and subsequently it turned down (Easterlin, 1973 : 171). This phenomenon raised some fundamental questions, 'How do we explain the economic and social processes and family behavior that accounts for the marked decline from the high birth and death rates to modern very low birth and death rates?' (Schultz, 1973 : s4), and 'What accounts the fluctuations in the birth rates in the United States since 1920 to present?' (Easterlin, 1966, 1969, 1973).

The study of fertility behavior was usually taken to be within the research realm of sociologists and demographers. They have done much in clarifying the complexity of population data and examining the particular differences among classes of parents in their fertility behavior.

At the beginning of the second half of this

century, economists joined the study by investigating the relationship between family-size-desire and income with the concept of utility maximization. Gary Becker (1960) presented an 'income theory' of fertility by treating children as consumption goods, a source of psychic income or satisfaction. He thought that the higher the amount of income is available, the higher the fertility should be. But the available data did not support this contention so well.

The alternative way to advance the Becker's income theory was the 'relative economic theory'. Deborah Freedman (1963) introduced the concept of 'relative income' and later Richard A. Easterlin (1966, 1969, 1973) developed a relative economic theory. Easterlin validated his hypotheses of the relative economic theory by examining the recent American fertility swing using the aggregate time series data (Easterlin, 1973). From that time on, many studies tested these Becker's income theory and Easterlin's relative economic theory on fertility. Some researches supported the positive or negative relationship between income or economic status and fertility

(Freedman, 1963 ; Easterlin, 1973 ; Ben-Porath, 1975 ; Butz and Ward, 1979), but most other studies showed little or no relationship between income or economic variables and fertility (Blake, 1968 ; Turchi, 1975 ; Bean and others, 1978 ; MacDonald and Rindfuss, 1978, 1981 ; Thornton, 1978, 1979 ; Cramer, 1979 ; Freedman and Thornton, 1982).

In this paper, first, I will introduce the income theory and the relative economic theory more specifically and I will review some empirical studies which tested the relationships between economic factors and fertility. Thirdly, I will find some problems and criticisms on this theoretical approach, and then, I will see the Korean fertility behavior briefly. Finally, I will present some alternatives for the future study of economic theory.

## II. Income Theory and Relative Economic Theory

Historically, there has been an inverse rather than a positive relationship between economic status and fertility in the world during the period of urbanization and industrialization. Large families were more prevalent among the poor and uneducated. Recently these differentials have been narrowed or even been reversed in some places. Under this circumstance, some economists began to treat children as consumption goods in that this value resides in the direct satisfaction they provide. These economists tend to approach the study of fertility from a demand perspective, focusing on the household's balancing of tastes for children and other consumer goods subject to the constraints of price and income.

The first important work of economic approach on fertility was offered by Becker (1960). Becker thought that for most parents, children are a source of psychic income or satisfaction and thus, children would be treated as "consumer goods."

Based on the conventional economic theory of consumer durables, the satisfaction or costs associated with children are normally treated as the same as those associated with other durables (Becker, 1960 : 210). With the major assumption that each family has perfect control over both the number and spacing of the birth, Becker posited that a rise in income would increase both the quantity and quality of children, where the increase in quality being large and the increase in quantity being relatively small. The quantity and quality of birth in a family would be a function of costs and benefits of children and other consumer goods, and would be decided in maximizing the parent's utility.

Addition to income, not only tastes but contraceptive knowledge have significantly related to fertility (Becker, 1960 : 217-8). Children are assumed to provide utility. The net utility of children is determined by the parents' relative preference for children and this relative preference is expressed as 'tastes'. Parents desire three things in their fertility behavior. They are commodities for their own consumption, children, and commodities for their children's consumption (Sanderson, 1976 : 471). Also, an increase of contraceptive knowledge would affect fertility, but it would increase in quality while decreasing quantity (Becker, 1960 : 231). Becker finally concluded that fertility is determined by income, child cost, tastes, quality of children and contraceptive knowledge.

After Becker's work on fertility behavior, most economic approaches on fertility advanced the economic theory where economic status, especially income, of parents is positively related to fertility and decisions concerning quality or quantity of children are decided in the same sphere as decisions concerning other consumer goods.

Several years later, an alternative measure of economic approach came out in the name of 'relative income' or 'relative economic theory.'

Freedman (1963) first used the concept of relative income. She explained actual income in comparison with the average attained by men of his age, occupation, and educational status. The relative income concept Freedman introduced was the ratio between a man's actual income and the income customary in his socio-economic reference group. She thought that the costs or rearing children are not all monetary : the care involves attention and time on the part of their parents (Freedman, 1963 : 415-6). Thus an income which is above the average for one's status is associated with more children, but being in a higher absolute income class means rather fewer children if the higher income is only what is usual for the husband's age and occupational status (Freedman, 1963 : 422). Here, as one of the income source, we can think of the wife's work participation. Freedman thought that wife's participation in the labor force may increase the family's income and thus its ability to support more children, but it is also likely to reduce her available time to bear and rear additional children (Freedman, 1963 : 415). She thought that the influence of wife's work participation on fertility is relatively small. The relative income concept of Freedman is a step advance of Becker's income theory by specifying the concepts. Freedman's relative income theory also assumes that parents can do perfect control over both the number and spacing of the births.

Becker's and Freedman's works were advanced a step further by the Easterlin's work (Easterlin, 1969). Easterlin advanced Becker in that at one point in time may not be a valid representation of the income concept relative to household decisions, and potential flow through time should be considered (Namboodiri, 1972 : 186). Easterlin insisted that the basic organizing framework of income theory is the economic theory of household choice. This means that the 'tastes consideration' is most important than any other

factors. In other words, fertility behavior is the result of household choices. Here consumers with given tastes are viewed as maximizing utility subject to the constraints of income and prices. Thus income, tastes, and prices are the basic building blocks for the decision of fertility of household (Easterlin, 1969 : 127-8).

Easterlin changed some basic concepts which Becker had already established. They are as follows. (1) Income : Becker insisted that there is only a long-run income which increased both quality and quantity of children. But Easterlin divided income into two : observed income and permanent income. Observed income means income at a point in time and permanent income means the potential income flow over time. Here Easterlin insisted that permanent income is pertinent to household decision-making, and that observed income may be an unreliable proxy for this (Easterlin, 1969 : 129). (2) Opportunity cost : Becker did not separate wife's income from husband's income. But Easterlin, following Freedman (1963), separated them. He said that wife's earning is only opportunity cost. That is, wife's earning possibility raises the potential income of the family and thereby tends to affect fertility possibility, but it also increases the cost of children and thus tends to discourage fertility. Thus the effect of wife's job participation is relatively small. According to this hypothesis, most of the recent researches testing the relative income theory ruled out wife's income. (3) Contraceptive knowledge and control : Becker (1960) thought that the increase of contraceptive knowledge would raise the quality of children as well as reduce their quantity. If knowledge of contraception did not vary with income, the relationship between actual fertility and income would equal that between desired fertility and income. Differential knowledge about contraception does convert a positive relation between income and desired fertility into a negative relation between

income and actual fertility (Becker, 1960 : 220). Easterlin modified the Becker's contraceptive knowledge hypothesis. Easterlin insisted that knowledge of modern methods of contraception is not essential for fertility reduction, as has been demonstrated by the population trend of Western Europe which managed reducing fertility long before modern contraceptive methods became known (Namboodiri, 1972 : 187). Easterlin suggested that the contraception framework may work in several different ways. In Becker's framework, an increase in income tends to raise fertility by relaxing the budget constraint. But Easterlin thought that there is also a negative influence of extra income on fertility because the rise in income brings contraception more within reach financially and thus it makes a reduction in unwanted pregnancies (Easterlin, 1969 : 135-138). In this way, Easterlin suggested the relative unimportance of contraceptive knowledge on fertility, and after, most of the recent researches working on relative economic theory ruled out the effect of contraception.

Easterlin's relative economic theory also diverged a little from Freedman (1963) in relation to socio-economic background. Relative income hypothesis in reality consists of two separate subhypotheses. They are as follows.

Subhypothesis I : Fertility depends upon the relative income where relative income refers to the current family income level relative to the desired income level, the desired income level being determined by past own family income, that is, parental income.

Subhypothesis II : Fertility depends upon the relative income where relative income refers to the current family income level relative to the desired income

level, the desired income level being determined by the contemporaneous income level of all age group. (Robertson and Roy, 1982 : 341)

Freedman (1963) pioneered in the application of the subhypothesis II type of relative income hypothesis. But Easterlin's emphasis is more on the first type of subhypothesis even though his relative income concept contains both the two subhypotheses. Easterlin insisted that the relative income hypothesis is a combination of resource variables, actual income and taste variables, an empirical proxy for the living aspirations of the household (Easterlin, 1969 : 145). However, both Freedman and Easterlin arrived at the same conclusion that fertility is associated with socio-economic situations in which actual income is the highest in relation to the desired living level.

Easterlin validated this relative income hypothesis with empirical test. Easterlin has focused his empirical study of the influence of relative economic status on long-term variations in fertility, in which the postwar baby boom and the recent fertility decline are seen as a succession of long swings. It is argued that the American swing reflects balance between preferences and resources of successive cohorts (Easterlin, 1969 : 140). The basic assumption of Easterlin's hypothesis is that economic factors played an important role in the postwar baby boom and subsequent downturn in American fertility. Thus the explanation of the recent decline in fertility must be generally consistent with that of earlier baby boom, though new factors may appear from one time to another. He found that American fertility after declining in the 1920s, reached all time low during 1933-39, in the next eighteen years it moved up, reaching peak in 1957, subsequently, it turned down (Easterlin, 1973 : 170-171).

In analysing this trend, Easterlin thought that the relative income status (subhypothesis I) has

been the dominant factor in the fertility movement since the late 1950s. For this, he assumed that the relative well-being of young adults depends on how the general unemployment rate during the period in which the sons were in the labor market in comparison to the unemployment rate during the period their fathers were in the labor market (Easterlin, 1973 : 192). With the aggregate time series data, Easterlin found that the movement of the relative economic status series indicates a decline in the relative position of sons in the 1930s, a marked improvement to the 1950s, and the noticeable decline in the mid-sixties. Those movements accord reasonably well with the ups and downs shown by the fertility rate. He concluded that this evidence is consistent with the hypothesis that shifts in the relative economic status of young adults have played a major role in the swing in their fertility performance since the 1930s (Easterlin, 1973 : 196). In the process, Easterlin emphasized the importance of tastes in the economic analysis. According to him, tastes interact with current and recent income experience, and influence the fertility behavior of young adults. The change in tastes itself is determined chiefly by economic circumstances ; namely, those experienced by young adults in their parent's households as they were grown up. Thus, tastes variables are influenced by economic conditions and the relative economic status variable is a composite of both tastes and income variables of economic theory (Easterlin, 1973 : 197).

The fundamental difference between Becker's income theory and Easterlin's relative economic theory is that while the Becker school stresses the parental aspirations for their children's standard of living as increasing the effective cost of children, the Easterlin model stresses the effect of the parents' aspirations for their own material standard of living (Sanderson, 1976 : 472). In other words, Easterlin emphasized the

'intergenerational echo effect', that is, the nurture environment created by one generation determines the tastes for goods and children in a subsequent generation (Leibenstein, 1976 : 427 ; Oppenheimer, 1976 : 433-457). However both Becker's income theory and Easterlin's relative economic theory came to an agreement in that both assume that, keeping enough things constant, the underlying relation between fertility and income is positive, and both are necessary to an understanding of the relation between economic factors and fertility.

### **III. Review of the Empirical Studies on [Relative] Economic Theory**

In recent period, many of the sociodemographers tested this (relative) economic theory. But among the many recent studies, just few of them supported this theory. Most others could not support of any significances in the relationship between economic status variables and fertility behavior. We will have a brief review on the works of these studies.

Ben-Porath investigated the effects of the characteristics of the first generation on the size of the third generation (Ben-Porath, 1975). The data used here came from the Panel Study of Income Dynamics produced for the Office of Economic Opportunity by James Morgan and his associates at the Survey Research Center of the University of Michigan with about 4,900 families from 1969 and 1970. The respondents were non-Catholic white women 35 or more years old and asked the information on her husband. With this research, he found that in the third generation of the sons of laborers, farmers and operatives have the most children 4, 3, and 2.7, respectively ; the sons of the self-employed businessmen have the fewest, 2.2. With this result, he suggested that the characteristics of one generation affect not only its own fertility

but the fertility of the next generation. He insisted that these long-term effects are the results of parental influence on the tastes, opportunities and genes of their children. Thus Ben-Porath predicted that earnings and education of the first generation related negatively to fertility and number of siblings in the second generation and farm background affect positively the third generation fertility. In this way, Ben-Porath's analysis showed some kind of relationship between the relative income hypothesis and fertility.

But most of the recent researches done by sociodemographers after Ben-Porath did not support the relationship between income or relative economic status and fertility. Bean et al. (1978) showed the ambiguity in the relationship between income and fertility. They used data from 1965 National Fertility Study based on areal probability sample of those women in the United States born since 1910 who were currently married and living with their husbands. They divided fertility into wanted and unwanted fertility. They assumed that, since unwanted fertility reflects the ability to regulate supply, it can be used to gauge whether income has a significant impact on supply differences from its effect on demand. In general, it seems plausible to expect an inverse relations between income and supply since the higher the income, the greater access to medical care, and the greater control of fertility (Bean et al., 1978 : 323). With data analysis they found that the coefficient relating total fertility and husband's income was not significantly different from zero for the white Protestants, significantly different and positive for white Catholics, and significantly different and negative for black. In contrast, less diversity is found for wanted fertility and all of the income coefficients were positive, but insignificant (Bean et al., 1978 : 327-8). This study suggests that the income effect on fertility may be confusing when wan-

ted and unwanted measure is combined. For white Protestants and for blacks, income effects are in opposite directions for wanted and unwanted children while for Catholics, the effects are positive for both. They found that rather than the income variable, wife's education exerts a negative effect on wanted children within all three groups, but its influence is weaker for unwanted children.

MacDonald and Rindfuss (1978) tested the empirical evidences suggested by Easterlin with the aggregate time-series data. They thought that the highly aggregate data do not reveal well the behavioral components of the relative economic status hypothesis. Thus they used micro data from the 1970 National Fertility Survey to examine the behavioral components of Easterlin's hypothesis. The sample used in this study consists of once-married, currently married women who were living with both parents at age 14 and married husbands who were residing with both parents at age 14. They examined the effect of relative income on fertility in the years of marriage with multiple regression analysis using cross-sectional data. They divided the couples into two groups : the upwardly mobile group and the downwardly mobile group. And they found that the difference between the distributions for the downwardly mobile couples and the upwardly mobile couples was not as large as might be expected. They explained that, since there has been substantial aggregate economic growth over the past two decades, it was not surprising that a large share of downwardly mobile couples felt better off when they were first married than they were grown up. They thought that there is a tendency to forget the bad times with the passage of time. Thus the ability to predict the response to the financial feeling question has limitations. This means that existing knowledge of completed fertility differentials may provide inadequate clues about spacing patterns. With

these results, they insisted that it was very hard to find evidences to support the income hypothesis that relative economic status influences fertility. They also found that wife's living or having lived on farm, Duncan's Socio-economic Status Score for the husband's father's occupation, wife's number of siblings, and wife's race did not show any significance in the relative economic hypothesis on fertility.

Thornton (1978, 1979) also investigated the relationship between several different income concepts and fertility. He thought that any attempt to examine the impact of income on fertility must include as many other variables as possible. He used data from the two Growth of American Families and two National Fertility Studies. This study carried out at five year intervals from 1955 through 1970. His approach was to analyze the relationship between income and childbearing utilizing an extensive set of controls. Statistical controls were applied through the use of Multiple Classification Analysis (MCA), a form of dummy variable regression. He tested income in several ways such as husband's income, relative income, subjective relative income, feeling about financial circumstances and future income. He analyzed with the 5 year terms and found that almost no regular relationship between husband's income and total expected family size. It suggested that despite the extensive controls, husband's income had no positive impact on childbearing. The relationship between income relative to the past and current parity also failed to support the relative economic hypothesis. The analysis relating the subjective measures of income to current parity showed that most of the variables were either negatively related to current parity or there was no relationship, and if any, the relationship was very weak. In his 1979 paper, he also could not find any supportive evidence on relative economic hypothesis. Here he used data collected in the fall

of 1975 from a representative sample of American population, men and women 18 years of age or older. Approximately 1,500 people were asked about their actual and intended childbearing, income, consumption aspirations and child quality standards. Statistical controls were the same as his 1973 paper. The data were consistent only with the hypothesis that preferences for child quality are negatively related to fertility. But the overall relationships between income and fertility were not positive. When consumption aspiration was considered, home aspirations did not show positive relationships but nonhome aspirations showed negative relationships. There were no positive relationships between subjective well-being and fertility, the standard of living early in marriage and fertility, and the perceived child quality costs and fertility. But outside activity of women requires time that may reduce fertility. All through these findings Thornton concluded that the relationship between financial position and fertility may be complex and the impact of financial position and expectation on fertility may not be large or consistent.

Freedman and Thornton (1982) investigated the relationship of the husband's income experience and family size decisions over a 15-year period from 1962 to 1977. Data used for this research were collected between 1962 and 1977 from a sample of white women living in the Detroit metropolitan area who either had just married or had just a first, second, or fourth birth. Those women who had unwanted births were eliminated. Questions were asked four different times during the childbearing period. Also, the study solely focused on husband's income. That was because wife's earning capacity increases family resources and thus the family's ability to support more children, but it also increases the opportunity costs of rearing children. The findings provided little support for a positive relationship between income and fertility. Also,

neither wife's nor husband's education showed a consistent relationship to fertility. Changes in personal or family circumstances could have affected fertility plans, but such changes seem unlikely to have been systematically related to income.

Most of these empirical studies testing the (relative) income hypothesis supported neither Becker's income theory nor Freedman's and Easterlin's relative economic theory. However they suggested that the importance of economic factors for fertility decisions should not be discounted. Gaps in the survey data could account for the observed weak income-fertility relationships, since no measures were available for aspirations for consumer goods, child quality expenditures and uses of time, all of which presumably could be related both to income and family size decisions. Another possibility is that these economic reasons reflected concerns about the desired quality of children, unmeasured up to now, more than those of income prospects. Also, the possibility that social changes during the inter-survey period could have differently affected fertility changes for different income groups also can not be ruled out (Freedman and Thornton, 1982 : 76).

#### **IV. Limitations of Economic Theory and Criticism**

The first objection to the Becker's economic theory came from sociologists not from economists. Economists have a select list of variables of primary interest such as potential income, child quality, and opportunity cost. They are usually individual factors affecting fertility and everything else is essentially included for purposes of standardization. Thus economists emphasize the direct effect of independent variables with intervening variables treated essentially as a standardization measure. But socio-demograp-

hers emphasize the intervening variables to account for the gross relationship between independent and dependent variables. They account for the structural change to fertility by emphasizing the social class or socioeconomic variables as 'background variables' (Goldberg, 1975 : 84-90). This different interest of socio-demographers make them to be likely to see the fertility behavior as 'supply' perspective rather than 'demand' perspective as economists usually do. Blake (1968) criticized Becker's economic theory in several ways. First, Blake questioned the appropriateness of the analogy of children as consumer durables. Children can not be purchased either by payment or credit, nor can be exchanged. Blake insisted that the demand for children is not under such monetary control. The value of children is more than the economic rationality. Parents can neither own children nor abuse their children physically or mentally, but rather their existence obliges parents to accept burdensome conditions and restrictions. Thus, Blake insisted that, children can be seen as the result of reproduction motives or intervening variables such as social institutions rather than economic factors (Blake, 1968 : 15-17). Second, Becker treated the productive role of parents entirely as part of the costs parents pay for the utility they expect to gain. But parents, as producers of children, are under the social pressure of responsibility for the quality of children as their product. In this condition, Blake insisted, poor parents as well as rich ones will view the only one child unit as deprived one. Hence, two children, and not one, become the minimum for the avoidance of childlessness. This is beyond income consideration (Blake, 1968 : 17-19). Third, Becker did not think of factors making direct costs heavier for the rich. Usually the way of life of upper-income groups may be more competitive with children for time, effort, and finance than the life style of lower income groups. The higher income group



has more diverse opportunity cost into their lives that do not exist where the range of choice is narrowed by poverty. This problem is explained so well in the Freedman's relative income concept. That is, fertility is highly influenced only by having extra money in comparison to their peer groups. Fourth, Blake insisted that in the Becker's income theory, there are no systematic social class differences in the relative utilities of children which limit the family size desires of the well-to-do. The upper classes are under the great pressure from non-familial demands than the lower (Blake, 1968 : 22-23). Some of these problems were modified by Freedman's relative income in comparison to their peer groups and Easterlin's relative income concept where the desired income level is determined by past-own-family income, that is, parental income.

Despite the development of relative income model, still there are some problems. First, although the economic approach to fertility behavior is based on consumer decision theory, there is no agreement as to which decision process is the most relevant. Usually the decisions regarding family size is done by parents, by two people. The economic framework assumes that decisions are oriented towards utility maximization. But the more fecund women can have always more children, and the decisions may be more of the result of 'conflict resolution' rather than 'joint utility maximization'. In this situation, power relations between husband and wife must also be considered. The husband-wife interaction and the experience of their first child may also have an effect on complete fertility independent of other factors (Turchi, 1975 : 116). Second, usually many scientists disagree in the use of tastes variables into the economic analysis of fertility behavior (Turchi, 1975 : Olneck and Wolfe, 1977) because the indicators used for tastes are fairly crude, and the results are relatively unrewarding. Also, there are some non-

economic costs associated with children such as frustrations and anxiety and social enforcement. The income theory and the relative economic theory did not take these variables into account, and consequently it reduced the validity as a theory.

There are some limitations in testing this theory empirically. That is, for example, we can not test variables such as tastes or quality of child exactly. Thus most of the empirical studies tested only part of this economic theory that was available to be tested, and many parts of this model remain without empirical test. As Freedman and Thornton (1982) pointed out, some problems such as aspirations for consumer goods, child quality expenditure, uses of time, quality desire for children, and outer influence on fertility change during the survey period can not be tested within the income or relative economic theory. These variables can largely be divided into several categories. First, it is the variable of social pressure. As Blake (1968) had already said, the existing social institutions influence greatly on the fertility behavior of parents. Especially recent development of mass media represents the social norm and it prescribes the desire of parents having children. We can imagine that the past period when the parents were growing had different social norms and socio-economic background. Thus we can say that fertility is greatly influenced by the current social pressure than the past socio-economic situations. The second one is a group of attitude variables including psychological variables and biological variables which are independent of the economic variables. Fertility behavior, in many cases, is decided by immediate emotional change or different attitudes. We can not expect for all the couples to act to maximize their utility in childbearing because no one has a perfect rationality. Also the level of rationality of each couple is changed with the change of situation and pass of time.

Third, as had already said, some women are more fecund than others and have more children. Finally, the recent increase of divorce rate and separation, late marriage, and couples without children can not be explained within the economic theory.

## V. Fertility Behavior in Korea

As we discussed above, there are so many limitations to apply this economic perspective directly to the analysis of fertility behavior. The main problem is that we can not test some major variables such as tastes or quality of child exactly. Thus most of the previous studies tested only part of the theory with data available to be tested. Nevertheless, most of the previous empirical studies could not support the economic theory. That is, the effect of economic factors on fertility is relatively small, and if any, it may

be relatively unimportant in comparison to other socioeconomic factors.

Now, let us see the relationship between economic variables and fertility in Korea. The major data sets used for the analysis of fertility in Korea came from the 1974 Korean National Fertility Survey (KNFS) conducted as a part of the World Fertility Survey (WFS), 1976 National Fertility and Family Planning Survey conducted by KIPF, and 1982 and 1985 National Fertility and Family Health Survey conducted by KIPH. But, unfortunately, we can not find the direct influence of income on fertility with the given data set. Here, we will see the relationship between some socioeconomic variables and fertility by using the secondary data as an indirect way to see the possibility of the application of (relative) economic theory in Korea.

Data analysis shows that fertility in Korea is highly correlated with 'duration of marriage',

Table 1. Correlatrix (N= 8,034) : 1985

	LCH	CEB	AGFM	POB	EOW	FPP	DOM	LR
CEB	.9699							
AGFM	-.3705	-.3850						
POB	-.1048	-.1074	.1555					
EOW	-.4516	-.4731	.4120	.2599				
FPP	.2389	.2201	-.0557	.0077	.0360			
DOM	.7469	.7578	-.4103	-.0754	-.4489	.1352		
LR	-.1819	-.1892	-.1951	.4886	.3197	-.0006	-.0942	
REC	.2632	.2716	-.1883	-.1292	-.3314	-.0446	.1736	-.2727

Note : LCH = Living Children

CEB = Children-Ever-Born

AGFM = Age at First Marriage

POB = Place of Birth

EOW = Education of Wife

FPP = FP Practice

DOM = Duration of Marriage

LR = Longest Residence

REC = Residence at Current

1985 National Fertility and Family Health Survey, KIPH

This table is cited from Yu-Kyung Kim, Ehn-Hyun Choe, Young-Il Chung, 1987 pp.126, Table 25.

**Table 2. Mean Number of Children-Ever-Born by Year, Education, Age at First Marriage of Women : Ever Married Women Aged 15~49**

	1974	1976	1982	1985
Education of Women				
Primary School or less	4.11	4.05	3.78	3.59
Middle School	2.49	2.57	2.30	2.29
High School or More	2.04	2.17	1.96	1.87
All Women	3.59	3.48	2.96	2.65
Age at First Marriage				
19 or less	4.69	4.59	4.09	3.70
20~24	2.81	2.83	2.64	2.46
25 or more	1.94	2.12	1.90	1.97
All Women	3.59	3.48	2.96	2.65

1974 data : Korean National Fertility Survey conducted by WFS

1976 data : National Fertility and Family Planning Survey conducted by KIFP

1982, 1985 data : National Fertility and Family Health Survey conducted by KIPH

This table is revised of Kyu-Sik Lee & Im Jun Lee, 1987. pp.148, 166

'age at first marriage' and 'education,' Table 1 shows that Children-Ever-Born (CEB) has the highest correlation with Duration-of-Marriage (DOM: .7578), the second with Education-of-Wife (-.4731), and Age-at-First-Marriage (AG-FM : -.3850) is the third. Among these three, only DOM shows the positive relationship with fertility and the other two show the negative relationships. The other variables show relatively small correlations. Now, let us see these relationships more specifically. Table 2 shows that the higher a woman is educated the lower fertility she has, and the older a woman's first marriage age is the smaller children she has. Thus, if other things constant, Education-of-Women and Age-at-First-Marriage influence negatively on fertility behavior.

When we take the woman's work participation into account, a woman's pre-marital work experience shows negative influence on the fertility behavior, but the current work participation of a woman shows relatively little influence on the fertility difference (Table 3). It is somewhat

agreeable to the Easterlin's relative economic hypothesis in that wife's current work participation raises the potential income but it also increases the cost of children and thus discourage fertility. However, pre-marital work experience of women shows the consistent negative influence on fertility. Thus the pre-marital work experience of women in Korea should be analysed separately from the Easterlin's fundamental assumption where the effect of women's work participation is relatively small.

One more thing to consider in this paper is recent rapid decline of fertility rate in Korea. The rapid increase of women's educational level and the concomitant late age of women in their first marriage and the pressure of social norms to have one or two children, which were prevailed through the development of mass media, might have caused the marked decline of the fertility rate in recent decade such as from 3.9 in 1966 to 3.0 in 1982, and to 2.6 in 1985 (Kyu-Sik Lee & Im-Jun Lee, 1987, pp.142). Now, most families favor one or two children without being so

**Table 3. Mean Number of Children-Ever-Born by Year, Pre-Marital Work Experience, Current Employment of Women : Ever Married Women Aged 15~49**

	1974	1976	1982	1985
Pre-marital Work Experience				
Employed	2.38	2.21	-	1.92
Never Employed	4.04	3.88	-	3.26
All Women	3.59	3.48	-	2.65
Current Employment				
Employed	3.26	3.40	3.50	2.89
Never Employed	3.85	3.50	2.66	2.54
All Women	3.59	3.48	2.96	2.65

1974 data : Korean National Fertility Survey, WFS

1976 data : National Fertility and Family Planning Survey, KIFP

1982, 1985 data : National Fertility and Family Health Survey, KIPH

This table is revised of Kye-Sik Lee & Im Jun Lee, 1987. pp.161, 162

much influenced from the economic factors. As we see in table 4, 75% (1,110 out of 1,490) of the respondents who currently have only one child wants more children, but most of them (93.3%) think that one or two children is an ideal family size. It indicates that the young couples in Korea now favor one or two children than three or four. Now, the fertility behavior in Korea is influenced more by the social norms such as keeping the lineage of a family by having sons than by the economic reasons. Table 5 shows that among the one child families, those who have one daughter have a stronger attitude to have more children than those who have one son.

All these data show that most Korean families now favor one or two children as an ideal family size. The fertility behavior in Korea seems to be influenced through the socioeconomic factors such as social norms, women's education, the age of women's first marriage, pre-marital work experience and by some psychological and biological factors rather than by the direct income variables.

## VI. Conclusion

Becker's income theory on fertility was really an revolutionary idea on the existing historical approach. Historically there had been an inverse relations between economic status and fertility rate during the industrialization period in the Western European countries. Many of the social scientists, especially economists, were interested in this phenomenon and tried to find some regular trends in the relationship between income or economic factors and fertility behavior. But most of the recent studies could not support this idea with the empirical studies. Economists nowadays are more interested in child quality, women's work participation, and human capital questions rather than fertility itself as 'supply' perspective (Mincer and Polachek, 1974 ; Dennis Tray, 1973 ; Becker, 1975).

Conclusively, the recent studies of (relative) economic theory on fertility showed another area on the study of fertility behavior. But as the society develops, the trend to have one or two children in each couple is prevalent all through

**Table 4. Percent Distribution of One Child Families' Women on Their Attitude toward Child by Intention to Add More and Current Method**

(Unit : %)

Attitude	Sterilized	Don't want to add more		Want to add
		Use temporary method	No use	
Ideal No. of children				
1	25.8	52.8	35.7	14.2
2	67.9	40.8	57.5	79.1
3 +	4.2	5.2	6.5	6.6
Don't know	2.1	1.2	-	0.2
Sex preference of ideal children				
Without distinction	77.0	73.6	72.6	63.1
With Distinction	20.9	25.2	26.8	36.0
Don't know	2.1	1.2	-	0.2
Necessity of son				
Necessary to have	20.6	17.2	12.6	28.3
Better to have	12.4	17.5	23.8	26.4
Doesn't matter	67.0	64.1	63.6	44.1
Don't know	-	1.2	-	1.3
Attitude toward one child				
One is enough	63.9	88.9	77.8	51.0
One is not enough	36.1	11.1	19.7	48.5
Don't know	-	-	2.5	0.5
Total (Number)	100.0 (109)	100.0 (190)	100.0 (181)	100.0 (1, 110)

Source : 1985 National Survey on Fertility and Family Health, KIPH

This table is cited from Moon-Sik Hong & Moon-Hee Seo, 1987 pp.540, Table 15.

**Table 5. Percent Distribution of One Child Families' Women on Attitude toward Intention to Add More by Age and Sex of Child**

(Unit : %)

Attitude	Urban			Rural			Total		
	One son	One daughter	One child	One son	One daughter	One child	One son	One daughter	One child
Don't intend to add	56.0	29.7	45.5	42.9	20.5	34.3	53.4	27.9	43.3
Intend to add	29.5	54.8	39.6	47.4	69.9	56.0	33.0	57.5	42.8
Under consideration	14.5	15.5	14.9	9.8	9.6	9.7	13.6	14.4	13.9
Total (N)	100.0 (539)	100.0 (357)	100.0 (896)	100.0 (133)	100.0 (83)	100.0 (216)	100.0 (672)	100.0 (440)	100.0 (1, 112)

Source : 1985 National Survey on Fertility and Family Health, KIPH

This table is cited from Moon-Sik Hong & Moon-Hee Seo, 1987 pp.521, Table 2.

the world. Thus the effort to explain the fertility behavior only with economic variables is gradually losing its explanatory power. Here I present that the future study of (relative) economic theory on fertility should give more attention to the currently unexplained area, such as psychological effect or changing situational-institutional effect which induce various side-effects that can not be anticipated within the economic hypothesis on fertility. If the theoretical and methodological problems in this area are not improved we may not be able to find any clear evidences of the relationships between economic status and fertility in the future.

#### References

- Becker, Gary S., 1960. "An Economic Analysis of the Fertility." in *Demographic and Economic Changes in Developing Countries*. pp.209-231
- Becker, Gary S., 1975. *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*(Second Edition). The Univ. of Chicago Press.
- Bean, Frand D & S. H. Cochrane & H. Savage & C. H. Wood, et al., 1978."An Analysis of Wanted Versus Unwanted Fertility." in *Research in Population Economics*. Vol. 1, pp.321-330
- Ben-Porath, Yoram, 1973."Economic Analysis of Fertility in Israel : Point and Counter Point." in *Journal of Political Economy*. 81 : S202-233
- Ben-Porath, Yoram 1975. "First-generation Effects on Second-generation Fertility." in *Demography*. 12(3) : 379-405
- Blake, Judith, 1968."Are Babies Consumer Durables?-A Critique of Economic Theory of Reproductive Motivation." in *Population Studies*. 22(1) : 5-25
- Butz, William and Michael Ward, 1979. "The Emergence of Countercyclical United States Fertility." in *American Economic Review*. 69 (3) : 318-328
- Cramer, Jame, 1979. "The Effects of Fertility on Husbands." in *Julian Simon(ed), Research in Population Economics*.Vol.2, JAI press.
- Easterlin, Richard A., 1966. "On the Relations of Economic Factors to Recent and Projected Fertility Changes." in *Demography*. 3 : 131-153
- Easterlin, Richard A., 1969. "Towards a Socio-economic Theory of Fertility : A Survey of Recent Research on Economic Factors on Fertility." in *Fertility and Family Planning : A World View*. pp.127-156
- Easterlin, Richard A., 1973. "Relative Economic Status and the American Fertility Swing." in *Fertility Economic Behavior*. pp.170-223
- Freedman, Deborah S., 1963. "The Relative Economic Status to Fertility." in *The American Economic Review*. LIII (3) : 414-426
- Freedman, Deborah S. and Arland Thornton, 1982. "Income and Fertility : the Elusive Relationship." in *Demography*. 19(1) : 65-78
- Goldberg, David, 1975. "Socio-economic Theory and Differential Fertility." in *Social Forces*. 54 : 84-106.
- Hong, Moon-Sik and Moon-Hee Seo, 1987. "Trends and Perspectives of One-child Family in Korea." in *Fertility Changes in Korea*(韓國의 出産力 變動斗 展望), KIPH
- Kim, Yu-Kyung, Ehn-Hyun Choe and Young-Il Chung, 1987. "Analysis on Marriage and Fertility in Korea." in *Fertility Changes in Korea*(韓國의 出産力 變動斗 展望), KIPH
- Lee, Kyu-Sik and Im-Jun Lee, 1987. "Differential Fertility and Contraceptive Preference Rate in Korea." in *Fertility Changes in Korea*(韓國의 出産力 變動斗 展望), KIPH
- Leibenstein, Harvey, 1976. "The Problem of Characterizing Aspirations." in *Population and Development Review*, Vol. 2 No.3 and 4, p. 427-432. Published by the Population Council, New York.

- MacDonald, Maurice M. and Ronald R. Rindfuss, 1978. "Relative Economic Status and Fertility : Evidence from a Cross-Section." in *Research in Political Economics*. Vol.1 pp. 291-307
- MacDonald, Maurice M. and Ronald R. Rindfuss, 1981. "Earnings, Relative Income, and Family Formation." in *Demography*. 18(2) : 123-136
- Mincer, Jacob and Solomon Polachek, 1974. "Family Investments in Human Capital : Earnings of Women." in *Journal of Political Economy*. 82(2) : 76-108
- Namboodiri, N.K., 1972. "Some Observations on the Economic Framework for Fertility Analysis." in *Population Studies*. 26 : 383-404
- Oleneck, M. R. and B. L. Wolfe, 1978. "A Note on Some Evidence on the Easterlin Hypothesis." in *Journal of Political Economy*. 86 : 953-958
- Oppenheimer, Valerie Kincade, 1976. "The Easterlin Hypothesis : Another Aspect of the Echo to Consider." in *Population and Development Review*. Vol.2, No. 3 and 4. pp. 433-458. Published by the Population Council, New York.
- Robertson, Mathew and Arun S. Roy, 1982. "Fertility, Labor Force Participation and the Relative Income Hypothesis : An Empirical Test of the Easterlin-Wacher Model on the Basis of Canadian Experience." in *American Journal of Economics and Sociology*. 41(4) : 339-350
- Sanderson, Warren C., 1976. "On Two Schools of the Economics of Fertility." in *Population and Development Review*. Vol.2, No.3 and 4, pp.469-477. Published by The Population Council, New York.
- Schultz, Theodore W., 1973. "The Value of children : An Economic Perspective." in *Journal of Political Economy*. 81(2) : s2-s13
- Thornton, Arland, 1978. "The Relationship between Fertility and Income, Relative Income, and Subjective Well-being." in *Research in Population Economics*. Vol.1, pp. 261-290
- Thornton, Arnold, 1979. "Fertility and Income, Consumption Aspirations, and Child Quality Studies." in *Demography*. 16(2) : 157-175
- Trary, Dennis N. De, 1973. "Child Quality and the Demand of Children." in *Journal of Political Economy*. 81(2) : s70-s99.
- Turch, Boone A., 1975. "Micro-economic Theories of Fertility : A Critique." in *Social*