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Rural Development Activities, Fertility, and the Cost and Value of Children

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FOREWORD

This report is part of a series of State-of-the-Art Papers called for under AID Project 931-1170, Rural Development and Fertility. The Project was designed to assist AID officials, overseas and in Washington, to comply with the mandate included in the 1975 Foreign Assistance Act, Section 104d. That section stipulates that "(1) Assistance ..... shall be administered so as to give particular attention to the interrelationships between (a) population growth, and (b) development and overall improvement in living standards in developing countries, and to the impact of all programs, projects, and activities on population growth. All appropriate activities proposed for financing under this chapter shall be designed to build motivation for smaller families through modification of economic and social conditions supportive of the desire for large families, in programs such as education in and out of school, nutrition, disease control, maternal and child health services, improvements in the status and employment of women, agricultural production, rural development and assistance to the urban poor." The amendment to the FAA continues to authorize the President "...to study the complex factors affecting population growth in developing countries and to identify factors which might motivate people to plan family size or space their children."

These papers examine the extensive literature which encompasses rural development and fertility relationships. Seven State-of-the-Art Papers (SOAPs) were produced: addressing the primary determinants of fertility. From this research base the second phase of the project will "...study the complex factors affecting population growth..." in operational settings, particularly through the medium of project implementation. Case studies will be designed to examine development in rural areas and to isolate the fertility implications of changes in the socio-economic environment. Translating the results of this investigation to decision makers in developing nations and within donor organizations is also

a primary goal of the Project. In addition to publications, a series of seminars, workshops, and intensive technical assistance in participating countries are planned as part of an outreach component of the Project.

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The SOAPS reflect the comments of the review panel: however, responsibility for content rests with the authors.

RURAL DEVELOPMENT ACTIVITIES, FERTILITY, AND THE COST AND VALUE OF CHILDREN

Boone A. Turchi and Ellen S. Bryant

I. Introduction

As experience with rural development programs and family planning programs has accumulated it has become increasingly apparent that the fertility of rural populations is not independent of the social, economic, and political context within which these populations reside. To the extent that publicly funded rural development activities transform the economic and social environment they also may alter the context within which fertility changes occur, and it becomes desirable, therefore, to understand how these activities either promote or retard the reduction of rural fertility.

This paper is an attempt to use existing social science research on fertility in low income countries to assess the connections between economic development programs, the cost and value of children, and fertility. It will develop a model of reproductive behavior that will serve as a framework for the analysis of the ways in which rural development programs can, intentionally or unintentionally, affect fertility levels and trends by altering the cost and/or value of children to their families. In

addition, it will pinpoint those areas where our current understanding of the linkages between development programs, the cost/value of children, and fertility is weakest. The result will be an improved understanding of what the current professional literature has to offer as well as an agenda for policy relevant research that will fill gaps in our present understanding.

This introductory section will comment on the philosophical meaning of children, briefly review recent population trends, and develop a comprehensive theoretical overview of the interrelations among types of fertility policy, AID Rural Development Activities, specific development programs, and fertility. This theoretical framework will serve as the basis for the literature review that follows Section V.

Children and Their Value

Every society places social value on offspring--the perpetuators of their culture. While societies, as this review of literature will show, place different types of values on and have varying purposes for children, their role in human society is unique and cannot be fully replaced. This is true, not only from the standpoint of the survival of the group, but also from the standpoint of the individual parent (see, for instance, Arnold, et al., 1975). Parents tend to have vested interests in their offspring (e.g., love, security, ego involvement, goals). Thus, while desired family size seems to vary along the continuum of economic development, even the most highly developed nations place a value on children.

Rural Development Activities and Rural Development Projects

It becomes immediately apparent from even a cursory perusal of AID rural development projects that any given project contains inter-

ventions along a number of different dimensions of rural economic and social activity. Administratively AID characterizes these dimensions as seven "rural development activities": land tenure, off-farm employment, marketing systems, area development, extension services, participation of the rural poor, and rural financial markets. These activities contain interventions of wide and diverse scope, including some that influence individuals directly (sanitary facilities, literacy training, clinic construction, water supply, etc.) and others that have only an indirect impact on most of the rural population (regional program integration, rural credit facilities, regional infrastructure development, etc.).

Moreover, the specific rural development programs actually undertaken often affect the rural population in diverse ways simultaneously. Many of the programs tend to have the most direct impact upon the economic environment, affecting agricultural production technologies, financial markets, marketing and transportation systems, and the labor force. However, these programs may have secondary effects that are ultimately important determinants of rural fertility patterns.

In general some empirical evidence regarding the relationship between rural development policy and fertility will be available but only with respect to the connection between reproductive behavior and the actual rural development programs. The relationships between rural development activities and fertility will not be directly observable; however, it is possible to make theoretical inferences about these relationships that will be useful guides to policy.

The General Model

Figure 1.1 illustrates the context within which reproductive behavior and rural development policy interact. The diagram represents a series of concentric circles at the center of which is observable reproductive behavior. Observed fertility is the outcome of fertility regulating behavior which is in turn determined by individual couples' perceptions of the benefits and costs of fertility regulation.

Most rural development programs may have important, although unintended, pro- or antinatalist consequences and figure 1.1 illustrates some of the paths by which development programs might have an impact. The figure makes explicit the point that reproductive behavior does not occur in a vacuum. There is a significant web of social and cultural factors that impinges upon and shapes fertility behavior and it is these factors that are often directly altered by rural development policy. It also suggests that there are two areas of inertia which will inhibit changes in behavior.

Of the two layers of inertia indicated in figure 1.1, one is interposed between development programs and the social systems of the society. The other is between the decision making processes and the actual fertility behavior. The first takes into consideration the interconnectedness and reciprocating nature of a society's social institutions and the likelihood of resistance to social change coming chiefly from those who are fearful of changes in the status quo. The second takes into consideration the fact that it may not be possible to control completely reproductive behavior rationally. Fecundity levels differ

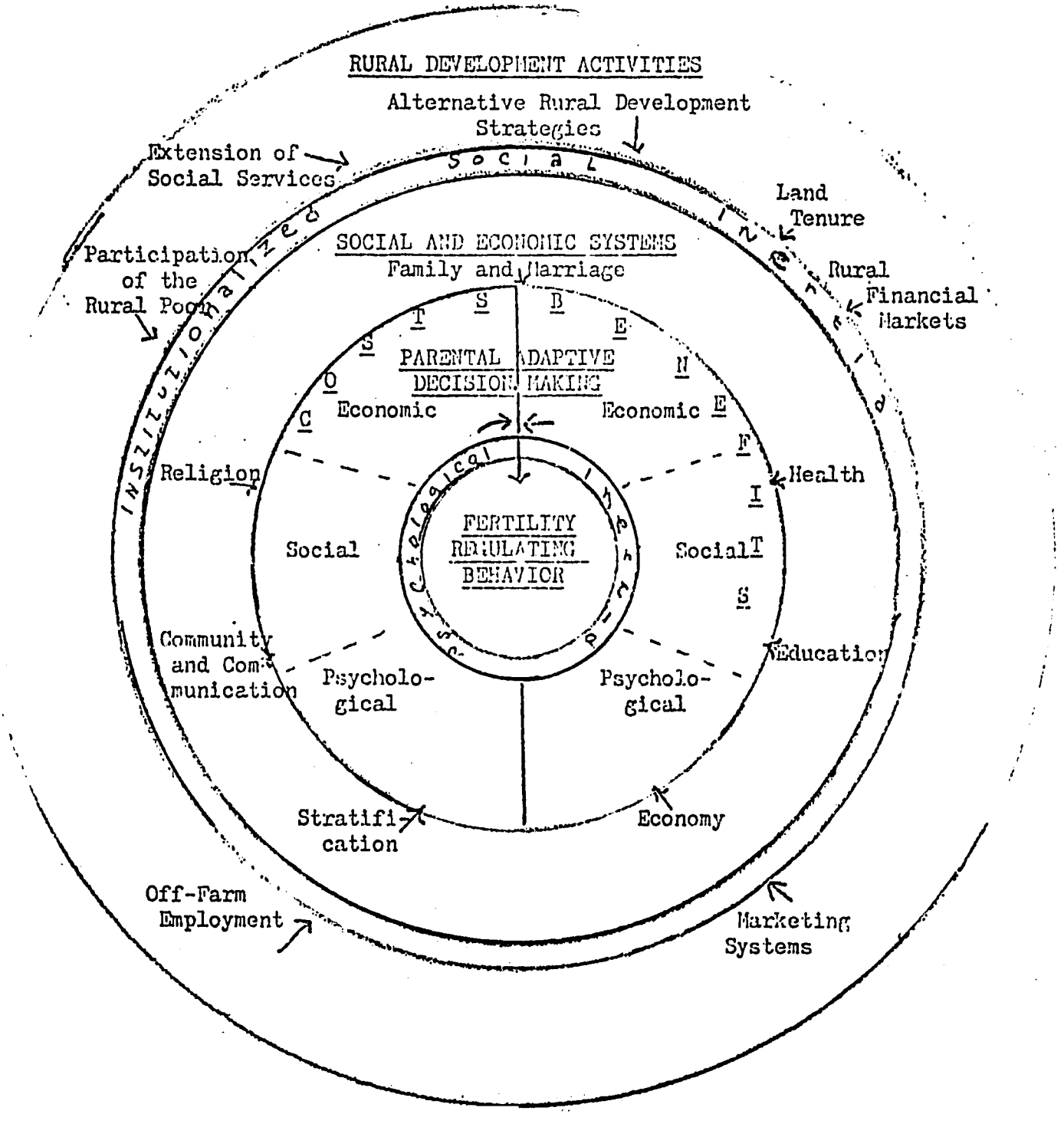

Figure 1.1 General Model of Fertility Decision Making Using a Value of Children Framework

and the capacity for completely rational sexual behavior may be problematic.

The model of reproductive behavior to be described below suggests that the adoption of family planning methods depends not only upon the cost or difficulty of doing so, but upon the strength of the motivations of parents to regulate their family size. These motivations may be significantly influenced by the public policies employed to speed the rate of economic and social development in rural areas. The direction and strength of these influences is an empirical matter to be addressed below; however, the fundamental point to be made here is that explicit population policies such as family planning and rural development policies can and should be designed to complement each other. To understand how this might be achieved, we must observe more closely the relationship between individual reproductive behavior, the socioeconomic context, and rural development policy.

The Social and Cultural Context of Reproductive Behavior

An individual couple's motivation to choose a small, moderate, or large family comes out of the social and economic context within which it resides. A number of factors may be important in determining how the socioeconomic context influences individual reproductive behavior. Figure 1.1 presents a number of social and institutional factors that potentially shape individual attitudes and perceptions about parenthood. This list is not exhaustive, nor does it contain any attempt to weight the various elements of the socioeconomic structure with respect to their influence on reproductive behavior. It is to be expected that the relative importance of various factors will change markedly from country to country and,

indeed, from group to group within a country. Nevertheless, a general view of these factors can be provided to serve as the framework for the review of the literature which follows. In the paragraphs that follow various aspects of the socioeconomic structure are examined with respect their relevance to reproductive behavior.

Family and Marriage Systems. It is well known from recent social and anthropological studies that family structure and conjugal role relationships may play an important role in determining both the social and psychological roles of children and the economic and opportunity cost of childrearing to parents. In the extended family situation, typical of many areas in the Third World, children fulfill ego and social needs and contribute particularly important economic functions that makes them prized by their parents. Hoffman and Hoffman (1973) have provided a useful set of descriptive characteristics of the social and psychological role of children. They suggest that children (1) provide adult status and social identity to their parents, (2) allow for an expansion of the self by forging ties to a larger entity (the extended family, the village), (3) give evidence of morality and religious virtue, (4) provide the parents with stimulation, novelty and fun, (5) give parents primary group ties that are often lacking in a fluid and rapidly developing society, (6) invest the parents with social and political power, (7) provide an outlet for creativity and competence, especially on the part of the mother, and (8) are vehicles for social comparison and status competition. Clearly the social and psychological needs and functions children provide may vary greatly, depending upon the family structure within which they

are reared. Rural development programs that influence family structure may significantly affect the cost and value of children to their parents. An example might be rural housing programs that allow younger couples to live separately from their families of orientation: to the extent that housing programs change living arrangements, the time cost of childrearing might also be altered, leading to eventual changes in completed family size.

The nature of the sexual union and the marital role relationships is also a variable affecting the relative cost/benefits of children. Contrast the casual and unstable consensual unions of Jamaica with the rigidly arranged Moslem marriages of Pakistan. Polygyny, age at marriage, relative stability of unions, residence patterns, degree of marital role segregation, and the status of the wife as contrasted with her status as mother and authority over children all have a potential effect on how children are viewed and on the extent to which decisions to limit family size will be made. Rural development programs, especially those affecting the employment opportunities of young women may have an important effect on fertility through their impact on the age of entry into sexual union.

Community and Communication Systems. The geographic location of a couple may have much to do with the way in which it views parenthood. Couples residing in traditional settings such as farms and villages may view children rather differently from established urban dwellers or recent migrants to cities. Indeed, the review of literature documents and illuminates the often-noted association between lower fertility and urban

residence and it appears that the changing cost/benefit balance in the value of children occurring during urbanization and modernization is an integral aspect of the fact that fertility levels are often lower in urban areas. Rural development programs might be tailored to introduce those aspects of urban life that are antinatalist in nature.

The size and direction of information flows, which are in turn related to residence patterns and community structure, are also potential avenues for developmental interventions which might lead to lower fertility. Roads and communication media are potential paths for disseminating new ideas and for developing new and varied reference groups which will guide the establishment of smaller family size norms. Some studies show that basic orientation for desired family size occurs at a relatively young age, even though preferences are subject to revision later. Sociologists have long advanced normative explanations of fertility behavior and have attempted to demonstrate how differential group pressures lead to differences in completed family size.

Religion. As a repository of a society's most fundamental values, this institution is almost universally pronatalist--encouraging faith that the Lord creates and the Lord will provide. However, resistence to family limitation among the religious appears not to be so much a matter of dogma as of life style associated with a religion.

Furthermore, a religion usually contains some values which may serve as a basis for encouraging family size reductions--for instance needs of children and the health of mothers may be religious values which can be used to build favorable family planning attitudes.

Education. Without corresponding improvements in literacy and skill levels, significant development is hindered. Education can take many forms, from the formal and direct to the informal and indirect. Its involvement in changing the value of children and lowering fertility seems to be channeled chiefly through educating women, elevating their status, and changing the position of female children.

The Economic Context. There are a number of macroeconomic factors that are also relevant to reproductive behavior. The absolute level of income and wealth in a region may play a role in determining the demand for children as might the labor requirements, work regulations, and schooling requirements. Land tenure arrangements may have positive or negative effects upon age at marriage, and through household labor requirements, on the size of family desired. Opportunities for labor force participation in the market economy may markedly affect women's readiness to marry or, once married, to bear children. Individual decisions are bound to be tempered by the macroeconomic framework within which they are made and many elements of public rural development programs are explicitly designed to change the economic structure of a region or locality. In order to understand the impact that these programs have on reproduction, it is necessary to understand in turn how a given rural development project will alter the economic structure of the target area, how the changing economic structure will affect variables immediately tied to reproductive behavior, and finally how changes in those variables will affect the demand for children and fertility regulating behavior.

Stratification. Perhaps one of the earliest and most frequently replicated findings on fertility differentials is their relation to socioeconomic levels. Thus another possible avenue by which development programs might foster reduced fertility is in providing channels for the upward mobility of individuals. The recent interest shown in the Role of Income Distribution as a determinant of fertility (World Bank, 1974; Appendix A) is further evidence of the salience of stratification factors.

Health Factors. The final component of the social and cultural context of reproductive behavior concerns the mortality and morbidity conditions current in the region and the nutrition levels characteristic of the population. Not only do these factors affect fecundity but they influence parental demand for children. An often cited example is the social role of children as old-age insurance for their parents. Mortality conditions play an important role in determining the number of births required to insure old-age support for parents; hence regional differentials in mortality may be reflected in regional differentials in the motivation to limit family size. Nutrition conditions may also affect the demand for children as economic producers. Presumably the healthier the children, the more productive their labor; hence programs designed to increase nutrition levels of children may also increase their economic value and demand for them.

As figure 1.1 and the discussion above suggest, human fertility occurs in an interrelated social and economic context that changes and is changed over time. Rural development policy is often designed specifically

to effect a structural economic and social transformation to improve the productivity and efficiency of the rural population. This transformation may have side effects that will lead to higher or lower fertility. If they lead to higher fertility the effectiveness of the rural development policy is reduced because more rapid population growth will consume some of the direct economic gains made possible by the development projects. If rural development policy leads to a more rapid decline in fertility levels than would have occurred because of family planning programs or because of general social and economic development, its productivity may be greatly enhanced. Consequently, attention paid to the design of rural development programs that have antinatalist side effects may result in significantly higher rates of return to rural development policy.

A Model of Reproductive Decision Making

The socioeconomic context just described contains those factors external to the individual couple. They are only indirectly determinants of the couple's demand for children and resulting fertility regulating behavior. The direct determinants of the couple's demand for children are to be found in the ring labelled "Parental Adaptive Decision Making" in figure 1.1. These variables, specific to each couple, determine the strength of demand that the couple has for any particular family size. The stronger the demand for small families, the higher are the perceived benefits of fertility limitation and the more likely it is that couples will exhibit purposive family planning behavior.

The variables that immediately determine parental demand for children include those determining (1) the social values and costs of children, (2) the psychological costs and values of children, (3) the economic value of children, (4) the time and money cost of children, and (5) the wealth available to the family. These factors represent the impact of the social and economic environment upon the individual couple and they determine the motivation of that couple to attempt to achieve large, small, or medium size families. The stronger the motivation to limit family size relative to the costs of fertility limitation, the higher should be the observed incidence of small and moderate size families and the more prevalent should be the use of modern means of birth control.

The context of reproductive behavior presented in figure 1.1 reflects the growing view among social scientists that reproduction can be viewed as an allocative process. Couples are faced with limited stocks of time and money that must be allocated to childrearing, the family's social and economic advancement, the demands of the extended family, and to the government in the form of taxes. To the extent allowed by law and the socioeconomic environment, couples attempt to choose the mix of family size and other activities that maximizes their own or their children's perceived welfare. This mix is determined by their own preferences for parenthood versus other activities, by the cost of children and by the wealth that is available to be allocated. It is also determined by the time orientation of the couple; the extent to which they can defer gratification and plan ahead may be an important determinant of fertility intentions and desires.

This model is an adaptation of the standard consumer demand model of economic theory. It differs from the standard case in that it explicitly recognizes the impact that the socioeconomic environment has on allocative decisions. Moreover, it is flexible enough to include allocative behavior in settings that appear to preclude purposeful, rational, and consistent activity. It specifically recognizes that the economic and social pressure to have children may be so strong, the cost of rearing them so low, and the impediments to effective fertility regulation so severe that fertility may appear to be essentially unplanned and irrational. So-called irrational fertility behavior is, therefore, a special case of the general decision-theoretic model of reproductive behavior.

The economic view of reproduction, outlined by Becker (1960), has gained increasing acceptance over the past two decades. Most of the initial development of a microeconomic model of fertility centered upon fertility in industrial countries with relatively little attention being paid to the social and cultural context within which reproductive decisions are made. Becker's initial contribution spurred a number of extensions and elaborations of which Becker and Lewis (1973), DeTray (1973), and Willis (1973) are notable examples. This version of the microeconomic model conceptualizes the cost of children as a decision variable. Parents choose optimal amounts of time and money resources to spend on each child and simultaneously choose the number of children to have. Institutional constraints upon expenditures on children are hardly regarded and attention is focused on the "quantity-quality tradeoff" as a resource

allocation problem.

Another line of development of the economic theory of fertility has come from the work of Leibenstein (1977a,b) and Richard Easterlin (1969). Easterlin is responsible for an important early appraisal of the microeconomic model, especially with respect to its consistency with the social-normative view of reproduction common among demographers. He takes great pains to illustrate that an integration of social and economic explanations is both possible and necessary for a comprehensive view of reproductive behavior. Namboodiri (1972a,b,c) has further appraised the status of the microeconomic model of fertility from the point of view of a sociologist and has concluded that a resource allocation model of fertility that pays explicit attention to the causal role of costs and benefits of children is a desirable and necessary addition to fertility theory. He, too, concludes that the value of the microeconomic approach is vitiated if it is not careful to integrate the social context of allocative decision making into the theoretical framework. For a contrary view on the value of the microeconomic approach see Blake (1968).

More recently attempts to advance and test statistically socioeconomic models of fertility have been made by Turchi (1975a) and Hout (1976). Turchi advances a socioeconomic model of fertility that pays explicit attention to the external social and economic forces that shape parental perceptions and behavior regarding the cost of children. In particular, he illustrates the mechanism by which fertility can be altered by public policy acting through programs designed to affect the cost of children.

Most of the early contributions to the microeconomic theory of fertility were more relevant to industrial than to Third World nations. More recently, however, attention has shifted to the application of the microeconomic framework to developing countries. Leibenstein in a series of articles (1975, 1977a,b) has focused attention on the role of the cost of children in fertility decline. He argues that fertility declines in Third World settings as a concomitant of economic development. He suggests that economic development and structural transformation bring about a compression in the income distribution that narrows the differences in income received by members of different status groups in society. Parents are required to spend increasing amounts of their income on so-called "status goods" to maintain or improve their position in the status hierarchy; however, the same economic development also leads to increased cost of improving or maintaining socioeconomic status. Consequently, considerable pressure to reduce family size develops as a natural result of economic and social transformation. Although not mentioned by Leibenstein, the policy implications of this theory are important: policies that enhance the tendency of economic development to raise the cost of children will be particularly valuable in speeding the rate of increase in human welfare that is their ultimate goal. Turchi (1977) makes this point in the course of developing a policy-relevant model of reproductive behavior in developing countries.

Another extension of the microeconomic theory to developing countries is that of Easterlin (1973, 1975) who emphasizes the changing relationship

between the demand for children and the population's ability to supply them as development proceeds. Easterlin's primary contribution is to integrate supply side considerations; his treatment of the demand motivating role of the cost of children is minimal.

Finally, a number of reviews and critiques of the micro models help to assess the current and potential usefulness of this approach in understanding and influencing Third World fertility through public policy. These reviews include Demeny (1972), Fulop (1977), Keeley (1976), McGreevey (1974), Ridker (1976), Sanderson (1976), and Turchi (1975b). In addition, other approaches that include attention to the role of costs in fertility reduction include Heer (1968) and Weiss-Altaner (1977).

A more complete understanding of the role of the cost and value of children in the determination of fertility can be gained by referring to figure 1.2. This figure presents a causal model of a wife's demand for children at a particular point in time. Three factors are the immediate determinants of the demand for children: the wife's relative preferences for children (her perceptions of the child's net psycho-social value), the net perceived opportunity cost (time and money costs) of a child, and income and wealth expectations. Underlying a woman's perceptions of the costs and benefits of a child is her time orientation and the strength of her attention to costs and benefits of childrearing that will appear only later in life.

These three factors are those identified by the microeconomic theory as being the key direct determinants of the parental demand for children. Again, it must be emphasized that in a particular rural setting the benefits

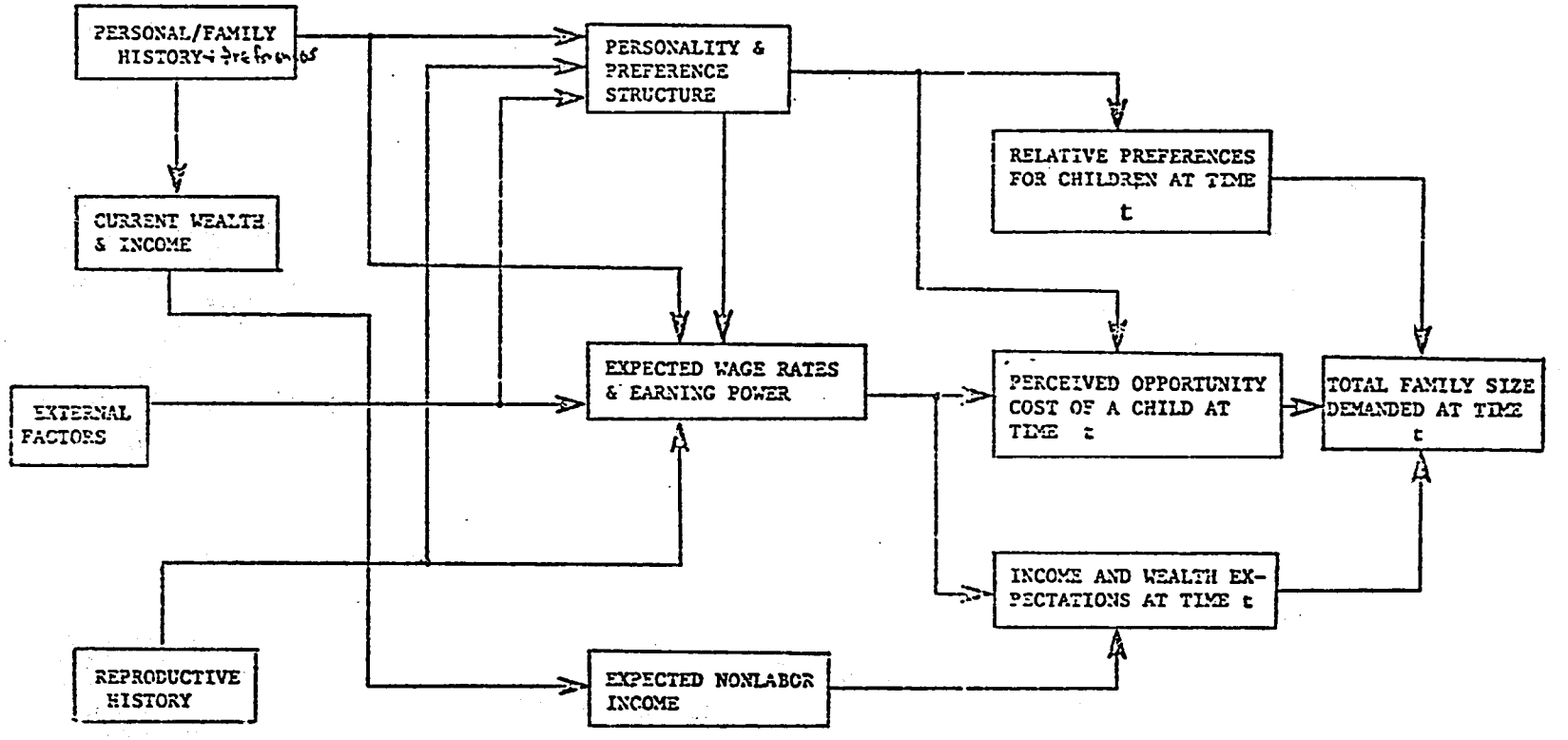

FIGURE 1.2

A WIFE'S DEMAND FOR CHILDREN AT TIME t

perceived to flow from large families may be so large relative to their perceived costs that parents may desire to have all the children that they are able to produce. Some anthropological studies (e.g., Marshall, 1972) suggest that in many rural village settings the psychosocial benefits of parenthood so outweigh the resource costs that the results of any cost/benefit calculation would be preordained. However, rural development policy has the effect of changing the social and economic context within which such calculations are made, and it is essential to understand how the ratio of perceived child value to perceived costs is affected by public development programs. Once the connections are understood, rural development policy can be shaped to have maximum anti-natalist impact, thus increasing the motivation to limit family size and adopt effective family planning methods.

The Value of Children. Children bring psychosocial and, in some cases, economic benefits to their families. The dimensions of these benefits have been outlined by Hoffman and Hoffman (1973) and Arnold et. al. (1975). Other allocative activities and opportunities also bring rewards, some of which are similar in character to those provided by children. To the degree that there is a wide range of alternatives available and to the degree that parental resources of time and money are limited, families must make decisions about the mix of activities that they will pursue. In some rural settings there may be virtually no alternatives for a woman beside the role of mother; however, in other settings the alternatives to motherhood may be sufficiently attractive to make choices necessary. As figure 1.2 suggests, the psychosocial value of children

is determined by the preference structures of husband and wife and perhaps other key individuals in an extended family. These preferences are, in turn, determined in part by the social and economic environment within which the family resides. These "external factors" are identified to some extent in the outer ring of figure 1.1. The goal of the literature review in the following section is to assess what the literature has to say about the relationship between rural development activities and programs, the sociocultural context, the psychosocial value of children, and fertility. If the causal paths can be traced, rural development programs may be susceptible to modification in order to reduce pronatalist biases or to strengthen antinatalist effects.

Another aspect of the value of children is their value as producers for the family. This value varies greatly with respect to social and geographic settings and with respect to the age of the child. There is increasing evidence, to be reviewed below, that children, even at young ages, may make positive economic contributions to their families. Moreover, the value of children as old-age security for their parents has been frequently cited in the cross-national "Value of Children" studies to be reviewed below. Rural development programs such as schooling, introduction of new hybrids and farming techniques, and introduction of manufacturing plants may significantly alter the economic value of children in a pro- or antinatalist direction. Literature relating to the impact of economic value of children on fertility will be reviewed in the following section.

The Opportunity Cost of Children. The opportunity cost of children is another important primary determinant of the demand for children.

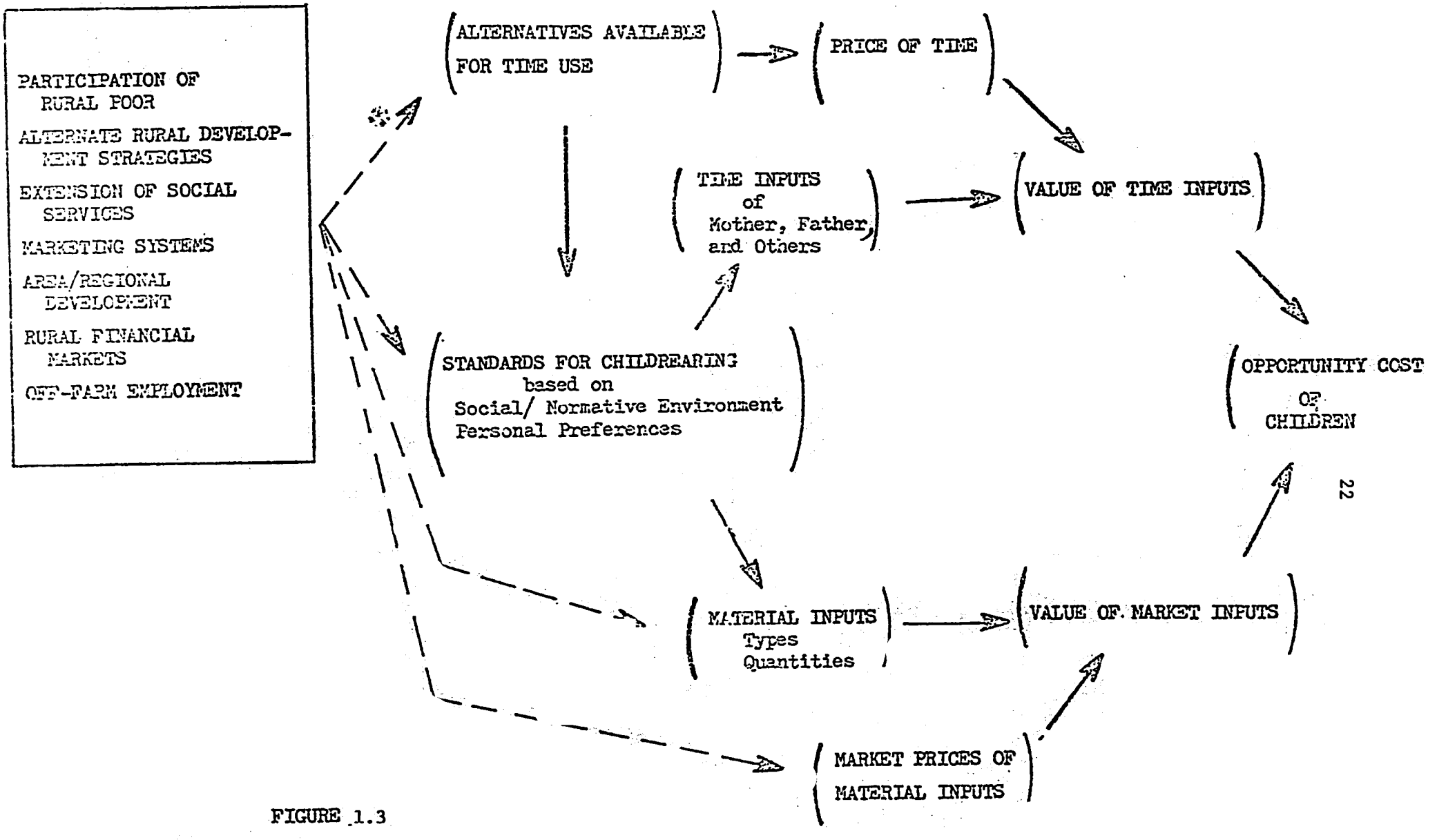

FIGURE 1.3

RURAL DEVELOPMENT POLICY AND THE COST OF CHILDREN

Figure 1.2 suggests that economic and psychosocial factors combine to determine the opportunity cost of a child. Figure 1.3 expands this relationship to show more precisely how the opportunity cost of children is determined. Parental standards for childrearing are strongly influenced by parental preferences and aspirations and by family and group norms and tradition. Couples in extended family situations may be heavily subsidized by the family to the point that the opportunity cost of children seems low relative to the economic and psychosocial benefits received from them. To the extent that rural development policy provides new alternatives to parental roles or affects the socioeconomic environment in such a way that standards for childrearing are altered, the opportunity cost of a child and ultimately the demand for children will change.

Figure 1.3 also illustrates that the socioeconomic environment can also affect the financial cost of children by determining the types and quantities of goods and services available for childrearing and by influencing the market prices of those commodities. To the extent that rural development programs alter the mix of available goods and services and the prices at which they are sold, they will have a direct impact on the financial cost of a child.

Moreover, rural development programs can also alter the time cost of children by increasing the availability of alternative uses of parental time. This can have the effect of changing parental childrearing standards and by altering the opportunity value of parental time. For example, programs that increase market work opportunities for young mothers will increase the opportunity cost of their time spent in motherhood and may induce them to alter childrearing modes in order to accommodate new opportunities outside the home. Section III will review the literature on the

cost of children in order to determine how the cost of children affects fertility and how economic development and development policy operate through the social and economic environment to change the cost of children.

Fertility Behavior

Instigating change processes in the peripheral layers of the fertility model will not lead to reduced fertility unless the actual reproductive behavior is altered. The focus of programs can be held more on target if it is kept in mind that reducing the number of births must be achieved through (1) reduced exposure to sexual intercourse, (2) increased contraception, or (3) increased reproductive wastage. These behaviors are indicated as the core of the fertility model. The first can be accessed by such social changes as marriage at a later age or longer periods of abstinence during marriage. The second will depend on motivational changes. The third might involve a liberalized abortion policy.

Summary

This introductory section has presented a theoretical model of fertility in a development context. It has identified the main components of a socioeconomic theory of fertility and has demonstrated how resource allocation decisions can be influenced by the social and economic environment within which they take place. The remaining sections of this paper will treat in detail the literature dealing with major determinants of fertility. Attempts will be made to establish the linkages from cost and

value to fertility and from rural development programs and activities to the cost and value of children. Once the literature is surveyed it will be possible to pinpoint gaps in our understanding of the way rural development programs affect fertility through the cost and value of children.

II. The Value of Children (UBC)

Introduction

The overall assumptions of this SOAP paper are that (1) fertility will decrease as the costs of children rise and benefits derived from them decrease, and (2) that people will reduce the sizes of their families when they see that it is in their interest to do so (Carder 1974). Similarly, the general hypothesis is that the instigation of fertility reduction through altering the value nexus of children may be effectively channelled through economic costs and benefits, including the instigation of opportunity costs for mothers. Sections III and IV which follow present a microeconomic model of fertility which details causal linkages by which financial costs and time costs may place constraints on the size of families. Figures 3.1 and 4.1 diagram the theorized linkages. Both of these connect costs to normative social structures and emotional (psychic) factors. It is with the elaboration of these latter aspects of the fertility decision-making process that this chapter is primarily concerned. While the model illustrated in the diagrams is sufficiently flexible for framing research and explaining fertility in LDC's, an elaboration in terms of structural constraints of social systems in the process of modernization should provide a broader understanding of the problems involved.

VOC, Fertility, and the Social Matrix

Investigation of the changing cost/benefit ratios of children seems thus to offer an avenue for analyzing the complex social matrices which

determine fertility norms and for describing an historical process (See Fawcett, et al., 1974); however, the VOC (value of children) concept is not a unidimensional variable. It is difficult to conceptualize, subject to different types of operationalization, and presents problems of measurement. Hoffman and Hoffman (1973) have done significant amounts of work on the topic as have the East-West Population Institute studies on VOC. The general types of values include emotional, economic, social and biological dimensions (Arnold, et al., 1975). While it is beyond the scope of this paper to further develop or refine the concepts of child value, it is necessary to be aware of the complexity of the concept. Of the different measures of family size preference, "current intentions about additional children are more amenable to prediction" and "have greater psychological reality than retrospective desired or ideal family size" (Bulatao, 1975). Some researchers have found that inclusion of value of children variables does not improve significantly the explanatory power of a model relating fertility to socioeconomic variables (Rogers, 1976). Others have found that while the larger part of explained variation is made by background factors, VOC measures can add substantial explanation to the prediction of family size--even though they correlate poorly with fertility variables and well with background variables (Buripakdi, 1977).

These findings strongly suggest that while values of children are central factors in changing levels of fertility, they must be examined in terms of the social matrix and the historical context within which they occur. Child values are imbedded in the total social structure of the society and efforts to change the costs/benefits ratios of children must be approached through them (Caldwell, 1977), and reproductive behavior

is seen to be mediated through a cultural, social and psychological complex.

Historical Process

A further mediating factor must also be taken into consideration, namely the historical milieu within which decisions about fertility are made. In the theoretical framework of this paper, this factor is being viewed in terms of the stage of the demographic transition which describes the particular society in question. Demographic transitions appear to be strongly correlated with economic development, a fact which appears to have been the basis of the arguments about the relative priorities of population control and economic development at the United Nations World Population Conference in Bucharest in 1974.

A General Framework

A demographic transition is a process of change from a situation of slow population growth generated from high birth and death rates to one of slow growth generated from low birth and death rates. Many LDCs have begun to experience this transition and as part of their development programs are interested in accelerating the process. Theories of the demographic transition, however, developed out of an effort to explain the population experience of the Western World and as such they are not necessarily applicable to the population processes being experienced by LDCs today. Critical dialogue concerning the validity of this theory is extensive; nevertheless, the theory offers a logical point of departure for examining and understanding fertility patterns of developing nations, and it can provide a background with which to frame the theoretical models being developed for the analysis of fertility via the value of

children nexus.* In part, the controversies surrounding transition theory are tied to seemingly contradictory evidence regarding the relationship between income and fertility--a conflict which extends originally from the poor match between the predictions of Malthus and the empirical reality of the 19th Century in the Western World. This contradiction has been addressed more recently by Boulding (1955), Easterlin (1969), and others; and has been the basis for the building of the microeconomic models.

Historical evidence in the West (and in some other areas as well) indicates that demographic transitions have usually occurred as part of a process of technological and economic development which also set into motion changes in social structures and values. The Demographic Transition is usually described in terms of three stages--a pre-transition, a transition, and a post-transition period. It is in the middle stage where birth rates outstrip the death rates to the extent that net growth can double the size of a population in 35 years or less. One would suspect that the value of children equation, or the cost/benefit ratio, would vary according to the stage of the demographic transition within which a nation is located. It is the focus of this chapter to look at the VOC/fertility mediating factors--the institutional framework and stage of development.

*An earlier work by one of the authors contains a relatively complete restatement of the Demographic Transition and its underlying assumptions. This work is the basis for much of the theoretical reasoning presented in this chapter (See Bryant, 1966.).

Social Change and Historical Process: Development of Cost Constraint Fertility Decision-Making

While modernization is at best an uneven process and it is impossible to predict a distinct series of steps through which any particular nation will progress until its desired level of development and population growth rate are achieved, certain prerequisites and types of social change seem to be universally experienced in the process of reaching a situation where fertility decisions are made on the basis of a relatively straightforward cost/benefit trade-off. These universal aspects are the subject of this section of the review paper.

Preconditions

The achievement of low infant mortality is apparently a precondition for low fertility in all societies. In situations of poverty and high infant mortality, the effort to survive may so completely dominate life activities that rational choices between fertility and alternative goals do not exist. Family survival may be the single dimension of success (Newland, 1979; Weiss-Altaner, 1977). Nevertheless, the association between infant loss and fertility appears to be indirect rather than a deliberate replacement of lost children. In some cases the reproductive behavior in these situations may operate on motivation through subconscious memories of the experience with death in childhood (Taylor, et al., 1976).

Secondly, the society apparently must provide the kind of life situation in which the future is seen as predictable and capable of providing the opportunity for successful pursuit of family and individual goals.

Third, fertility decision-making must be substantially made by the

female, inasmuch as it is she who ordinarily bears most of the opportunity costs.

Normative Ideologies: Socialization for a Preferred Family Size

It is a relatively well established sociological precept that most people have a need to conform to social expectations. Family size preferences are not developed independently by individuals but appear to be part of a socialization process (Gustavus, 1975). In spite of declines in family size expectations, social pressures in the United States encourage family sizes of at least two, but not more than four children (Griffiths, 1975). In fact, American economic norms seem to be interpreted by many Americans as saying that parents should have as many children as, but not more than, they can afford. Those who have less than this number may be seen as using poor judgment (Rainwater, 1965). The poor showing of VOC variable as compared to socioeconomic factors in predicting desire for additional children (Bulatao and Arnold, 1977), may be a manifestation of the strength of pressures to conform vis a vis pursuing individual values. Fertility variations by class and residence may indeed reflect differences in normative expectations (Griffiths, 1975) and differences in patterns of conformity to norms.

Thus, family size preference can be seen as partly as normative, partly as a response to the child values held (Simmons, 1977), and, inasmuch as the larger the family the smaller the number of additional children desired (Bulatao and Arnold, 1977), partly as adaptation response to a changing family situation. In the United States it has been found that as size increases, disadvantages become more pronounced (Esparza, 1977). Similarly, use of contraception increases in LDC's as age of women increases,

and in DC's as parents reach the point of wanting no more children (Freedman and Combs, 1974). The adjustment of family size goals to accomodate personal needs and the quality of a situation probably documents the process whereby the norms of a culture change.

As size preferences vary so do the reasons given for wanting children. People say they want large families chiefly to provide sibling companionship. In the United States, love, companionship and fun are important reasons for wanting one child, but these factors are increasingly unimportant as family size rises. Personal restrictions, opportunity costs and avoidance of pregnancy are reasons for not wanting children (Bulatao and Arnold, 1977).

Sex preference in children is related to and to some extent affects size preference, although it in return appears to be affected by modernization and changes in size preference. Strong sex preferences can lead to high fertility whether religiously, socially or economically induced (Simmons, 1977). Where it is strong, it frequently becomes more important as fertility levels fall and will outweigh sibling companionship as a reason for wanting more children (Bulatao and Arnold, 1977). Strong sex preference in children seem to characterize some countries, but in many, preferences vary within the society. In the United States there is some evidence that indicates a widespread preference for boys among some groups (Esparza, 1977), and for more sons among the lower classes (Arnold and Fawcett, 1975), but it has also been found that consistent and marked preferences for sons will not be found in DC's (Freedman and Combs, 1974). Similarly, in LDC's son preference is strong in lower classes while in the middle class the desire for daughters increases and appears to be associated with an increased emphasis on having children for psychological reasons

as opposed to economic values (Simmons, 1977).

Social Change and Inertia

Figure 1.1 in Section I diagrams the role of fertility decision-making within a cultural matrix. Included among the concentric rings are two labeled inertia--one social and one psychological. The first refers to unwillingness to change normative commitments and the second to an incapacity to do so. Both problems are logically related to situations of modernization and development. The effectiveness of general socio-economic characteristics in explaining fertility emphasize the normative aspects of family formation behavior. Weinstein, citing Ronald Freedman, emphasizes the normative character of child bearing practices and states that we need to know how normative acceptance of fertility limitation develops where it was formerly prescribed by traditional norms (1976:83-4). In some societies it may be possible to move rapidly from the first situation to the second. In others, the lag may be extensive. In most, one would expect some lag in the normative change.

This situation might be illustrated by a series of examples from impressionistic experiences in the rural south. For instance, some 25 years ago, a black female domestic is reported to have told her employers that "you white folks marry and have your families, but us black folks get our children any way we can." Ten to fifteen years ago, black women often giggled and simply stated that they expected at least half a dozen children. Today, these same black women express hopes that their children will not have such large families. In the first instance several children were needed; in the second, would-be mothers expressed normative expectations not necessarily tied to the economic realities. In fact, in many instances the burdens of parenthood were very pronounced. In the last

instance, the rational assessment of reality appears to have changed the norms. How do the norms change? Unfortunately the literature does not reveal much specific information. It is one topic that this review of literature identifies as needing further study.

Cultural lag resulting from rapid technological and social change should ultimately correct itself. A do-nothing policy in a changing situation may not inhibit the process of normative change, although it may slow and exacerbate it. However, cultural lag is only one facet of inertia which can be generated from the change process. The psychological problems which may be associated with coping with the need for "economically rational" decision-making in a situation of change is another. The experience of Europe during the industrial revolution illustrates the problem. Here as technological change revolutionized economic organization and precipitated a rural to urban migration, the old institutional controls of late marriage and nonmarriage became unenforceable and were abandoned. Yet "marrying" couples released from one frustrating situation found themselves bound by another which alienated them, proletarianized them, and developed situations where responsible assumption of the parent role was virtually impossible. Building on this European experience we can postulate that a probable fertility reaction, which a similar situation of social disorganization and release of institutional controls on sexual behavior might generate, would be sharp increases in the unsettled context of rapid social change.

One other aspect of the inertia phenomenon needs to be considered; that is the inability to control reproductive processes completely for biological, technical or emotional reasons. The first reason can probably be assumed to be randomized in most populations; the second may be distributed in terms

of socioeconomic levels of the society; and the third probably needs to be approached as an individual aspect of social alienation. The first will not be dealt with in the review of literature; the second will be dealt with chiefly through the stratification topic; and the last will primarily be found in the sections looking at women's status and sex roles.

Diffusion

There is a sizable body of literature in sociology concerned with cultural diffusion. It is beyond the coverage of this paper to review these studies. Nevertheless, diffusion of knowledge, attitudes, and the products of technology are part of the social change process and should not be overlooked in considering rural development projects and their impact on the value of children and fertility. A well established fact in the diffusion process is that the path of diffusion is usually from urban to rural areas and from upper to lower classes, and from MDC's to LDC's. The culture traits which diffuse include the technologies of both industry and family planning, and these traits will diffuse more readily where social structures have created a climate of rational acceptability (See for instance: Knodel and Debavalya, 1978; Simmons, 1977; World Fertility Survey, 1978.).

Urbanization

Modernization is inherently associated with urbanization even though the two processes are not synonymous. While it may be incorrect to say that urban residence, per se, causes decreases in family size, changes in VOC have been documented as spreading from urban to rural areas (Frenkel, 1976). Value focus appears to change with urbanization--away from the extrinsic and toward the intrinsic (Simmons, 1977). The decreasing value

of children as economic and religious assets, which has led to reductions in completed family size, has occurred chiefly among those who are educated, employed in white collar jobs, and live in urban areas (Frenkel, 1976). One study shows that, using variables related to modernization, it was possible to explain 57 percent of the variation in childlessness, suggesting that there is a tendency in modern life for the development of situations in which some people come to place little or no value on having their own children (De Jong and Sell, 1977). The industrial-urban situation also appears to be one in which people come to have concern about overpopulation and give it as a reason for wanting smaller families (Hoffman, 1975).

In the rural setting however, where the family situation is such that human labor is advantageous to the economic and social standing of the family, the desire for children is likely to be strong and there may be a preference for sons (Simmons, 1977). Rural people with traditional values stress the economic utilities of children (Arnold and Fawcett, 1975).

Stratification

Stratification appears to mediate the effects of urbanization and modernization. Among the lower classes in LDC's, the VOC input into fertility decision-making may aim at family survival or success rather than individual improvement (Weiss-Altaner, 1977). Urban lower class families tend to be more concerned than the middle classes over the costs of children (Arnold and Fawcett, 1975), but they may need several incomes for survivial and when children can be sent out to work at young ages at low skill occupations there may be economic incentives for having many children (Simmons, 1977). Group (and class) differences in access to alternative goals and the application of values will affect the way values

of children relate to fertility (Hoffman and Hoffman, 1973). Socioeconomic status levels and their associated life styles produce value orientations and family structure variations which in turn affect fertility attitudes and behavior (Clifford, 1971). Thus, it is not surprising to find that upper level people will value children more for noneconomic reasons, be more concerned over strain experienced with raising children and with population problems. However, the net economic burden of children does not necessarily change by socioeconomic status. As one moves up the ranks, the economic utility decreases but so also does the economic burden (Arnold and Fawcett, 1975). Nevertheless, socioeconomic development can be hypothesized as having its primary impact on the economic cost/benefit ratio of children. Rural residence and lower class status is associated with practical and economic values of children (Simmons, 1977).

Economic Utility

There is a possible inherent, but probably only a seeming, contradiction generated by the melding of the sociological and economic frames for viewing fertility in terms of value of children. On the one hand, it is held that people will reduce the size of families when they see that it is in their interest to do so (Carder, 1974). On the other hand, some argue that propositions based on the nature of economic man may not apply until "economic man" exists (Simmons, 1977). While it is substantiated that in both developed and developing countries financial costs are the chief reason for wanting to limit family size and become more important as parity increases (Bulatao and Arnold, 1977; Hoffman, 1975), the options which make economic utility decisions on family size

rational at low parities, probably do not develop until a degree of modernization has taken place. In developed countries cost constraints impact at low parities and shift the reasons for wanting children away from the economic and toward the social and psychological. Traditional attitudes are associated with valuing children chiefly for family continuity, security, and reinforcement of sex roles. These values are associated with high levels of fertility (Arnold and Fawcett, 1975). In traditional farming and rural settings, large families can lead to higher status and the enrichment of the family by adding land, animals, and more intensive farming methods (Mazur, 1975a; Simmons, 1975). Where the family is the only source of social and economic security, fertility tends to remain high, parents resist family planning, and the viewpoint of the individual child is ignored (Stone, 1978). The need for economic assistance in old age is also important, and may be more important than survey response ratios indicate (Bulatao and Arnold, 1977; Hohn, 1975).

Fortunately, balancing the decrease in value of children which accompanies the modernization process is a shift in focus away from valuing children in terms of "quantity" and toward valuing them in terms of "quality" (Newland, 1979). This can be illustrated by findings on French Algerians in Paris among whom higher aspirations for children were associated with greater likelihood of contraceptive usage (Michel, 1972). Even where poverty is so severe that survival is the primary goal of life, a changed situation, which will allow the possibility of giving children a better stake in the future or a better chance to hold on to a precarious position will stimulate a different fertility decision (Weiss-Altaner, 1977). Similarly, it has been found that if people think participation in community affairs will benefit their children, they will be

more likely to do so (Development Forum, n.d.).

In the developed nations, the individualized, conscious fertility decisions which maximize utility in a cost/benefit trade off also include the social and psychological aspects of parenthood. At the psychological level, however, utility must be explained in terms of need fulfillment and at the social-psychological level in terms of functions served by children.

It is the changing nexus of values associated with children which makes the VOC approach useful in explaining the demographic transition at the micro-level of society (Fawcett, et al., 1974). This is so even though in many cases the relative importance of each type of factor and the level at which each operates has yet to be determined (International Union, 1976). The VOC change results from the disappearance of the family's economic function and the increase of competitive goals that make children unnecessary and often undesirable (Frenkel, 1976).

Opportunity Costs

In societies which are so structured that the mother perceives little or no opportunity cost in bearing children and raising them, fertility tends to be high and mothers want many children, preferably several sons. See the hypotheses on Africa, below. The development of opportunity costs is tied to the changing role and status of women, to the proliferation of alternative activities for the use of her time, and her involvement with the larger society. These changes involve revisions in the cost/benefit ratios of children in economic, social, psychological and even physiological dimensions. However, the process by which opportunity costs develop is largely unknown. We do know that it does not seem to exist among some

horticultural and patriarchal groups, but that it does exist in developed industrialized nations. Study of this process would be a worthy topic of research to undertake in today's developing nations.

The concept, however, is slippery. Measurement is usually based on surrogate variables--education, employment, or time usage. Further, the cost/benefit ratios of the dimensions of opportunity costs are not necessarily derived on a one-to-one or a sum zero basis. It would be possible, for instance, for both social costs and benefits to rise and yet yield the same net ratio see Cramer (1979), Ermish (1979), the sex roles paragraphs in this section and Chapter IV which follows.

Sex Roles

It is widely agreed that role segregation by sex, and especially the restriction of women to the wife-mother role, tends to be conducive to developing in a woman a narrow life view in which she sees maternity as her only realistic goal for a successful life. The theme of the way women's roles relate to fertility appears in much of the rural development literature and is the topic of one of the papers making up this project; however, one way to examine the linkage between women's roles and fertility is through the VOC framework. In general, it can be hypothesized that the value of children varies in terms of how a woman finds her purpose in life. To the extent that she is restricted to a maternal role, she will value children highly and desire and have a large family (Newland, 1979).

The sex role complex, as it affects the value of children, includes more than the role activity options open to women, however. It also involves the conjugal relationship, particularly the fertility decision-making inputs of the two partners, and attitudes towards sex. In industrial

countries, the small difference in values of children of men and women is related to sex role differences (Arnold and Fawcett, 1975). For instance, fathers tend to be more concerned with economic costs than are mothers (Simmons, 1977).

Women with narrow role perspectives are more concerned with psychological benefits and the expectation of economic help from children than are other mothers (Simmons, 1977). Work, that is renumerative activity outside the home, for women is not an automatic instigator of change in the value of children and fertility levels. Alternative values will not develop in a traditional situation where work is compatible with child care. It becomes an alternative value for children when it gives a woman psychic satisfaction, when it forces her to share in providing for increasing economic costs of children, and when it forces the husband to share in the nurturing burden. It is more likely to affect fertility where economic value of children is low (Birdsall, 1976). For instance, a study in Russia found that employed women finding their VOC needs met by one child were unwilling to give up their jobs to have more children (Kiseleva, 1977).

Even in developed nations, female employment is not likely to alter fertility when both husband and wife believe they will be better off, if they have many children. The extent to which policy intervention in raising the status of women to reduce fertility is successful depends on the degree to which men's and women's interests in children are congruent or divergent (Newland, 1979). Where they differ, a power differential may come into play. One successful approach appears to be providing jobs for young women. This tends to raise the value of daughters, deter early marriage and be inversely related to fertility (Newland, 1979).

Which parent predominates in the fertility decision-making may be difficult to know; the motives of both should be considered. Nevertheless, it is the existence of modern contraceptives that makes it possible for the motivations of wives alone to account for fertility variations (Birdsall, 1976).

Liberalized sex role attitudes which usually accompany modernization might be expected to be accompanied by liberalized attitudes towards sex, and presumably both should be associated with lower fertility. However, this is not necessarily so. In fact, one U.S. study found that modern attitudes toward sex were associated with both better contraceptive use and higher fertility (Clifford and Ford, 1974). Modernization and redefinition of sex roles are not simple processes; neither do they obliterate the demand and need for children (Hoffman, 1975). Women in developed nations often want jobs and children (Birdsall, 1976) and children in these countries still meet needs not fulfilled by other relationships (Lamanna, 1977).

A similar contradiction in the modernization process which leads to increased role options for women and fertility is illustrated by the part played by education. This factor is an integral aspect of role proliferation, but its link to fertility is not necessarily direct. Freedman and Combs found no systematic variations between fertility and education in DC's (1974), although Tobin found that conjugal types of sex roles were most strongly related to lower fertility among the best educated women who tend to view children as less essential to marriage and start contraception sooner (1976); but, on the other hand, Terry found that education was one of several variables that could account for the relationship between female employment and fertility (1975). The

value of children phenomenon may explain these inconsistencies.

One other complicating factor in the changing roles for women that may accompany modernization is alienation. Children have an opportunity cost to women when the alternative work roles are satisfying. If work outside the home does not bring psychic satisfaction, a woman may opt for more children to fill these needs (Birdsall, 1976). Groat found that women with higher levels of alienation marry younger, have higher rates of premarital pregnancy and higher levels of unplanned fertility regardless of age or parity (1975). Rainwater found that the association between alienation and fertility was curvilinear, with the highest reproductive rates occurring in the middle ranges (1965).

Social Structures

Culture provides the meanings and goals which persons apply to their activities and thus it channels the allocation of scarce resources so as to achieve the purposes of the society. Social institutions are the structures through which the channeling occurs and in the case of applying cost/benefit ratios to children, the key institution is the family or kin group. Other institutions can be considered as exogenous agencies. Therefore, the family or kin group will be the primary focus through which the value of children is viewed in looking at the different groups of societies included in this paper. Other institutionalized practices will be seen as affecting the family and kin systems.

Rural Development and Modernization

Computerized searches of the literature attempting to link rural development, per se, with the values of children and fertility yielded

meager results. Since the VOC focus is relatively new, many of the value of children studies seem to be primarily involved with developing precise definitions and measurements of the VOC concept, with relating it to fertility decision-making behavior and with linking it into the institutional and cultural structures of the societies studied. In short, the linkages to rural development policy have simply not been made.

Societal Types

Foragers. History has not recorded the population processes of the majority of the most primitive type of society--the hunters and gatherers. They constitute only about one/one-hundredth of one percent of the current world population, and inhabit only the most remote and inhospitable environments of the earth--the arctic tundras, deserts, and rain forests (Friedl, 1975). These people are not involved in the rural development efforts addressed by this research review, but when fertility transition is being viewed in terms of changing values of children as they relate to an economic situation a brief look at their reproductive patterns may be helpful. In these societies where survival is often tenuous, where ownership of property and inheritance is unimportant and relatively non-existent, where the two sexes are economically interdependent, and where their relative status tends to be egalitarian; child-bearing, child-spacing, and child-tending are accomodated to the demands of the woman's productive work tasks. When women are gatherers, a low fertility rate is an adaptive technique for survival, and births are usually spaced four years apart. Because of the economic interdependence of the sexes, both sons and daughters are needed. Insuring these fertility goals are the practices of continuing lactation until the child is four years of age and of using

abortion and infanticide as needed (Friedl, 1975). These types of societies seem to have adjusted their reproductive rates to their environmental limitations. What will happen if their social or ecosystems are disrupted? How will they then change their view of children and how will this affect their reproductive patterns? The answers to these questions must be based on further research. Only one or two references in the review of literature on Africa relate to foraging societies.

Horticulturalists. These societies are more numerous than foragers and with few exceptions they are linked into the world economy (Friedl, 1975). Many are included in the LDC nations which are involved in rural development and the majority of those covered in the literature are located in Africa. Horticultural people depend on domesticated plants for subsistence and raise them in a system of shifting cultivation using such primitive implements as the hoe and the digging stick. Diets are to some extent supplemented with meat (domestic or wild) and fish. Marriages are essentially exchanges of men or women between corporate kin groups and do not break the ties of the spouses with their natal kin groups. The affinal links of both systems seem to predispose relationships between the sexes which are often full of suspicion and jealousy and lead to easy dissolution of marriage, however the intensity of such conflicts appear to be much less in the matrilineal systems. The sexual division of labor varies in both systems, and women in the patrilineal kin groups may be restricted to the home or may be valued for their commercial activities. In any case, it seems that cultural norms with respect to family size and patterns of child care are arranged to conform with the woman's customary work requirements. Fertility may be regulated by sexual tabus, separation of partners, extended periods of lactation,

abortion or infanticide. Children are part of the lineage to which they are born, either as direct contributions to its well-being or in terms of exchange at marriage (Friedl, 1975). Values of children in these societies would, of necessity, need to be determined from the standpoint of each individual parent--in terms of whether they are additions to the mother's family or the father's and in terms of how they affect the status of the parent whose sexual services have been traded into another kin group. Many of the hypotheses derived from the review of literature on fertility and value of children for Africa need to be approached with these structural limitations in mind--even though the literature often does not specify the structural context of the findings.

Industrializing and Agrarian Societies. Most of the LDCs in Asia, Latin America and the Middle East for which literature was reviewed can be included under this very general classification. It is here where emphases are placed on rural-urban and class differentials in values and fertility, and where social change toward development and a demographic transition seem under way. However, the variations and mix of variations in these nations is extensive and no effort has been made to describe them as a type. However, family organization tends to be patriarchal, with the strongest systems found in rural and traditional settings and the more egalitarian marriages in urban, modernizing, and middle class populations.

Social Structures and Value of Children: An Identification of Hypotheses by Region

Hypotheses, taken from the literature review have been accumulated in four sets--one for each of four geographic regions. For each set, general hypotheses that have implications for policy-making and are

somewhat overlapping, have been abstracted and presented along with a thumbnail sketch of the region. Following each of the general presentations is a table giving supporting summaries and hypotheses for specific nations. References from the general hypotheses to the supporting hypotheses and summaries are made by identifying within parentheses the nation or sub-region and the item number on which the general hypothesis is based. The supporting summaries are themselves referenced to the annotated bibliography.

Africa

The nations of Africa are sufficiently diverse that even those that are classed as developing countries are far from monolithic in social structure. However, they can probably be viewed as ranging along a continuum from "very traditional" to "beginning to modernize" and the general hypotheses are developed on this basis. See the paragraphs above which describe forager, horticulture and agrarian societies.

African countries appear, in general, to be primarily organized around the familial and tribal institutions. They have extended family systems (frequently polygynous with relatively independent subunits), with norms of filial and lateral kin obligations, a value system which upholds male virility and large families, and interaction systems which often dictate that the chief primary relationships are between parent and child rather than husband and wife. Being a continent with large areas of shifting agriculture, land tenure in Africa is often based on usufruct and there are few possibilities for safe investment of any capital or profit, except in children. Religion is often a mixture of tribal and Moslem or Christian orientations. Children are valued and

there is concern for their well-being and the health of mothers. Sexual abstinence is used to space pregnancies and guard the health of both mother and child. Education is at a low level, but it is valued and there is normative acceptance of the practice of educating only one child. The status of women is variable--from that of purdah to active involvement in commerce; development has not seemed to have improved their lot. Contact with the outside world of "modernity" is spotty and limited. The technological basis of housekeeping and health services is relatively low. Mobile persons tend to come from large and powerful families.

As with all of the regions studied, the general assumption for Africa is that (1) fertility will decrease as the costs of children rise and the benefits derived from them decrease and (2) people will reduce the sizes of their families when they see that it is in their interest to do so (Carder, 1974). The seven general hypotheses, given below, specify the institutional linkages which lead to high values being placed on large numbers of children.

1. Incentives for having large families are often related to short range economic benefits. In a situation where survival is perceived as a day-to-day or a year-to-year achievement, long-range planning will not be seen as rational. A child who eats little and soon contributes labor on demand is seen as useful. Factors which tend to maintain this type of incentive include: (a) communal distribution of land which rewards a family for having many children (Nigeria 3c; Several Nations 6); and (b) household technologies which need children for such activities as water and wood carrying (Nigeria 3f; Several Nations 11). These factors do not affect the cost of children, but they increase their economic contribution

in unpaid labor and services.

2. Resources in large consanguine kin groups tend to flow from child to parent. When the resource flow is from children to parents and the deprivation cost of having many children in a family is suffered chiefly by the children (or by children and mother), the cost of high rates of reproduction will not be among the considerations parents (fathers) make when determining whether or not to have another child (Several Nations 4, 7; Nigeria 3d, 3e; Western Africa 2). See also 1.a and 1.b above and 3, below. A change in the volume and direction of resource flow would alter the value of children.

3. Cultural acceptance of the idea that it is right to treat children differentially stimulates a belief that it is good to have many children, each of which is seen as fulfilling a different function for the parents. When parents can educate one child, keep a couple on the land, and channel others into activities which bring other supplemental benefits to them, it is profitable and rational to have many children. If family values could be changed in the direction of child development and improvement, and thus toward substituting quality for quantity (Several Nations 16), fertility rates might decrease. African LDCs are already concerned over health and well-being of children and mothers (Several Nations 6, 8) and are interested in developing schools and universal education programs (Nigeria 5, 6) and health services (Sub-Sahara 1; Several Nations 6, 8).

4. If women have low status and are restricted to wife and mother roles, fertility will tend to be high. When women's activities are sequestered within the home, when they have little economic power and no direct contact with the larger community, they will depend on children

for status and linkage with the outside world and will be motivated to have many children, probably several sons (Several Nations 5, 10, 12; Kenya 1). For such women opportunity costs are low. If development is to reduce fertility in addition to improving the material bases of such societies, women must be provided with alternative goals beyond the raising of children. Providing job opportunities and education for women and linking them into some type of community interaction system might serve to dilute the intense significance which children represent for such women. The effects of such changes on the position of women might also lead to a weakening of affinal linkages and serve to strengthen the marriage bond (Nigeria 3a). They might also lead to higher valuations placed on daughters vis a vis sons, delayed marriage and subsequently to lowered fertility (Kenya 1; Sierra Leone 2a).

5. The lack of extra-familial investment opportunity tends to channel resources into building bigger families. Children, it seems, are one of the few relatively secure investments a parent can make (Ghana 1). Investment in their education and training can bring rewards and income at later ages and insure against poverty in old age. The absence of social security systems in these nations (Nigeria 3d, 3g; West Africa 3; Several Nations 15) is a stimulus to high fertility. It is possible, however, that a few "quality" children might bring more security and investment returns than many poorly trained children.

6. Rural isolation fosters preservation of traditional attitudes toward children and fertility. Often the first step in modernization for many isolated societies is the reduction of mortality of children and adults through the importation of Western health technologies. Other types of development will inevitably bring in further exposure to the ideas

and products of the developed world (West Africa 1, 2; Several Nations 16). If such contacts can be used wisely, they may open up possibilities of upward mobility, socioeconomic improvement and a subsequent change of focus on values of children and fertility for large proportions of a nation's population. Diffusion and adoption of new cultural traits into existing cultures of LDCs will, of course, be mediated by acceptability and functional meaning.

7. Prestige and power are derived from membership in a large family. Large families have the most power, produce the most wealth, and produce most of the upwardly mobile individuals. Their status and power rests on land tenure policies (Nigeria 3c), farm technologies which have periods of peak labor demands and thus need a readily available labor supply (West Africa 1, 4; Several Nations 2), access to channels of mobility through sibling contact (West Africa 2; Several Nations 14), and the existence of family based welfare and social security systems (West Africa 3; Several Nations 15). Rural development projects need to be concerned with their effects on small families.

In summary, the instigation of fertility reduction through altering the value link of children seems to be most effectively channeled through their economic costs and benefits, including the instigation of opportunity costs for mothers. Efforts to change these economies, however, are approached through the social institutions (Caldwell, 1977). Only religion is seen as an institution uninvolved in fostering change. At the present stage in Africa, there seems to be very little need to focus on psychological costs and values of children.

Table 2.1 Specific Summaries and Hypotheses Derived from the Literature on Value of Children and Fertility--Africa

Nation	Summaries and Hypotheses
Ghana	1. Child fostering, because it is integrative to the society, is positively associated with higher economic values being placed on children and leads to slowness of change in the values placed on children (Shildkrout, 1973).
Kenya	1. Decreased fertility among persons of Indian, Pakistani, and Goan origin is associated with delayed marriage which is in turn associated with changing value of daughters who are allowed training and job experience rather than being channeled into early marriage (Hill, 1975).
Nigeria	1. Yoruba women in Ibadan City are rapidly increasing their use of modern birth control, but chiefly as a substitute measure for abstinence for spacing children rather than limiting their number (Caldwell and Ware, 1977). 2. Fertility changes as a response to social rather than economic change and the economic rationality of high fertility depends largely on the economic behavior expected within a particular social relationship. 3. Factors in the social system of Nigeria that lead to placing a high value on children include: a. The major primary bond may be the parent-child one rather than the husband-wife one. b. The subunits of a polygynous family are often highly independent financially. c. Land is controlled, distributed, and redistributed by communal decision, a pattern compatible with shifting cultivation. A large family can farm a larger area or a smaller area more intensively. d. Survival and security are anchored to the assurance of mutual help from the extended family. e. The mutual obligation system works and high fertility pays off inasmuch as the value flow is from child to parent.

Table 2.1
(cont.)

Nation	Summaries and Hypotheses
Nigeria (cont.)	f. Housekeeping technology is at a low level and children provide a goodly proportion of the needed service work. g. Investing in the education of one child pays off for the other siblings and the parents, especially in a situation where few alternative types of investment of savings are available. 4. The nuclear family concept is not appropriate in Africa and its use leads to misleading results. 5. The future will see the development of Western style family systems, but not because the existing system fails to function. The change will come through the introduction of the bias for the Western style family through the school systems and mass media communication. When this happens, the nucleated family will make high fertility unprofitable and unbeneficial because income and service flow will be reversed and take the direction from the parents to the children. 6. An existing value on which the bias for change toward Western values can build is that of education for children (Caldwell, 1977).
Sierra Leone	1. Tribal affiliation is not a factor in differential fertility (Snyder, 1975). 2. Among urban households, number of births was positively associated with husband's education, child quality, child mortality and wife's labor force participation and negatively associated with wife's education. 3. The above associations were stronger in the younger than in the older cohorts (Snyder, 1974). 4. Even though fathering children is still prestigious to males and pressures to be sexually active are so strong as to make marital fidelity impossible, couples caught between demands from kin and demands to educate their children are beginning to transfer a value on numbers to a value on quality of children, seeing four as an ideal number (Harrell-Bond, 1975).

Table 2.1
(cont.)

Nation	Summaries and Hypotheses
Sub-Saharan Africa	1. There would be better acceptance of modern contraceptives, if the emphasis of family planning were on concerns for family well-being rather than on population growth. These people have long used lactation and sexual abstinence to space children and ensure survival of the young and protection of the mother's health (Dow, 1978).
Uganda	1. See Kenya.
West Africa	1. Children are an economic asset in only the most traditional farming areas, but large families are prestigious. 2. Economic value of children is restricted by migratory labor in tree crop areas and by enrollment in educational institutions in urban areas. 3. The system of mutual obligations exchanged with a side circle of relatives mediates the felt strain of high fertility and also decreases the possible saving that restricting their fertility would yield to parents (Caldwell, 1975). 4. Among the Barma, a preindustrial group, children are not economically beneficial (Reyna, 1975).
Several Nations	1. Among hunters and gatherers, the migratory nature of life makes children a mixed blessing and, on occasion, infanticide will be practiced. 2. In primitive pastoral or cultivator groups, where there are periods of peak labor demands, children will be valued for their labor and fertility will be high. 3. The profitability of children in agriculture in Africa, as opposed to Asia, derives from the fact that natural resources in Africa are not under severe pressure. 4. The economic value of children will be high only if the products of their labor go to the parents for several years after they become self-supporting--a condition which exists in the traditional societies of Africa.

Table 2.1
(cont.)

Nation	Summaries and Hypotheses
Several Nations (cont.)	5. Where parents control their children's productivity and the society is polygamous, the primary source of power is the marriage market, not land ownership or money.
	6. Usufructory land rights and matrilineal inheritance both tend to lead to a high value of children.
	7. The parental right to discriminate among children will tend to cancel the interest in child quality as opposed to numbers and thus uphold high fertility values.
	8. Where property is rarely held jointly by husband and wife, value of children must be calculated in terms of the distribution of costs and benefits between the parents.
	9. Unless the added costs of many children brings deprivation to parents instead of or in addition to the children, these costs may not affect the balance of value or fertility.
	10. Where woman's productive labor is compatible with childrearing, that is where work and family roles are not separate and where other children or other members of the extended family or cheap domestic labor are available, there may not be an opportunity cost for children.
	11. One value of children is their contribution of time in performing small errands and menial labor.
	12. A reverse opportunity cost is found among Moslem women in purdah who may use children as intermediaries in trading enterprises.
	13. Indirect values of children are derived from the practice of child fostering and child pawning.
	14. That children are deemed valuable is shown by the idea that small families are perceived as poor and the large ones produce the upwardly mobile individuals.

Table 2.1
(cont.)

Nation	Summaries and Hypotheses
Several Nations (cont.)	15. The economic value of children is enhanced by their being viewed as a more dependable source of old age security and inflation hedge than the government.
	16. Africa has not reached the state of development where the child has become a burden and parents are in a position to choose between quality and quantity of children. A first effort to shift values should be getting people to realize that limiting the number of children will benefit the children (Ware, 1978).

Asia

The nations of Asia which have been covered in this literature review appear to have progressed farther toward becoming developed, modernized states than have those of Africa even though some of the same factors are related to high fertility in both regions. Much of the material reviewed comes from the detailed investigations of the value of children conducted by the East-West Population Institute in Hawaii. However, these studies, according to Ware, were based on city population or those from rural areas in close proximity to the capital cities, and thus they may express a "modern" bias (Ware, 1978).

The nations in the East-West studies can be placed in three main cultural groups:

1. In Korea and Taiwan values of children are dominated by cultural traditions that place emphasis on family continuity through sons and where filial piety is among the highest virtues.

2. Thailand, the Philippines, and the Filipinos in Hawaii are similar in socioeconomic development and in their more permissive religious orientations toward birth and abortion. These nations place greater emphasis on the economic utility of children and have greater concern for child mortality, but also seem to anticipate greater possibilities for marital strife being generated by having children.

3. Japan and the Japanese and Caucasians in Hawaii have relatively high levels of development and here there is more concern over opportunity costs, more emphasis on emotional and psychological values, and reduced concern over son preferences. In brief, the last group appears to be "modernized," while the first seems to be well on the road to modernization but is finding psychological barriers to fertility reduction due to

cultural and religious values which embody traditional attitudes and lead to son preferences. The middle group, on the other hand, is least modernized but appears to have religions which are made up on the more liberal branches of basic Buddhism and Catholicism. Thus they seem predisposed to suffer less psychological objection to fertility reduction and indeed appear to incorporate a modern concern for the quality of interaction between husband and wife.

In general, Asian countries emphasize economic costs of children over economic values and psychological values over economic values (Ware, 1978). In addition, they seem to contain a sizeable amount of a personality dimension which might be called the "modern mind." There appears to be a trend toward dismissing values associated with large numbers of children and adopting those associated with small numbers. Further, there is a trend toward a decrease in desired family sizes (Freedman, 1978).

Unfortunately, the values (both negative and positive) which people hold about children were found to have very poor predictive power in accounting for fertility variation. The reason is uncertain. Possibly, it may be associated with the existence of psychological inertia during a period of change in the normative expectations regarding size of family.

Overall, the Asian studies seem to document a process by which a demographic transition can occur, and the nexus of change seems to be focused on the changing values associated with bearing and rearing children. The oft-noted negative association between fertility and socioeconomic status which develops in a society undergoing a demographic transition is evident among the Asian nations. Frequently greater similarities are noted among the middle classes of the several nations than within nations (Arnold et al, 1975).

Six general hypotheses followed by a table of summaries and hypotheses for nations will be presented in the same format as was used for Africa. Separate sets will not be presented for each group of nations or aggregations of populations.

1. A strong preference for sons is related to low status for women and high fertility rates. While son preference may be endemic in many nations, it does not always appear to be a factor in fertility levels until the fertility rates begin to fall. At such times, son preference can be a significant psychological barrier to achieving adoption of small family preferences (Korea 1, 2, 3; Taiwan 1; Thailand 13; Summary 3). However, in some cultures, the only way a woman can achieve status is through bearing sons. In such cases the preference for sons is an overt factor in high fertility (India 2, 3). Practices which uphold son preference and low status for women include name transmission customs, inheritance laws, and sexist attitudes in education and propaganda (Arnold et al, 1975). Son preference is more pronounced in rural and in urban lower class families (Hawaii 4, 5 and 6).

Rural development efforts should try to ensure that programs will impact so as to raise the value of daughters and the general status of women. Among ways to equalize child preference are: (a) providing education and employment opportunities of daughters (Hong Kong 1; Arnold et al, 1975) so as to raise their economic value, encourage attitudes which perceive of daughters as contributing to family continuity and make the husband-wife relationship more important; (b) encouraging improving the lot of the child by improving the authority of women and vice versa (Sweetman, 1978) -- the approach might be made with provision of services and benefits to children through active involvement of the mother; (c) encouraging development of modern

personality traits (Fawcett and Bornstein, 1973); and (d) encouraging adoption of psychological reasons for having children, since daughters are usually wanted for these reasons and sons for the practical and economic (Summary 6e). The overall object would be to raise the economic value of daughters and the social and psychological values of both daughters and sons; psychological costs might also increase.

2. Where children are perceived as economic utilities (primarily in rural areas), fertility tends to be high, but where they are seen as providing primarily psychological need fulfillment, it tends to be lower. Financial strain is the primary reason perceived for limiting family size, and small families can fill psychological and emotional needs as well as large ones (Hawaii 4; India 1; Java and Nepal 1, 2; Nepal 2; Philippines 6, 7, 8; Taiwan 7, 8; Summary 8a).

The effort to change the cost/benefit ratio of children from one which consists mainly of economic benefit to one of psychological need fulfillment probably needs to focus on raising the "quality" of children. This transition from wanting "quantity" to wanting "quality" is to be fostered by technological changes which influence labor demands for more highly trained people. Producing a future highly trained generation of workers (or quality children) requires more cost inputs in terms of general care, education and training, thus raising the cost of children (Arnold et al., 1975).

3. Traditional attitudes and values are associated with high fertility, while modern attitudes and characteristics are associated with preferences for small families and the substitution of "other commodities" for children (Hawaii 1, 2; Korea 3, 4, 8; Philippines 12; Sri Lanka 1;

Thailand 10, 12; Summary 3, 4). As opposed to the traditional, the modern mind is organized around individualism and individual achievement rather than a normative acceptance of a willingness to subordinate personal aims and interests to those of family and kin group (India 5; Philippines 15).

Modern attitudes are fostered by universal education (Taiwan 4); migration (Taiwan 5; Thailand 3); contact with other groups, especially those which have adopted family planning (Thailand 6 and 7); continued reduction of mortality and provision of health services (Thailand 8; Summary 7d); religious values which emphasize individual responsibility and thus facilitate the adoption of small family norms (Thailand 9); opportunities for self enrichment and the demonstration of personal competence in activities not related to raising children; and relaxing of pronatalist pressures (Arnold et al., 1975).

4. <u>The more parents (particularly mothers) are aware of and must deal with opportunity costs of children, the more likely they are to curtail their desired family size and postpone births</u>. Opportunity costs are an important factor in the net balance of costs and benefits of children, but in rural areas where fertility is highest, most activities, particularly of women, are seen as compatible with child rearing. Until people perceive alternatives to raising large families and thus experience the burden of sacrificed time, desired family size may remain high.

The development of alternative opportunities and thus of opportunity costs, is associated (a) with migration (Taiwan 4; Thailand 3); (b) jobs for women which are located outside the home and bring them into contact with ideas of the outside world (Thailand 4, Summary 7b); (c) involving husbands in child care; (d) lack of availability of older children or other kin of providing child care in the mother's absence; (e) delayed

marriage and first birth since opportunity costs are most significant at first parity (Arnold et al., 1975; Korea 7; Philippines 1; Summary 8b).

5. When meaningful social interaction is largely confined to the family, large families of children will be desired. Children are a source of social response and meaningful social interaction in situations which might otherwise be characterized by loneliness and isolation (Philippines 4, 5, 9). These needs could be satisfied by other types of social interaction (Arnold et al., 1975; Rainwater, 1965) such as (a) husband-wife relationships, (b) community activities, (c) communal types of living arrangements, and (d) sharing the care of other people's children. Emotional benefits can be derived from small as well as large families; and, if the quality of interaction is improved in a reduced-size family, psychological values increase (Philippines 7).

6. The larger the proportions of middle class families in a society, the lower the fertility rates will be (Hawaii 4, 5, 6; Philippines 10; Taiwan 7, 9, 10; Summary 1, 5, 6, 7). The development of middle class life styles seems to be part of the process whereby individuals develop modern personality traits, come to perceive of and experience opportunity costs, more egalitarian conjugal relationships, and subsequently reduce desired family size. All the hypotheses listed above have some application to this process.

In summary, the policy suggestions and institutional targets for Asia are much more general and diffuse than those for Africa. They are closely tied to the modernization processes which accompany socioeconomic growth, and the development of a sizable middle class. Because these

nations have in many cases reached higher levels of development and national organization than LDCs in Africa, there may be more rural development options open to them. However, the region is extensive and it is virtually impossible to link specific rural development activities to the value of children for so broad an area.

Table 2.2 Summaries and Hypotheses Derived from the Literature on Value of Children and Fertility--Asia

Nation	Summaries and Hypotheses
Bangladesh	1. See Korea.
China	1. When reforms in the marriage system, in land tenure and organization, and in religion reduce the productive, ceremonial, and other utilities of children and turn them into economic drains, fertility will decline (Salaff, 1972).
Fiji	1. See Korea.
Hawaii	1. Traditional attitudes toward fertility are associated with valuing children chiefly for family continuity, security, reinforcement of sex roles and incentives' inspirations. 2. Values of children associated with traditional attitudes are associated with higher levels of fertility. 3. Values of children (economic, social, psychological) have an additional predictive value (over and above the background variables) for family size and planning attitudes. 4. Rural people, who tend to have traditional values, stress the economic utilities of children. 5. Lower class urban persons are most concerned over financial costs of children. 6. In terms of family size motivations, the lower class differs from the upper (or middle) in its specific desire for more sons. (Arnold and Fawcett 1976).
Hong Kong	1. Increasing economic and opportunity costs of child care and rising value of daughters are associated with reduced fertility (Topley, 1972). 2. Rising costs of raising children, coupled with women's desires for economic independence lead to increased contraceptive use and lower fertility (Choi and Chan, 1973).

Table 2.2
(cont.)

Nation	Summaries and Hypotheses
India	1. Even though both rural and urban families are finding numerous children an economic drain, institutionalized inertia (customs and role sets) seem to be stalling fertility reduction. This inertia may be reinforced by the real contributions to the family of child labor at a very early age, indicating an awareness of short-term rather than long-term factors (Desai, 1974).
	2. When bearing sons confers status on a woman, and there are no alternative sources of status, women will want sons.
	3. Sons are seen as strengthening the family, providing support and fulfilling ritual obligations; daughters are seen as assisting in the home (Poffenberger, 1975).
	4. The extended family is important for sheer survival as is indicated by the higher mortality of orphans, widows, and widowers (Collver, 1963).
India, Calcutta, West Malaysia, Philippines, Thailand	5. In some LDCs son preference is ambivalent because of the various criteria on which son preference is based (Freedman and Coombs, 1974).
Java, Nepal	1. Children contribute a net economic gain to peasant families.
	2. Average per child work inputs are greater for larger than for smaller families (Nag et al., 1977a).
Korea	1. Son preference leads to higher fertility but the effects of this variable do not become apparent until fertility levels start to fall (Park, 1978).
	2. Son preference is a serious psychosocial barrier in changing family size desires.
	3. Young, urban raised and better educated persons have smaller size preferences and very little son preference.
	4. Personality factors associated with modernity and individuality are better predictors of fertility behavior than situation-free personality factors (Lee, 1974).

Table 2.2
(cont.)

Nation	Summaries and Hypotheses
Korea (cont.)	5. In second and higher parity, economic help became important (Bulatao and Arnold, 1977).
Korea, Taiwan	6. Some LDCs have a clear preference for sons (Freedman and Coombs, 1974).
Korea, Singapore, Taiwan, Thailand	7. The fertility decline in these nations may be partly related to postponement of marriage and partly to a reduction in marital fertility (Khoo and Park, 1978).
Korea, Fiji, Pakistan, Malaysia, Nepal, Thailand	8. Perception of the fact of better survival for their children does not in itself lead to lower fertility. Between this awareness and reproduction must come motivation, preferences for fewer children, changed values of children and the availability of means to control reproduction (Kunstadter, 1978).
Malaysia	1. See Korea
Nepal	1. See Java, Korea.
	2. In a small nation, where there are apparently national programs that encourage development and family planning, families will opt for smaller families as an adaption to increased cost for and reduced benefits from children, changing their orientations from having large numbers to having a small number of properly raised children (Poffenberger and Furbuchen, 1975).
Pakistan	1. See Korea.
	2. Elimination of infant mortality would reduce fertility 4 percent by prolonging postpartum sterility, but this reduction would be counterbalanced in the long run by an overall increase of 7 percent in net reproduction due to better survival of infants (Chowdhury et al., 1976).
Philippines	1. Opportunity cost, as indicated by the proportions of women in the work force, does not seem to result in decreased fertility until the higher parities (i.e., it does not change the

Table 2.2
(cont.)

Nation	Summaries and Hypotheses
Philippines (cont.)	value of children.) Implicated factors are the types of work women do and availability of help to care for the children (Rosenzweig, 1976). 2. A person's "current intentions about additional children are more amenable to prediction" and it seems "have greater psychological reality than retrospective desired or ideal family size." 3. The "differential effect of the number-specific values supports the idea that values should be conceptualized as involving the person-in-a-situation rather than person or object separately." 4. It "appears important to define a class of child values lying between psychological satisfactions and economic advantages, this class to cover the rewarding aspects of social interaction with children." 5. Providing companionship for a sibling is an important predictor of the number of additional children desired. 6. Economic help and practical assistance of children are values that are more frequently mentioned than noneconomic values, but they are hierarchically less important. 7. The hierarchical order of values of children are love, work incentives, the desire to share, to learn about life, and finding expression in parental roles. Social pressures and religious obligations are not perceived as important. 8. Financial burden is most frequently perceived and named as hierarchically the most important disvalue of children. 9. Children's restrictions on parental freedom are relatively unimportant. 10. Rural respondents hold more positive values than urbanites, especially about family continuity.

Table 2.2
(cont.)

Nation	Summaries and Hypotheses
Philippines (cont.)	11. Filipinos appear to value children more highly than persons of other nationalities. There were higher proportions of positive values recorded here and among Filipinos in Hawaii than in other nations in the study.
	12. The value ties to number preferences will be those involved with social interaction.
	13. The differential effect of values on family planning is slight.
	14. Economic costs are important for urbanites and economic benefits are important for rural residents.
	15. As compared to other nations studied, the Philippines and the Philippine population in Hawaii seem to be more traditional and less developed (Bulatao, 1975).
	16. See India (Calcutta).
Samoa	1. Rural development does not necessarily hold people on the farm; emigration may continue. However, less densely populated farm areas will be just as productive as those with more people (Pirie, 1976).
Singapore	1. In a small nation, in which public relations' programs can convince the public that their prospects for the future need reduced fertility, coercive programs that actually increase the cost of children can be effective (Salaaf and Wong, 1978).
	2. See Korea.
Sri Lanka	1. In a small nation with a well-developed health and communication system, where sex preference is minimal, the practice of contraception can become a norm which creates its own demand (World Fertility Survey, 1978).
Taiwan	1. A strong sex preference for sons has a positive impact on fertility, but family size preference appears to dominate over sex preference.

Table 2.2
(cont.)

Nation	Summaries and Hypotheses
Taiwan (cont.)	2. Family size preferences are declining (Coombs and Sun, 1978).
	3. See Korea.
	4. Education fosters changes in economic attitudes which in turn affect changes in fertility behavior (Mueller, 1972b).
	5. High levels of immigration will stimulate awareness of problems of excessive growth.
	6. High values placed on family continuity lead to strong son preference and high fertility.
	7. Family continuity is more valued in lower class urban and rural classes than in urban middle classes, and thus is a greater stimulus to higher fertility among these groups.
	8. Perceived financial costs are most important in encouraging a preference for small families, especially for males.
	9. Noise and disorder are important perceived costs of children which should encourage smaller families.
	10. Opportunity costs will be most important for middle class females in determining fertility goals (Wu, 1977).
Thailand	1. See India (Calcutta) and Korea.
	2. The demand for children does not improve significantly the explaining power of a model relating fertility to socioeconomic variables (Rodgers, 1976).
	3. Migration is associated with lower fertility (Goldstein, 1973).
	4. Wife's employment is not a factor in fertility rates unless it interferes with child rearing (Goldstein, 1972).

Table 2.2
(cont.)

Nation	Summaries and Hypotheses
Thailand (cont.)	5. Women who have achieved or exceeded their stated number of desired children will be more likely to say they want no more children and will be more likely to be practicing birth control (Knodel and Prachuabmoh, 1973). 6. A reproductive revolution can precede widespread economic development. 7. Family planning can influence declines in family size preference among a minority and this changed value can diffuse rapidly where good communication exists and there is exposure to the ways of life in developed nations. 8. Reduction in mortality can stimulate an awareness and readiness to have fewer children before general change gets under way. 9. Cultural factors such as high status of women and a religious emphasis on individual responsibility are likely facilitating factors in adoption of small family norms. 10. In sum, in situations where actual fertility exceeds desired fertility, where awareness of the possibility of family limitation is emerging, where women are linked to the broader networks of communication and transportation, and where there are no strong cultural or religious proscriptions against birth control, downward fertility trends can easily be instigated (Knodel and Debavalya, 1978). 11. Value of children measures can add substantial explanation to prediction of family size after background variables have been taken into account, even though they correlate poorly with fertility variables and well with the background variables. 12. Rural residents have both the strongest negative and the strongest positive values of children. The most important positive values are economic help, general help, and continuity of name, while the most important negative value is economic burden. 13. Thailand has strong preferences for sons.

Table 2.2
(cont.)

Nation	Summaries and Hypotheses
Thailand (cont.)	14. In general, size desires are related to having families which are large enough for economic benefits and security but not so large as to exceed the cost limits (Buripakdi, 1977).
West Malaysia	1. See India (Calcutta).
Asia in general	1. There is a tendency for Asian studies to stress costs as opposed to material benefits which are stressed in the African studies. Perhaps one reason is that the East-West VOC studies were done in relatively more developed areas and the rural samples drawn were from close to the capital city. Asian respondents may be on or over the brink of the demographic transition and have progressed to the level of development where the child is a burden and where parents can choose between quality and quantity (Ware, 1978).
	2. Given a situation where there is contact with modern attitudes, values, and material items coming from developed nations which will substantiate the idea that life can be different, it is possible to get adoption of values that support small size families (I. Freedman, 1978).
Summary -- East-West VOC Study: Taiwan, Korea, Thailand, Philippines, Hawaii, and Japan	1. Cross-national comparisons within socioeconomic levels are sufficiently more impressive than those within culturally similar groups to give substantial support to the theory of demographic transition.
	2. The importance of cultural factors is illustrated by similarities within each of three groups: (a) Korea and Taiwan; (b) Thailand, Philippines, and Filipinos in Hawaii; and (c) Japan, Japanese in Hawaii, and Caucasians in Hawaii.
	3. In Korea and Taiwan, values of children are dominated by cultural traditions that place emphasis on family continuity through sons. Filial piety is among the highest virtues in both countries and in Chinese cultures sons are necessary for rituals of ancestor worship.
	4. Similarities in the second group are derived from similarities in socioeconomic development and religious orientations toward birth and abortion

Table 2.2
(cont.)

Nation	Summaries and Hypotheses
Summary (cont.)	and these cultural elements apparently generate similarities in (a) a greater emphasis on economic utilities from children, particulary among the rural and lower classes; (b) greater concern for child mortality; and (c) anticipating possible marital problems from having children. 5. In the third group of populations, the relatively high levels of development seem to be related to (a) concern over opportunity cost, (b) an emphasis on emotional and psychological rather than on economic values, and (c) reduced strength of preference for children of either sex. 6. Composite profiles for positive values for all nations studied by socioeconomic level include that: a. Psychological or emotional factors are most important in the urban middle classes and in the urban lower classes, but less so in the rural groups, although pride and aspirations are important in three Asian countries. b. In the middle classes of some countries aspects of family life such as continuity and the husband-wife bond are important; in the lower classes, family continuity becomes more important; in the rural, family continuity shows up in several measures as very important. c. Economic benefits are not salient in the upper classes; they become more important in the lower classes, and most important in the rural groups, both in terms of current and old age benefits. d. In all levels the reasons why other people are perceived as wanting children is to continue the family name, and in some cases because it is "natural". e. In the middle classes, there is a tendency to want daughters for their personalities and for psychological reasons while sons are wanted for practical and economic reasons. In the lower and rural classes economic reasons are paramount for wanting either sex, although the help expected from daughters tends to be more of a practical than an economic nature.

Table 2.2
(cont.)

Nation	Summaries and Hypotheses
Summary (cont.)	f. In the middle classes the reasons for wanting another child also tend to be emotional and psychological, although family and sex are also important. The reasons are the same in the lower and rural classes, but more emphasis is placed on family name and sex. g. In the middle classes, the desired family size is related to companionship for the children and for a specific sex combination; in the lower and rural classes the desired size is related to the desire for more boys. 7. Composite profiles for the cost values for all nations studied by socioeconomic level include that: a. Financial costs were the most serious concern in all nations for all socioeconomic levels; however, the level of concern was lowest in the middle, highest in the lower and interjacent for the rural. b. Opportunity costs are more salient than financial costs among the middle classes of all nations except the Philippines and Thailand although there is some indication that this situation is developing there also. In the lower classes, opportunity costs are somewhat less important than in the middle, while among rural groups they are relatively unimportant except that restrictions on opportunities to work show up as important in Taiwan and Thailand. c. Emotional strain, noise and disorder, rearing and health problems are important considerations in both urban groups -- the middle and lower classes -- while for rural groups, emotional strain is a factor in some countries. d. The middle classes see pregnancy and maternal health as important costs. e. In Japan, housing is a factor in perceiving cost of children. f. Among the rural residents in some countries, physical work is seen as a cost of children.

Table 2.2
(cont.)

Nation	Summaries and Hypotheses
Summary (cont.)	8. The differential values people hold for children explain very little of their differential fertility behavior. Reasons suggested include that: a. Situational factors and stage of family building may be important. b. The processes of learning preferences and making decisions may be important (Arnold et al., 1975).

Latin America

This region, like Asia, also consists of a variegated agglomeration of nations, each of which has its own unique characteristics but which when taken together manifest cultural similarities in language, religion, agricultural technologies, geographic isolation of the rural poor, and even ethnic composition. The organization of the material in this section follows the same format as that used for Asia and Africa. The same general assumption about the relation of fertility to costs of children and the ability of parents to act in their own interests applies to these nations.

1. Improved child survival rates should stimulate fertility reduction. Although findings are contradictory as to whether or not higher infant mortality stimulates more births (the effect is probably indirect), control over mortality would tend to promote the belief that individuals have some control over their environment, and thus it is part of the change trend which seems, of necessity, to accompany a demographic transition (Boliva 1a; Brazil 1; Guatemala 1). Health services, clinics, better nutrition and housing should improve child survival. The translation of such improvements to impact on value of children and fertility might not occur, however, until sufficient awareness of the possibilities of general change was generated (Costa Rica 1). At that point, the psychological costs of children might increase.

2. Land tenure reform may stimulate fertility in the short run. However justifiable, redistribution of land might stimulate rather than reduce fertility if the value of children remains unchanged. If, however, it were accompanied by improved literacy and better child survival

rates, there might be improved levels of living and lower fertility rates (Brazil 1; Chile, et al. 1). Literacy campaigns and education projects might reasonably precede and accompany land reform measures and should be extended to both women and men. The relationship between land tenure and fertility is complex, however, and is investigated extensively by one of the other State of the Art Papers.

3. Improved agricultural technologies require less labor and tend to be associated with reducing the economic value of children. Where survival is based on agriculture and the methods of cultivation require large amounts of hand labor, children will be valued for their work. The labor of older children has been shown to be an important factor in the survival of younger children and older persons (Bolivia 1b; Brazil 1). If relationships between land and fertility are complex, the addition of technology, as well as the value of children variable, makes for even more complexity. In fact, it would be possible for changes in agricultural technology (a new crop, for instance) to induce a demand for more labor, in which case, fertility might rise. Further research is indicated.

4. The more aware women are of possible alternatives to childbearing and rearing, the more likely they are to adopt family planning. Desire for limitation of family size may exist at subconscious levels and arousal of awareness might release a strong flood of motivation (Argentina 1; Brazil 2a; Costa Rica 1; Costa Rica et al. 3b; Mexico 1, 3). Education, mass media, and contacts with other groups of people may motivate women to become actively involved in reducing their family size. A broadened perspective might introduce psychological costs and opportunity costs of children into the equation which young women take into consideration when entering marriage. Rural development projects

should consider the impact they will have on the need to make women active and deliberate participants in the process of family formation. It is necessary to counteract situations of alientation and social or psychological inertia.

5. High socioeconomic levels and modern attitudes which value children for quality rather than quantity are associated with lower fertility rates (Mexico 2, 3, 4; Chile et al., 1). This hypotheses would parallel and extend hypothesis 4. Routes to improving socioeconomic levels and developing modern attitudes might include (a) encouraging at least minimum levels of education for all children; (b) providing activities in which adequately trained children can perform well and make their parents proud of them; and (c) providing training and off-farm, high skill jobs for young people. Economic benefits would decrease, economic costs and psychological benefits would increase, and probably social benefits would increase as they were supplied by fewer children.

Table 2.3 Summaries and Hypotheses Derived from the Literature on Value of Children and Fertility--Latin America

Nation	Summaries and Hypotheses
Argentina	1. An individual makes rational fertility decisions in terms of the context of everyday experiences and the ideas gleaned from past experience which may or may not include such factors as present and future expected income (Cicourel, 1974).
Barbados, Chile, Colombia, Costa Rica, Mexico, Puerto Rico, Trinidad	1. Education, literacy, agricultural declines, as well as family planning programs are related to fertility declines (Stycos, 1978).
Bolivia	1. In the agricultural family: a. childhood mortality stimulates fertility; b. economic contributions of older children lead to better growth of younger children (Stinson, 1978).
Brazil	1. Land availability is conducive to high fertility in new settlement areas and to declines in older areas: however, institutional constraints in the land tenure system, urbanization trends, persistence of subsistence farming mediate these effects directly and indirectly through literacy and child survival (both of which are negatively associated with fertility). Thus there is not a simple interplay of costs and resources by which to rationalize fertility decisions (Merrick, 1978). 2. Modernization produces: a. motivational constraints on marriage and procreation; b. changes in attitudes, values, and abilities, thus allowing better responses to pressures of modern life. One of these new values is desire for smaller families, and illustrative of all three types of change is the broadening role definition of women (Rosen and Simmons, 1971).
Chile	1. See Barbados.
Costa Rica	1. Fertility declines, once started in a more developed area of a nation, can diffuse rapidly to rural areas. Apparently observing the existence

Table 2.3
(cont.)

Nation	Summaries and Hypotheses
Costa Rica (cont.)	of the trend among other people results in an awareness of alternatives to childbearing which is necessary before changes in the values of children can effect fertility (Wulf, 1978).
	2. See Barbados.
Costa Rica, Mexico, Colombia, Peru	3. Among rural and small urban center populations, ambivalent feelings about the advantages and disadvantages of large families: a. are greater than in Taiwan; b. may indicate latent or early awareness costs of children and indicate a readiness to have fewer children.
Guatemala	1. Child mortality is not important in estimating quality or quantity of children in this nation (Anderson, 1978).
Mexico	1. Public relations and educational campaigns are seemingly having an effect on fertility as information is channeled to the rural area through use of rural institutions (Nagel, 1978).
	2. Standard socioeconomic variables explain cross-sectional variations in Mexico's fertility rates but the trend in Mexican fertility is constant and does not fit the theory of the demographic transition for 1960 and 1970 based on crude birth rates and the child/woman ratio (Seiver, 1975).
	3. "When family attitudes and social exchanges become more modern (in demanding greater 'quality' for children, increasing aspirations for career and personal growth for both spouses, and equalizing the interactions between husband and wife generally), fewer children will be demanded" (Bagozzi, 1978).
	4. Modern values in the personality structure, as measured by a Truncated Modernity Index, are the most important intervening variables which relate social background variables to fertility variables such as expected number of children and use of family planning (Goldbert, 1975).
	5. See Barbados, Costa Rica.

Table 2.3
(cont.)

Nation	Summaries and Hypotheses
Peru	1. See Costa Rica
Puerto Rico	1. Cultural value of machismo is not a barrier to wanting smaller families (see Hill, Stycos, and Back, 1949 study; M. B. Smith, 1973).
Trinidad	1. See Barbados.

The Middle East

A very small amount of material was found on the Middle East, and little of it focuses directly on the value of children (see Table 2, 4). Most of the nations in the region are characterized by a predominance of the Muslim religion and the life styles associated with it. There are instances of extreme subjugation of women and the attitudes toward children encourage high fertility. Israel is, of course, an exception in terms of religion, development, and modern outlook. The four general hypotheses suggested below are directed toward the Muslim nations, but they are very tentative. Because of the limited amount of literature reviewed, no effort will be made to link them to rural development activities. The first three suggest the existence of strong and repressive family systems. The fourth indicates the generation of some change through modernization.

1. Fertility will vary directly with socioeconomic status and with economic trends (Iran 1; Israel 1). Apparently the association between increased income and the possibility for improvement in living levels does not exist or is not yet sufficiently appreciated by fertility decision makers of these countries to produce an inverse socioeconomic status and fertility association. This was the only region where the literature indicated direct associations for both of these variables and fertility. Cost of children may be very low to fathers in Muslim nations.

2. Religion, per se, is not related to fertility (Lebanon 1; Muslim Nations 2). The studies reviewed state that it is the cultural systems not religious doctrines which place high values on children. Nevertheless, religious doctrine might be expected to be a major obstacle in revising the value of children cost/benefit equation.

3. Opportunity costs are not a factor in fertility variation in most of these nations (Muslim Nations 1). Women are so tightly restricted to wife-mother roles, alternate usages of time and effort do not present themselves. Such opportunities that exist are facilitated by children. See Africa.

4. Where modern attitudes exist they associate inversely with fertility (Turkey). This association is compatible with 2 above. Apparently, middle class life styles, which emphasize psychological values of producing quality children and place cost constraints on having a large family, are associated with reduced fertility. Presumably, at least a degree of opportunity cost develops for the women.

The hypotheses all suggest a need to (a) decrease the economic utility of children and substitute psychological values for them, (b) also increase economic costs of children, and (c) possibly stimulate awareness of opportunity costs involved in child rearing. Again, as for the other regions, these hypotheses are based on the general assumption that people can and will regulate fertility when they perceive it is in their own interest to do so.

Table 2.4 Hypotheses Derived from the Literature on Value of Children and Fertility--The Middle East

Nation	Summaries and Hypotheses
Iran	1. In a village with a culture which places a high value on children, fertility will vary directly with socioeconomic status (Ajami, 1976).
Israel	1. Cyclical changes in economic factors will generate responses in the birth rate regardless of the social system or values of children. Usually the variation will be in the same direction, but there are indications that this is not always the case (Ben-Porath, 1973b).
Lebanon	1. Religion is an important factor in fertility only in certain socioeconomic levels (Chamie, 1977).
Moslem nations	1. Opportunity costs of women are not factors in fertility variations in these nations since all women are constrained within the family from contact with the outside world and any productive work in which they can engage will be compatible with childbearing and childrearing (Ware, 1978).
	2. Factors in the cultural systems rather than in the religious doctrine place high values on children and stimulate high fertility. These factors are similar to those in peasant and pastoral societies and include continuity of family line and land holding, contributions to agricultural labor, family prestige and strength in village rivalries, old age support, religious functions, and the shared responsibility for children by the extended family (Kirk, 1966).
Turkey	1. See Table 2.3, Mexico 3 and 4.

Summary and Conclusion

This chapter has attempted to view fertility as it is affected by values of children through an historic-developmental and social-institutional framework. The processes of economic development and demographic transition are seen as part of a general process of modernization which focuses on change in the value system which is associated with children and is linked into the structure of the kinship and family systems. While rural development is the primary independent variable in the research paradigm, the literature review in this chapter focuses almost entirely on the linkage between social institutions and value of children. There is, in fact, a dearth of literature making the direct link between development projects and values of children. Rural development projects would be hard put to, and indeed should not, attempt to directly affect values of children or families. However, by virtue of affecting the environments (social and physical) within which kin groups exist, they will also unavoidably affect family organization and child values. It behooves planners to be aware of the impact of their activities.

The first part of this chapter presents a general theoretical and developmental stance and is followed by the identification of universal factors which may affect value of children in the processes of modernization. The last part is devoted to the development of general hypotheses for the four regions surveyed and the listing, in tables, of specific summaries and hypotheses for specific nations. Each region presents a somewhat different configuration of modernization aspects. At the risk of overgeneralization, it is possible to conclude from the literature that: (1) the LDCs of Africa can be considered least developed but in possession of strong kin networks which have established a balance between population growth and environmental limits and should guarantee a high degree of

stability and insure against an extreme fertility reaction to social changes impacting on existing values of children. Rural development programs might impact on economic values of children but not on psychological ones. (2) Among the rural poor of Latin America, the existing family systems do not seem to have satisfactorily geared reproductive patterns to environmental restrictions. Here there is already excessive population growth, and the evidence suggests that there is an extensive incipient demand for lower birth rates. Missing factors may well prove to be (a) reduction of feelings of alienation, (b) the development of perceived opportunity costs for women, and (c) an economic environment which permits effective application of economically rational fertility decision-making. (3) Much of Asia is already experiencing a demographic transition and along with it a changing locus in the balance point between costs and benefits of children. However, the dispersal of this transition is spotty and may continue to be so for some time. Family systems tend to be patriarchal and strong and should help to maintain stability in changing fertility practices. Central to the transition appears to be the development of opportunity costs for mothers. Rural development programs should attempt to facilitate the on-going changes and be careful not to obstruct them. In many cases, development has progressed sufficiently so that projects may act to affect the psychological as well as economic values of children. (4) The Middle East, which was covered very minimally in the literature review differs from the other regions in that most of these nations have not only strong patriarchal family systems but also subject their women to extreme restrictions. This makes the potential for development of opportunity costs of children very problematic. There is limited evidence that modernization may accomplish changed values of children and lower fertility with only minimal opportunity costs developing for women.

In general the theoretical framework seems to be a viable approach to viewing the effects of rural development on value of children and fertility. It illuminates the process of adapting values to changed realities and demonstrates the need to understand the institutional imbeddedness of these values and the individual's need to function within these institutional constraints. The usefulness of an economic model is supported, not denied. Similar types of economic factors seem to appear repeatedly in all of the regions studied.

Further research is needed. Particularly there is a need to understand the processes whereby opportunity costs develop, and the impact these costs have not only on the value of children but on their welfare and the quality of life in general. Other research needs which were alluded to in this chapter include the processes whereby family norms change; the ways and extent to which inertia becomes a part of the reproductive pattern of women; the types of situations which, on the advent of change, release patterns of irresponsible parenthood and/or curtailed reproduction; and lastly, in the horticultural LDC societies, it would be helpful to know how the differential importance of males vs. females in fertility decision-making affects the value of children, how their differential power is affected by the family structure, and how all these factors taken together affect fertility levels.

III. The Financial Cost of Children

Introduction

This section addresses the relation between the financial cost of children and fertility. As the discussion in Section I has indicated, the opportunity cost of a child involves two components: the time spent by parents and other members of the extended family in caring for him and the value of market goods and services used in child rearing. This section focuses on the market value of goods and services used as inputs into childrearing. As will be demonstrated with numerous references to the the literature, the financial cost of a child is almost universally cited as being the primary reason for limiting family size, both in industrial countries and in the Third World.

At the outset it is particularly important to distinguish between the actual and perceived financial costs of children since the two may well not be identical for families in varying situations. With respect to reproductive behavior, it is clearly perceived financial costs that are theoretically most important. The motivation to limit families to small or moderate sizes must stem from the perception that the cost of larger families is too high to be consistent with other life goals. Actual costs may vary between status groups, between rural and urban settings, and between regions, but those differentials may not actually be perceived. Normally, however, it is expected that parental perceptions of the costs of childrearing will correspond reasonably well; nevertheless, the available literature on the relation between costs and fertility is heavily concentrated

on the perceptions side and this has implications for rural development policy that will be explored below.

Another distinction that must be made is between the private and social costs of children. As numerous writers have noted, children may place a burden on society at large that is not felt by their parents. The Value of Children (VOC) studies (e.g., Arnold and Fawcett, 1975) have explored the impact on fertility plans of an awareness of a larger social cost associated with large families; however, this theme will not be explored here since the issue at hand is the role that rural development plans have in influencing the actual and perceived private costs of children.

Finally, since children in rural societies are often employed in productive activities at a very early age, it is appropriate to define the "net financial cost" of a child as the value of the resources consumed by the child minus the value of his economic contributions to the family. These two dimensions of the net financial cost of a child will be explored in turn below.

The manner in which parental time and market goods and services are combined in the process of childrearing can be represented formally as a "production function" for children that describes the combinations of home time and goods and services that can be used to "produce" a child. This production function determines a family's "standards for childrearing" and represents a combination of normative, biological, and economic factors that together determine the perceived childrearing options available to parents. These childrearing standards embody notions as to the minimum amounts of each market commodity that must be employed in

raising a child and the possibilities for substitution between inputs as market prices change over time and from place to place. Childrearing standards may vary significantly across countries or across status or regional groups in the same country. On the other hand, childrearing standards may be reasonably homogeneous across groups even though, because of variations in relative and absolute prices and in availability of selected market commodities, children are actually reared with quite different input mixes.

In order to understand fully the causal relationships between rural development programs and fertility as they operate through the financial cost of children, we ought to have information on each of the factors identified in figure 3.1, a simple schematic view of the behavioral model underlying this review. In this model rural development programs may affect the opportunity cost of a child either directly or indirectly by altering the social or economic environment. In either case the opportunity cost of a child (perceived or actual) is altered (1) if childrearing standards and possibilities for substitution are affected either directly or through changing social and economic conditions, (2) if the availability of goods and services used in childrearing activities is altered, or (3) if the relative (and/or absolute) prices of goods and services inputs into childrearing are changed. Any change in one of these three determinants of the cost of a child will alter that cost, resulting in changes in the demand for children and ultimately, it is hypothesized, in the level of fertility.

By understanding the nature of the linkage between the cost of a child and fertility and between the operation of public rural development

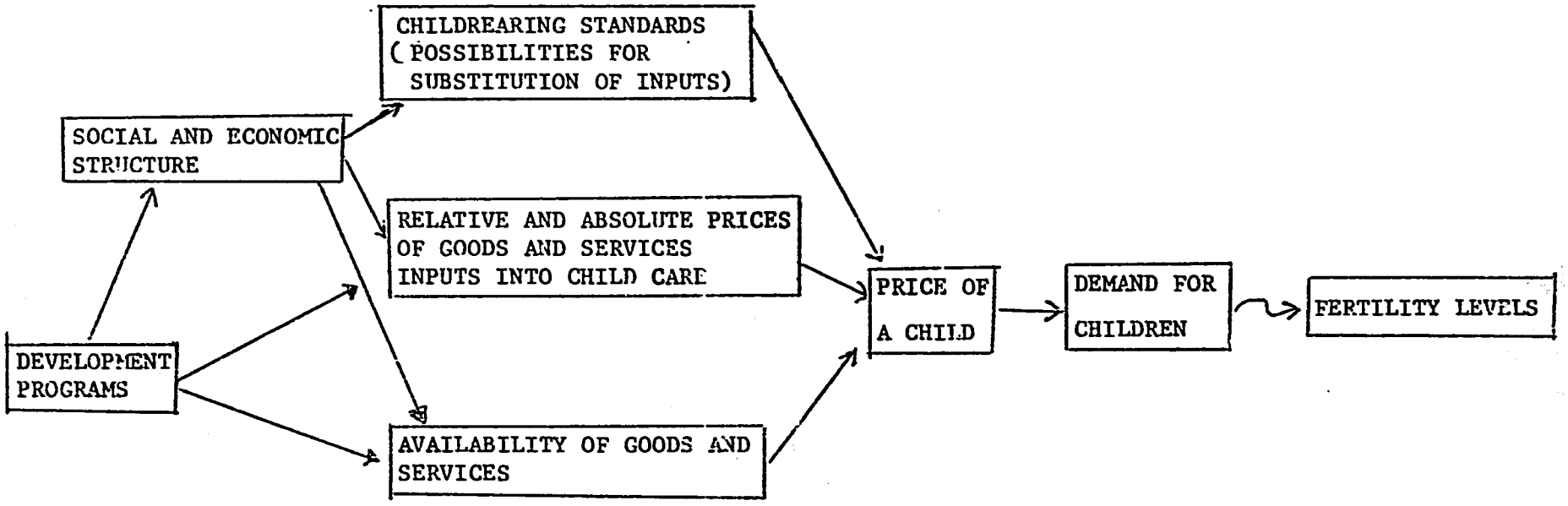

Figure 3.1: Schematic View of the Linkages between Rural Development Programs, the Financial Cost of Children and Fertility

programs and the (perceived or actual) cost of a child, it should be possible to design those programs to maximize their antinatal impact consistent with other development objectives. Unfortunately, the current professional literature on the cost of children will support rather little of this agenda for a detailed analysis of the linkages between development policy, the cost of children, and fertility. However, to the extent possible, our discussion will attempt to interpret the literature on the cost of children in terms of the behavioral model of figure 3.1, because it is that model which frames the questions that are relevant to the design of antinatalist rural development programs.

Are Financial Costs Important Determinants of Fertility?

Although the socioeconomic theories of fertility stress the potential damping effect on fertility of high perceived costs, there is relatively little evidence available to support that expectation. The evidence that is available is concentrated heavily on the role of perceived financial costs in limiting the motivation for large families. The cross-national Value of Children studies have shown that in diverse Asian settings the financial cost of a child is perceived without exception to be the primary factor inducing couples to limit their fertility. In the five Asian nations--Taiwan, Japan, South Korea, the Philippines, and Thailand--and Hawaii, economic factors were cited with an overwhelming preponderance as the primary constraints on family size. On the other hand, economic rewards from children appear to be of relatively minor importance to parents except among lower status families in rural areas.

The reports from each of the VOC studies provide ample

support for the earlier findings of the Growth of American Families studies that costs, particularly those of feeding, clothing, housing, and educating children, provide the basic motivation to limit family size. The VOC project (principal reports are Arnold, et al., 1975; Arnold and Fawcett, 1975; Bulatao, 1975; Wu, 1977; Buripakdi, 1977) confirms the potential and theoretical importance of the cost of children as a fertility determinant, but it provides rather little in terms of a precise quantitative understanding of the strength of that relationship. Nevertheless, the project results emphasize the importance of further attention to the role of economic cost factors as determinants of fertility.*

Because of the exploratory nature of the project and because of the focus on the collection of attitudinal data, the VOC studies do not provide much useful evidence on the connections between rural development projects, the cost of children, and fertility. The investigators recognize the desirability of policies designed to raise child costs (see, e.g., Arnold, et al., 1975:149) and to lower the threshold family size at which these costs become relevant; however, they pay little attention to how costs or the perceptions of costs might be raised. Ultimately, the contribution of the VOC studies for the present review is that they certify the importance of research designed to disclose the linkages between child costs, development programs, and fertility.

The VOC studies deal generally with the impact of perceived costs on desired or expected fertility. A modest but growing body of evidence

*See also Bulatao and Arnold (1977) and Espenshade (1977) for more recent discussions of the VOC project.

is providing new information on specific dimensions of the financial cost-fertility relationship. Eva Mueller (1976), in a comprehensive synthesis of available data, argues that in peasant societies children represent a net cost to their parents. She constructs hypothetical cost estimates for a typical agrarian society that indicate the profound impact that children have on the capacity of families to save and invest. Her models suggest that family savings/income ratios are reduced from approximately 18 percent to less than one percent as the number of children in a family increases from two to six. From these calculations, Mueller concludes that children are typically viewed as net consumers of family assets, even in the more traditional settings of agricultural society. This is a controversial position, and Mueller has been criticized with respect to methodology (Ben-Porath, 1977) and substantive findings (Nag, et al., 1977a). Nag (1972) in particular has argued that children in rural areas cost less than their urban counterparts and that this is an important determinant of urban-rural fertility differentials.

Evidence on the actual money costs of children in the Third World is extremely rare, as is the evidence on the cost of children in industrial countries. Banguero (1977) has made an initial attempt to develop comprehensive financial cost estimates for children in Colombia using data from a national consumer expenditure survey. He and Turchi are currently working on a project to develop and refine those estimates. Birdsall (1978), using an earlier Colombian consumer expenditure survey for urban areas, is also developing cost of children estimates. Apart from these two studies, however, very little has been published about actual out-of-pocket expenditures on children in Third World settings.

Presently the United States has been studied more intensively than any of the industrial countries. Beginning with the U.S. Commission on Population and the American Future study (Reed and McIntosh, 1972) there have been a number of recent attempts to develop precise quantitative estimates of financial expenditure per child. Studies by Espenshade (1973) and Turchi (1975a, 1977a) have presented estimates of total financial cost per child from birth to age 18 as well as category specific breakdowns of expenditure on food, housing, clothing, education, recreation, etc. These studies have provided new information on the relative importance of various components of child cost in the United States and have presented estimates of economies of scale in childrearing.

It is unfortunate that studies such as these have not been more widely attempted in the Third World, since a more precise understanding of expenditure levels and differences is a prerequisite to the improved understanding of the fertility-cost of children link. In particular, it is important to know which categories of expenditure on children are, and are perceived to be, the largest and most burdensome to rural and urban families. Once the salient components of cost are pinpointed, rural development programs can be more effectively examined in order to determine how they affect actual and perceived child cost.

It is important to reemphasize that government rural development programs can effectively be used to raise the cost of children without necessarily being perceived to be oppressive or antifamily in content. Rural development programs can raise the financial cost of a child not by raising the prices of commodities used in childrearing but by making available goods and services in rural areas that have previously not

been available to low and middle income families at a price anywhere near a feasible level. By introducing child-related goods and services and encouraging their consumption, rural development projects may simultaneously provide programs of independent merit and effect a rise in the price of children.

The literature on education and fertility offers one of the clearer examples of this phenomenon. There is, in addition to the VOC studies, a growing body of literature that suggests that the cost of educating children is perceived to be the primary component of the opportunity cost of a child. In societies as diverse as Egypt (Badran, 1974), Colombia (Birdsall, 1978), Bangladesh (Bankat-e-Khuda, 1977), and Taiwan (Mueller, 1972b) the cost of educating children has been commonly cited as a primary factor in fertility limitation behavior. Unlike other potential cost raising policies, public provision of educational opportunities is not generally viewed as punitive by rural parents; however, the availability of educational opportunities and the requirement that children attend school apparently has a major impact on parental perceptions of the financial cost of children.

These findings, relating to the role of education in determining the financial cost of children, reflect one of the long standing and stable relationships of fertility research in industrial nations. The cost of educating children has routinely been cited as the primary factor causing American couples to limit their fertility and the impact of educational costs on American couples has been shown to vary considerably with socioeconomic status (Turchi, 1975a). However, the knowledge that the cost of educating children is strongly related to the desire to limit family size is of limited

usefulness for rural development policy, which has as a primary goal the increase of the educated population at all levels. Given that resources available for the introduction of education programs are extremely limited, much more must be known about the links between specific types of educational programs, the cost of children, and fertility before educational policy decisions of highest antinatal impact can be made. The research literature to date will not support even a partial assessment of the type required. Moreover, the connection between education and fertility operates not only through the cost of children link but through a number of other paths, many of which are assessed in depth in the review paper on education and fertility accompanying this paper (see also, Holsinger and Kasarda, 1976).* The net effect of these diverse linkages should be better understood before impact assessments of rural education programs can be made.

Other evidence on the relationship between the cost of children and fertility in the Third World is largely piecemeal, impressionistic, and nonquantitative. General money costs of children in the Sudan are argued to be low (Galal el Din, 1977), but no data are presented in support of that position. Barkat-e-Khuda, reporting on a VOC survey in a village in Bangladesh, suggests that the costs of food, clothing, and education are the heaviest; however, he also presents no quantitative support for that view (Barkat-e-Khuda, 1977).

In summary, the evidence demonstrating a relationship between the

*Rosenzweig and Evenson (1977) present one of the few empirical studies available on the relationship between actual educational attendence and fertility. Their study of rural India shows a negative relationship between school attendance of children and fertility levels. For earlier approaches see Harman (1970) and DaVanzo (1972).

financial cost of children and fertility in Third World settings is, although suggestive, largely attitudinal and nonquantitative. That parents do consider the financial cost of children has been well documented in the Value of Children studies and elsewhere; however, the quantitative dimensions of the cost of children have hardly been studied and the links between child cost and rural economic development programs remain to be explored.

The Economic Value of Children

Although the previous section of this paper explores the various dimensions of the value of children in some detail, it is worthwhile at this point to consider briefly again the economic contributions that children make to their families. These contributions can conveniently be considered to be charges against the expenditures that parents make on their children's behalf and they consequently may have the effect of significantly reducing the net cost of children in certain rural settings.

Again, the VOC studies have reported in several instances that parents perceive their children as making significant economic contributions to the family (Arnold, et al., 1975; Bulatao, 1975; Buripakdi, 1977). These perceptions of significant economic value are largely concentrated in the rural areas of Asia among the lower income farmers and agricultural laborers; however, other investigators are beginning to report similar findings among other populations. As early as 1971 Kasarda reported the results of a cross-national aggregate study of 50 nations that suggested that intensive use of children in household productive activities is positively associated with high fertility. These findings have been

confirmed more recently in a number of studies originating in diverse countries.

John Caldwell (1967, 1977), drawing upon his experiences in West Africa, particularly Ghana and Nigeria, has recently argued forcefully that children in rural areas begin significant economic contributions to their families very early in life and may even be net contributors to the family as early as age 15. In large part Caldwell's arguments are descriptive and nonquantitative in nature, but his experience in Africa lends strong credence to his insistence that parents in rural areas are often quite rational from an economic point of view in desiring and producing large families. His associate Helen Ware (1977) argues in much the same manner that children in much of rural Africa represent economic assets and that large families are desired as a result.

Other studies have also found the economic contributions of children to be significant determinants of fertility. Lieberman in an analysis of both family and areal data from Turkey (1976) has concluded that the value of children as family labor and as old-age security is a significant positive influence on fertility behavior. Aghajanian (1978) has used survey data from Iran to demonstrate the high value of children in the household economy, while Mead Cain (1977) used detailed quantitative information from a village in Bangladesh to argue that male children are net producers by age 12. Using food calorie output as his measure of production, Cain argues that males compensate by age 15 for their entire cumulative consumption to that age and they compensate for a sister's consumption by age 22.

Nag et al. (1977a) again argue in a comparative study of Java and Nepal that rural children contribute significantly to the household economy. Although they do not present a rigorous definition of value, the case studies they present make a convincing case that the economic contributions of rural children may largely offset their resource costs. Similar results come from Chile, where DaVanzo (1972) has analyzed data from the 1960 Chilean Census. She reports that fertility levels are positively related to the presence and number of working children in the family. Finally, Galal el Din (1977) assesses the determinants of fertility in rural Sudan and concludes that the economic value of children is high relative to their cost and that high fertility is a rational response to that condition.

An often heard justification for large families in developing countries is the value that children have as social security for their aging parents. This presents the theoretical case for this position in high mortality settings. Although the children-as-old-age-security argument is often bruited, the evidence supporting it is not particularly compelling. Lieberman (1976), Ware (1977), and Galal-el-Din (1977) make the argument with respect to Turkey, Sub-Saharan Africa and Sudan with varying degrees of rigor, but the notion survives largely on its plausibility, not on the evidence. As an exception, Nag, et al. (1977a) favor the old-age security argument on the strength of their observations in Java and Nepal of the large number of parents living with their adult children. Unfortunately, the common policy prescription--development of a national system of old-age insurance--is rather unrealistic in economies that can collect taxes only with difficulty.

The Net Financial Cost of a Child

The literature on the cost of children and fertility in the third world supports contradictory findings. On the one hand, the Value of Children studies (e.g., Arnold, et al., 1975), and the Economic Correlates of Fertility study in Taiwan (see Mueller, 1976; D. Freedman, 1975) tend to support the notion that parents are aware of the cost of children and that this awareness is a relevant constraint on reproduction. On the other hand, Caldwell (1977), Ware (1977), Mead Cain (1977) and Nag et al. (1977a) report significant economic benefits to large families and relatively small economic costs of child-rearing. Eva Mueller's (1976) attempt at a comprehensive assessment of the relative cost and value of children in peasant agriculture concludes that children on balance represent a net cost to their parents. However, her calculations have been criticized on both methodological and substantive grounds as noted earlier.

In a sense it does not matter whether nor not children are net drains or additions to the family economic position. What is relevant is a more precise understanding of exactly the ways in which children are economic burdens or assets to their families, because once this is understood, the relationship between the effects of rural development activities, the cost of children, and reproductive behavior can be more fully understood. Given a fuller understanding of these relationships, rural development programs can be designed or modified to produce high antinatal impact as a joint outcome for each program's primary goals. In the concluding section further attention will be paid to the types of research needed to produce a more complete understanding of the

interrelationships between fertility, financial cost of children, and rural development policy.

IV. The Time Cost of Children

Introduction

The second component of the opportunity cost of children is the time component--the value of parental (and possibly extended family) time spent in childrearing activities. Since the time available to individuals is ultimately the binding constraint upon their ability to produce and consume, the value of this scarce resource must be explicitly considered as a part of the actual and perceived cost of rearing a child. It must be emphasized at the outset, however, that the value of parental time spent in childrearing activities in rural areas of Third World nations may be quite low for a number of reasons that will be explored below. Furthermore, unlike the situation in urban areas and in industrialized nations, the time cost of childrearing may be spread across a larger group of individuals than simply the parents. Given the prevalence of extended family situations and communal child-care arrangement that characterize many rural areas in developing countries, it is important to recognize that much of the time spent in rearing children may be provided not by their parents or by paid helpers, but by members of the extended family or community who may or may not have influence with respect to a couple's reproductive behavior.

Figure 4.1 will help to clarify the issues to be addressed in this section. It presents a schematic view of the time allocation behavior of a typical husband or wife in a rural setting. Since the amount of time available to an individual in any given day is strictly limited, decisions must be made about how that time is to be allocated. Figure 4.1

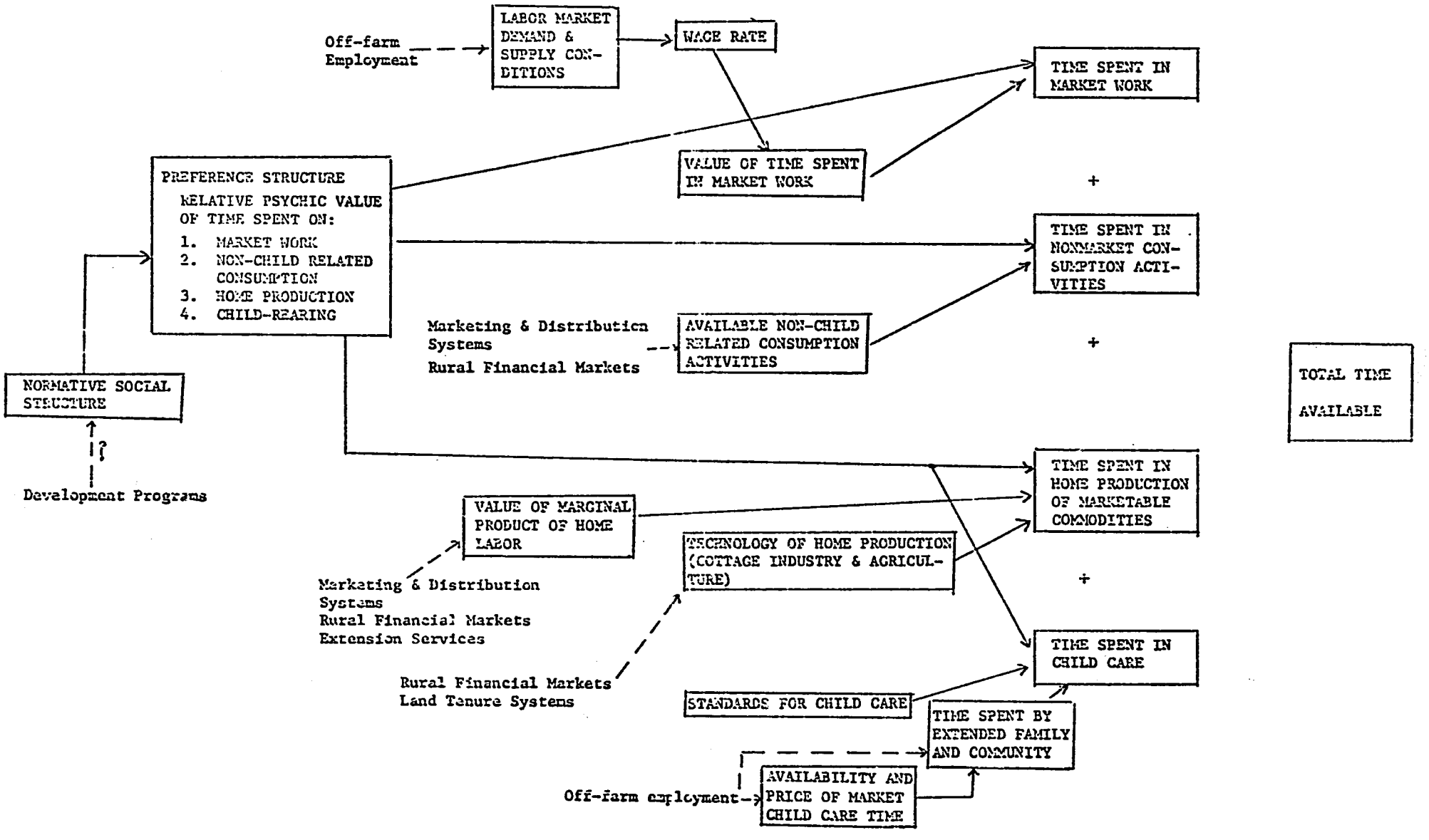

Figure 4.1: Time Allocation of a Rural Parent & Hypothesized Impact of Rural Development Activities

suggests that the time available is divided into four types of activities: (1) direct child care activities, (2) home production (e.g., cottage industry or agriculture) producing marketable commodities for direct consumption or sale, (3) home consumption, and (4) market work for wages outside the home. Further discussion of the determinants of each of these four activities will serve to clarify the issues to be addressed in the literature review that follows.

Time spent rearing children is determined by a number of factors including the couple's (or extended family's) standards for childrearing behavior, the amount of (unpaid) time spent by members of the extended family or community caring for a couple's children, the availability and price of market supplied child care services, and the psychic value placed by parents on the time that they spend with their children. In large part the value that parents place on the time they spend caring for their children will be derived from the intrinsic benefits of parenthood (see, Hoffman and Hoffman, 1973); however, it will also be determined by the normative environment within which parents find themselves. If the rural society places great store on parenthood and signifies its approval, the value of time spent in child rearing will rise. If, on the other hand, society pays little in the way of approbation, the intrinsic value of parenthood is reduced. One might imagine that new migrants to cities experience a distinct drop in social approval coming to them because of their role as parents because of the disorganization and weakening of social ties that characterizes rapidly growing urban areas.

Finally, the value of time spent in parenthood will be determined

in part by the nature of alternatives to parenthood that are available. To the extent that the social and economic structure offers many attractive alternative uses of time, the relative psychic value of time spent in child rearing may decline.

Time spent by a husband or wife in home production activities is determined in part by the technology of home production and in part by the value of time spent in home production activities. The technology of home production consists of the ways in which productive activities are organized, the availability of capital equipment, and the types of crops or livestock produced. Climate and amount and quality of land available will be major determinants of the agricultural methods used and will determine the amount and type of labor required.

The value of time spent in home production will be determined by the available technology and land as well as by the skills possessed by the couple. In addition, the value of time will depend upon the market prices that are received by the household for its output.

The amount of time that husband and wife spend in home consumption activities will depend fundamentally upon how poor the family is, that is, upon how much time is required in productive activities to maintain a minimum subsistence level of living. However, for couples above the subsistence level, the amount of time spent in consumption not directly associated with child-rearing will depend to a large extent upon the consumption alternatives available. To the extent that a rural area offers few possibilities for consumption and recreation outside the home and family context, the relative amount of time spent in those activities will be low compared to time spent in child and family oriented

pursuits.

The value of time spent in nonchild and family related activities will depend in part upon the intrinsic attractions of those activities and in part upon the normative sanction society gives them. A common theme running through the literature on rural-urban migration in the Third World is that migration takes place (1) to find a larger set of ammenities than exists in rural areas, and (2) to escape the disapproval that often accompanies consumption of such ammenities in rural areas.

Finally, the amount of time spent by a husband or wife in the labor market will depend upon the demand for labor by type (e.g., sex, class, ethnic, skill specific, etc.) in the region and the value that each individual places on market work. The demand for labor will depend upon the industry mix that is present in the area, including commercialized agriculture, and the production technology used. The latter will determine how much labor will be demanded per unit of output and the skill levels or other characteristics required of the labor force.

The value of time spent at market work will be a function both of the money wage rate and of the psychic value that individuals receive from working. In economics, the value of an hour spent at market work is often considered to be merely the wage received for that hour; however, in industrial countries at least, it is becoming clear that people work in part for the direct benefits that they receive from working. An hour spent in market work may thus be worth more than the money wage received. In particular, women may work to establish an identity that includes partial independence from a role of total financial and social subservience in a traditional family setting.

It should be clear from the preceding discussion of the determinants of time allocation in the family, that time spent in market work and in child rearing are substitutes for each other because of the overall constraint on time available. A number of studies of fertility in developing as well as industrial nations have found a strong and significant negative correlation between the time women spend in market work and their fertility. A causal relationship is often imputed to this negative correlation; however, the existence of a negative correlation is not sufficient to establish a causal relationship between fertility and market work. Time spent in market or home production, consumption or child care is determined as the result of more basic causal factors that together simultaneously determine time allocation in the household. The simultaneous nature of this allocation is illustrated in figure 4.1 where a host of factors combine to determine jointly the division of available time.

With respect to the allocation of a wife's time in particular, figure 4.1 illustrates the basic similarity between economic studies of a married woman's time allocation behavior, and social-demographic or social-psychological studies of women's roles and fertility. In dealing with the value of a woman's time devoted to child rearing, we are simultaneously dealing with the normative determinants of female behavior, that is, with <u>women's roles</u>. Since this enormous topic is being covered in depth in another review paper in this series, our treatment of the time cost of children will attempt to treat quite narrowly the issue of the role of time cost in influencing fertility. The discussion here should be viewed as supplementary to and complementary with the companion paper on women's

roles and fertility.

Figure 4.1 also illustrates some hypothesized connections between time allocation in rural households and rural development activities. Since most of the literature reviewed in the following pages deals with the time cost-fertility link, the hypotheses to be discussed here should be considered to be possible research topics in a further investigation of the impact of rural development activities on fertility as they operate through the time cost of children.

The type and quantity of off-farm employment activities will affect the relative time cost of children in at least two ways. First, to the extent that rural development programs provide off-farm employment opportunities for married or unmarried women, the time cost of children will rise. It will rise because the value of time spent in a pursuit that is basically competitive with motherhood will rise, thus raising the opportunity value of time employed in child care. Potentially this may have the effect of encouraging delays in the marriage of young women, of causing delays in the birth of a first child, and of inducing the choice of longer spacing and/or smaller families so as not to forclose alternative labor force activity. Likewise, introduction of new labor force opportunities for women may have the effect of reducing available child-care time from members of the extended family and community as the value of alternative uses of <u>their</u> time rises. To the extent that off-farm employment provision for women offers valuable alternative uses of their time resources it can be expected to raise the opportunity cost of children and, other things being equal, reduce fertility.

Rural financial markets may also affect the time cost of children

by allowing the development of alternative consumption activities that compete with parenthood for a husband's or wife's time. In addition, development of rural financial markets may allow farmers and operators of cottage industries to purchase capital equipment that would alter the technology of home and farm production and would potentially raise the value of parental time in home production. However, the impact of increased rural credit facilities through this channel on fertility is not clear from a theoretical standpoint, since it may well be that many home production activities can be carried on jointly with child care. In that case, a rise in the value of home production time would not necessarily lead to a reduction in the amount of time devoted to childrearing. Moreover, introduction of new capital equipment into home production may also raise the labor value of a family's children and thereby encourage larger families.

The development of more complete marketing systems for goods and services in rural areas can have an impact on the type and quantity of alternative consumption opportunities available to rural households. In addition, better marketing facilities can have the effect of increasing the value of time spent in home production by widening the market area and raising the prices available for home produced goods. The effect of this latter impact on fertility will again depend upon the degree to which childrearing and home production are compatible.

Finally, changes in land tenure systems may also increase the value of labor time in rural households by allowing the acquisition of land or the consolidation of land holdings in a manner that increases the productive value of the family's labor supply.

The rural development activities just discussed have their main impacts on fertility by altering the economic framework within which family time allocation takes place. However, figure 4.1 suggests that the value of time spent in childrearing and other activities is in part determined by the normative structure of rural society. Husbands and wives are viewed as allocating their time in conformity with community norms and standards so that if an optimal allocation of time does occur, it takes place within the constraints of traditional expectations and practices. Rural development policy can be expected to alter social institutions as well as economic and technological structures, and it is to be expected that standards of childrearing and the social-psychological value of the various time allocation activities will also be altered. Unfortunately, we are aware of no research that describes the effect of rural development programs on the social normative structure concerning child care. The topic is, nevertheless, of theoretical importance and it should be examined more fully in any subsequent research on the impact of rural development programs on the cost of children.

Evidence on Time Cost and Fertility

The theoretical distinctions made between the various causal factors that determine time allocation to child care and other activities, cannot in general be duplicated in the current literature. That literature, although it contains some strong and consistent findings regarding the role of opportunity costs in determining fertility, is pitched at a considerably less precise level. Numerous proxy variables are employed to measure the time cost of a child and many of them are of doubtful

theoretical relevance. In particular, many of the studies reviewed below make inappropriate use of two variables--female labor force participation and female educational attainment--as measures of the time cost of children. Certainly education, for example, is an indicator of the wage rate that a woman might be able to command in the labor market; however, it is also an indicator of varying relative preferences for parenthood, market work, and leisure, and of systematic differences in time orientation. As the companion paper on education and fertility demonstrates, education has a potentially pervasive influence on reproductive behavior through a number of paths, only one of which is as a determinant of the value of a woman's time. Female labor force particpation, on the other hand, is also the result of causal factors that simultaneously determine time spent in child care and the demand for children. The strong negative correlations between fertility and labor force participation that are reported in the literature are more an indication of the strength of underlying and unmeasured determinants of both activities than they are a measure of the opportunity cost of a child. In order to understand how rural development programs affect fertility through the time cost of children, what is really needed is a better description of how these programs affect the unmeasured determinants shown in figure 4.1. The current literature will be of only limited use in that regard.

Industrial Countries

The growing interest in estimation of the microeconomic models of fertility has produced a number of relevant studies on United States data over the past decade. Mincer's (1963) study incorporated a measure of a wife's full-time earnings as a determinant of current family size

and found a significant negative relation. His study was instrumental in alerting the profession to the necessity of including an explicit treatment of the time cost of children in fertility analysis. Subsequent studies in the United States have confirmed and extended Mincer's findings. Glen Cain and Adriane Weininger (1973) used census data to find a large and significant negative effect of a wife's "opportunity cost." Gardner's (1973) study of rural North Carolina families also found that the potential wage of the wife (a proxy for the time cost of a child) is negatively related to family size; however, Gardner notes the difficulty of distinguishing wage effects from education effects. Snyder (1978) used the 1967 Survey of Economic Opportunity to construct an estimated wage rate for all wives. He found the expected results and was also able to document the position that it is inappropriate to use a woman's educational attainment as a measure of her time cost of child care. Cramer (1975) used data from the 1968-72 waves of the Panel Study of Income Dynamics to test an economic model of fertility. He found that when education is used as a proxy for time cost there is no significant relation to fertility.

Other studies have documented the impact that children have on the value of a wife's time. Gronau (1973) has shown that the presence of children in a family markedly increases the value of a mother's home time. Mincer and Polachek (1974), on the other hand, argue that the presence of children in a family leads to a loss of the wife's market wages and a slower rate of growth of her wage rate due to her intermittent participation in the labor force. Turchi (1975a) has documented the actual hours that a mother spends in child care related housework during the child's 18-year tenure in the family. Finally, Niemi (1978)

has used data from the 1970 U.S. census to confirm Mincer and Polachek's account of lost wage income from child rearing.

In a major survey of the social and economic correlates of family fertility, Mason et al. (1971) report that, as expected, female labor force participation and fertility are almost always negatively related, except in situations where child rearing and work can be managed simultaneously. Ware's (1976) study of the female labor force participation-fertility relationship in urban Australia again makes the point that this relationship must be interpreted as simultaneous in nature and not as a causal relationship. With respect to psychic costs of children, Freedman and Coombs (1966) use Detroit Area Survey data to demonstrate a negative relationship between a wife's out-of-the-home aspirations (including market and nonmarket activities) and fertility, while Fawcett (1978) argues on the basis of VOC perceptions data that the opportunity costs of first children are a considerably stronger fertility disincentive than are the costs of subsequent children.

The studies described here generally do not have a policy oriented focus, and they provide very little in the way of understanding how perceptions of time cost are formed or altered by changing economic and social conditions. Nevertheless, they are useful in that they give evidence of the strong influence that the time required by children can have on reproductive behavior.

Asia

In general, the findings of similar studies conducted in Asia show similar patterns, with some important exceptions. Mercedes Concepción

(1974) in a general review of various Asian survey data sets finds that in urban areas the negative relation between fertility and female labor force participation is usually found; however, in rural areas the negative relation is much weaker and even nonexistent in many settings. Concepción speculates that in agricultural areas the conflict between work and child care is not nearly so great, allowing the two to occur simultaneously. Thus, the opportunity cost of time spent in child care is argued to be significantly lower in rural areas than in cities. Goldstein (1972) found the same relationship in his analysis of 1960 Thai census data. These data showed that the fertility of Thai female labor force participants was much lower in urban areas than in rural areas, suggesting that labor force activity in rural areas does not lead to the same degree of conflict with the parental role as it does in urban areas. In another study using the 1960 census of Thailand, Maurer et al. (1973) found that increased female wage opportunities related to decreased fertility in terms of children-ever-born. Cook and Leoprapai (1977) analyzed data from the 1970 Thai census and found that nonfarm female employment was one of the most significant variables associated with low fertility. Since most women still work in rural agriculture, they advocated rural development policies designed to bring off-farm employment activities to young women.

Philippine survey data have led both Harman (1970) and Boulier (1976) to conclude that fertility and female labor force participation are negatively related. Harman identifies time costs as salient antinatalist factors, especially among younger families, and Boulier documents the positive effect that additional children have on the market work of

fathers and the negative effect they have on participation by mothers. The 1972 study of fertility decline in Hong Kong by Wat and Hodge again found a strong negative association between labor force participation and fertility.

Studies in Taiwan and Japan by Theodore Schultz (1974) and Hashimoto (1974) have tended to support the negative association of opportunity costs and fertility. Using cross-section data for 1960, Hashimoto found a strong negative correlation between female education and fertility levels; however, the previous cautions as to the appropriateness of education as a measure of opportunity cost apply here. Schultz's regressions of women's wage rates on fertility indicate that the opportunity cost of children has a strong negative impact on fertility, especially in low income groups.

Latin America and the Near East

Results from studies conducted in Latin America tend to confirm that the opportunity costs of parenthood are most salient in urban settings. Although DaVanzo (1972) reported a negative relationship between female wage opportunities and reproductive behavior in Chile, Peek (1975) used survey data from the same country to discover that the negative relation between female labor force participation and fertility holds only for modern nuclear households with small children. Otherwise he found a negligible or even slightly positive relationship. Stanley Smith (1978) reports analyses of the Mexico Metropolitan Survey that suggest that the less simultaneity there is between child care activities and market work the lower is fertility. Ben-Porath's (1973a) analysis of the 1964 Family Expenditure Survey in Israel uses education as

a proxy for opportunity cost and expected negative relationship.

Africa

The situation in Africa appears to represent somewhat of an exception to the general rule that fertility is negativelv related to such approximations of the time cost of children as women's education, female labor force participation, and wage rates. In the general review of the relationship between fertility and market work edited by Stanley Kupinsky (1977) the negative fertility-market work relationship is generally found except in Africa. Caldwell and his colleagues (1977) explain this by arguing that in Africa children do not represent the strong conflict with alternative activites that they do in other cultures. As in some other rural areas in Asia and Latin America, farming and cottage industry are occupations that allow child care without disrupting other household activities. Given that child costs (both time and money) are low, and that their economic value is not insignificant, Caldwell and his colleagues argue forcefullv that the social and economic setting in Africa supports a rational preference for large families.

V. Policy and the Cost of Children

Development Policy and Fertility

Sections III and IV of this review have focused on the opportunity cost of children and its relation to fertility. In this section the results of those two surveys of the literature will be summarized and the role of rural development policy will be analyzed. It is important to emphasize at the outset that the focus in this section is not on rural population policy but on the demographic impact of rural development programs targeted primarily toward other objectives. It is important to remember that the goal of fertility reduction in rural areas is, for the most part, an intermediate goal that is instrumental in achieving the primary goals of increased income per person, improved agricultural productivity, and reduced mortality and morbidity. Consequently, the majority of rural development projects will be targeted toward objectives that would appear to be only tangentially related to fertility reduction.

However, any nation's rural development budget may contain severe misallocations of resources if rural development programs contain unintended fertility effects that are not included in the criteria used to select them. Since the number and scope of rural development projects is always constrained by the availability of public economic resources, competing projects must be compared and ranked according to some criterion or set of criteria. The objective of this comparison is to select that subset of projects that makes the greatest contribution to development given the resources at hand.

If a capital investment project has unintended fertility consequences that are not included in the cost benefit calculations, the actual rate of return of a project might be considerably higher or lower than otherwise suspected. It is, therefore, highly desirable that the unintended consequences of rural development policy at least be considered and at best be fully understood and accounted for. The mandate to include population impact statements in AID rural development proposals is a recognition and codification of the desirability of understanding the demographic consequences of rural development policy.

Rural economic development may be roughly defined as a rapid and sustained rise in real output per person that is accompanied by attendant shifts in the technological, economic, social, and demographic characteristics of rural society. Development produces a "modernization" that encompasses numerous aspects of individual behavior and social organization. There may be major shifts in the industrial, occupational, and spatial distribution of productive resources as well as a more complete transition to a monetized economy. In the demographic sphere, development has traditionally involved significant alterations in fertility, mortality, and migration, in place of residence, family size and structure, in the educational system, and in the provisions made for public health.

More generally, development has been often characterized as a transition from the "equilibrium" of traditional society to a state of disequilibrium and dynamic change. Typically, traditional modes of production and of social behavior are discarded and the normative hold of rural society is weakened. Indeed, it might not be too inaccurate to define development with respect to fertility and marriage as the

progressive diminution in importance of the social and cultural context in the determination of behavior and the increasing paramountcy of individual motives relevant to the decision makers themselves.

Rural development policy seeks to induce or speed up these structural transformations in order to increase the overall rate of change of the rural economy. Ideally, resources available for rural development programs can be allocated in such a way that the maximum impact in any particular sector is achieved with the mimimum use of those resources. Likewise, fertility reduction in rural areas should be achieved with the smallest injections of public resources possible. Given an improved understanding of the manner in which rural development programs, the cost of children, and reproductive behavior interact, market improvements in the productivity of rural development policy might be achieved with minor adjustments in the types of projects selected and the ways in which they are implemented. Unfortunately, with respect to the opportunity cost of children, the literature does not yet give us much in the way of concrete knowledge upon which to base recommendations for changes in policy.

What the Literature Reports

Financial Cost and Fertility

Demographic research has, over the past two decades, consistently reported that parents perceive the high financial cost of rearing a child to be the major factor motivating them to have smaller families. This result has been reported in settings as diverse as the urban United States and rural Philippines. Moreover, many parents who report that the cost of children is a major limiting factor on their desire for additional

children specify that it is the cost of educating their children that is perceived to be the most burdensome component of that cost. Eva Mueller's (1976) calculations of the net cost of a child in peasant agriculture, which are based on a synthesis of data from a wide variety of sources, suggest that even in that setting children represent a net cost to their parents. Moreover, she argues, larger families place a severe constraint on the ability of rural households to save for either large consumption or investment expenditures.

However, Mueller's findings have been disputed. Demographers working in West Africa argue with some vigor that children in that region are correctly perceived as economic assets since the costs of rearing them are low and their economic contributions become significant at an early age. Findings by Nag et al. (1977a) in Java and Nepal, Mead, and Cain (1977) in Bangladesh suggest that the same argument can be made in Asia. Moreover, the role of children as social security for old age is often advanced, without much empirical evidence, as another factor leading to a demand for large families in high mortality regions.

Actually, virtually no solid quantitative evidence exists on the financial costs or contributions of children in rural areas. Although children appear to be contributing to rural production, their productivity, both actual and perceived, is not well documented. Nor are there studies available that can inform policy makers as to the component-by-component cost of children, either in urban or rural areas. Although the view that children cost more in urban areas is current and plausible, there is as yet virtually no documentary evidence that this is true.

The financial cost of a child is determined by the normative standards

that parents bring to child rearing, and by the availability and price of the market commodities employed. However, the literature is deficient also in its treatment of the determination of childrearing standards, and since it is these standards that determine the possibilities for the substitution of commodities in childrearing as relative prices change, it is not possible on the basis of current knowledge to describe how rural development programs can alter the price of a child. Therefore, the link between rural development and the financial cost of a child remains largely unexplored. Below, some remedies to this situation are suggested.

Time Cost and Fertility

The situation is slightly better with respect to time costs of children. We know in a very general way that various measures of the time cost of of a child are strongly related to fertility. In numerous settings in the Third World, high time costs are associated with lower fertility, particularly when the high costs are associated with the mother. Another finding that is both plausible and fairly widely reported is that the time cost of a child is less important in areas where nonchild rearing activities can routinely be carried out jointly with child care. This suggests that the social and economic organization of rural society is much more conducive to the joint roles of producer and mother.

However, a number of issues remain unresolved. In particular, the measurement of the opportunity cost of parental time continues to present problems. The proxy variables substituted are deficient on a number of theoretical and empirical grounds and as a result it is not possible to trace with any precision how rural development activities might actually affect the value of a woman's time in varying pursuits. Very little

empirical evidence exists on the causal connections suggested by Figure 4.1. Nevertheless, theory and the weak body of empirical evidence do suggest some policy options, and it is to these that we now turn.

Suggested Policy Inverventions

The socioeconomic theory sketched in the introduction to this paper suggests that the demand for children can be reduced through policies designed to raise their opportunity cost. Unfortunately, policies designed to do so may also contradict other development goals and appear to be punitive to the subject population. Thus, the sorts of policies outlined by the World Bank (1974) --taxes on children, restrictions on access to public services, curtailment of maternity benefits to high parity women, denial of scholarships to large families, etc.-- may be counter to the welfare goals of the government and be politically unacceptable. Repetto (1976) notes that " . . . the main stumbling block before policy interventions to raise the relative price of children is the composition of the aggregation of commodity inputs to children's consumption. Children are intensive users of the basic necessities of life --food, clothing, and shelter. Attempts to raise the relative prices of these would have widespread and extremely regressive welfare implications, and even 'modest' experimental explorations would undoubtedly be completely unacceptable."

The options open to rural development policy are thus seen to be highly restricted. What development policy can do is to raise the opportunity value of activities that are inconsistent with large families. This means the introduction of attractive new options to child-centered

activities. In particular, public programs designed to increase the opportunities available to single and/or childless young women would have the effect of increasing the opportunity cost of parenthood. In employment, rural programs could emphasize those industries that offer market opportunities particularly suited to that group. The public sector could also consciously increase the employment opportunities available to young women. Education programs designed specifically to give young women marketable skills would be a useful adjunct to such an employment program. However, even these programs present problems; it would, for example, be exceedingly difficult to institute policies favoring the employment of young women in regions where there is high unemployment among males. Moreover, policies designed to increase female employment might run directly counter to traditions mandating the seclusion of women.

Opportunities for increased consumption of market goods and services that are nonchild oriented may also raise the opportunity cost of children. Rural development programs might be introduced to provide ammenities usually found only in urban areas; these ammenities might provide an alternative locus of recreational and consumption activities away from those that are family and child centered. However, these programs may again be shown to divert resources away from capital and human investment projects that have higher overall development priorities.

Housing policies might also be slanted to small and medium size families by concentration on quarters suitable for those households. Housing construction policies weighted toward small families, while in a sense punitive, might not be perceived as such if properly presented to the population. Likewise, provision of increased access to primary

education should be accompanied by explicit attempts to advertise the benefits of such education to the rural population. As Repetto (1976) notes, compulsory education legislation has historically failed to produce widespread compliance until there is a general normative sentiment that education is both essential and desirable.

Finally, rural development policy may increase the net cost of children by facilitating the introduction of new technology into rural production. To the extent that the value of child labor is reduced by such introductions, the net cost of children will rise. Of course, reduction of the value of child labor may conflict with other development goals, especially those designed to foster improved productivity through labor intensive technologies. Thus, a major research question remains: How is it possible to lower the economic value of children in production without subversion of other development goals?

Some Suggestions for Research

The focus of our attention to the policy implications of the cost of children and fertility has been on the links between rural development activities and the cost of children and on the link between the cost of children and reproductive behavior. Virtually all of the information reviewed is concerned with the second link; however, much more can be done, even with existing data sets.

In particular, some intensive econometric and statistical work needs to be done with the consumer expenditure surveys now becoming increasingly available in developing countries. These data could be used to develop quantitative estimates of the cost of children, component

by component for rural and urban areas. Studies such as these are essential in determining which components of the cost of children are most salient in reproductive behavior. In addition, consumer expenditure data could be used to study the impact of different family structures on urban and rural savings behavior. Studies of this type would also be useful in determining which types of financial institutions would be most successful in drawing savings from rural households as family size declines.

New data sets detailing the time use of men and women in rural areas are becoming increasingly available. They should be used to understand the factors that determine how rural men and women allocate their time. Only with improved understanding of the social and economic context within which this time allocation takes place can rural development programs be modified to reduce the jointness of child rearing and other activities. Moreover, studies using existing data might be able to pinpoint the types of alternative opportunities that would have a maximum antinatal impact.

The importance of comparative urban-rural studies cannot be overemphasized. Fertility declines in the Third World have almost invariably begun in urban areas, and studies designed to pinpoint those elements of the financial and time cost of children that have become salient to urban parents might be extremely useful in the design of rural development strategies to reduce fertility.

Additional research is needed on the nature of intrafamily intergenerational transfers in order to determine their importance as a pronatalist factor. Likewise, more research needs to be done on the

demographic impact of industrial location. To the extent that economic and technical factors allow flexibility in the location of industry, that flexibility might be profitably used to alter labor market alternatives for women.

With respect to the link between rural development programs and the opportunity cost of children, new insights will come only as new data sets are developed. The problem of assessing the population impact of rural development activities is not a short-run problem, and without explicit attempts to conduct and analyze quasi-experimental studies of actual rural development projects, our ability to assess their fertility impacts will not improve. The design of this new research is crucial; it must be quasi-experimental if the impact of the programs themselves is to be successfully isolated and measured. The small cost of studies such as those recommended here, relative to the costs of the rural development projects themselves, should be ample incentive to their early initiation.

Found a direct association in these villages between family size and socioeconomic status. Introducing control factors (duration of marriage, age at marriage, contraceptive use) failed to change this association. There was a strong desire for large families and efforts to limit births were not initiated until the demand for children had been satisfied.

Anderson, Kathryn H.
1978 "The effect of child mortality on the quantity and quality of children in Guatemala." Population Index 44:397.

Computes demand functions for live births, child-survival, and child quality. The estimation for live birth shows significant results for wage, schooling and mortality effects. The mortality estimation is not successful. The quality regression points up price variables as the most important determinants.

Arnold, Fred and James T. Fawcett
1975 The Value of Children: A Cross-National Study. Vol. 3, Hawaii. Honolulu: East-West Population Institute, East-West Center.

This book is a volume in the cross-national Value of Children study made in 1972-5. Hawaiian survey data were gathered for three ethnic sub-groups: Caucasians, Japanese, and Filipinos. Economic costs of children were found to be very important in fertility decision-making. Economic value was of little consequence for all but the Filipinos, who expected old-age assistance because they did not expect to take advantage of governmental programs. A multiple regression analysis showed that economic variables (mainly costs) were the most significant for fertility proxy-outcomes.

Arnold, Fred, Rodolfo A. Bulatao, Chalio Buripakdi, Betty Jamie Chung, James T. Fawcett, Toshio Iritani, Sung Jin Lee, and Tsong-Schien Wu
1975 The Value of Children: A Cross-National Study. Vol. 1, Introduction and Comparative Analysis. Honolulu: East-West Population Institute.

The first of a seven-volume set of reports from the Value of Children project, a study of social, economic, and psychological determinants of

childbearing behavior, which covers six countries. This volume describes the project as a whole and presents selected findings in a comparative form for the nations involved. It also includes basic project documents, descriptions of methods and constructed variables, and a final chapter on policy implications. Volume 2 is on the Philippines; Volume 3, on Hawaii; Volume 4, on Thailand; Volume 5, on Taiwan; Volume 6, on Korea; and Volume 7, on Japan. In all nations, samples are small and nonrepresentative, and studies are classed as exploratory.

Findings are presented in great detail and are thus very difficult to summarize. The degree of detail also makes for a degree of contradiction. However, only major findings are highlighted in Volume 1.

A core questionnaire was used with specific questions added to a nation's schedule as perceived necessary to account for cultural differences. There were 16 VOC dimensions tapped, 10 family size dimensions, 11 moderator dimensions, and 5 birth control dimensions. Open-ended, structured questions and a Likert-type attitude scale of 45 items were used.

The major objective of the analysis was to identify dimensions of VOC for contrasting groups in the nations. Thus findings are usually presented so as to compare urban-middle, urban-low, rural, and males and females. A major emphasis was to explain fertility and family planning variables with VOC variables.

Findings are presented as descriptive statistics, correlations, factor analyses, a priori constructed variables and indices, and regression analyses. The most consistent finding was that each socioeconomic group emerged with a different profile. In the urban-middle class, psychological and emotional benefits were emphasized. The lower middle class was similar except economic and family continuity were more important. In the rural, economic utility of children is stressed.

Some general findings include: (1) Respondents were interested in talking about children and there was little resistence or anxiety shown. (2) Some values were more or less universal while others

seemed to be specific to sex, SES, or ethnicity. (3) There were few differences between men and women and those found were related to differences in sex roles. (4) "The economic utility of children appears to be attenuated as one moves up the socio-economic scale, but the economic burden . . . also declines." Thus net economic value may not differ greatly by SES. But people at the upper level valued children more for noneconomic reasons and were more concerned about strain and overpopulation. Caucasians were at the upper extreme, Japanese in the middle, and Filipinos at the bottom of the continuum. (5) Correlations revealed that those with traditional attitudes about fertility valued children for continuity and security, reinforcement of parents' sex roles, for incentives, happiness, affection, etc. Fertility variables were most strongly correlated with traditional motivations--family name and traditions, care in old age, and economic help. (6) Economic and psychological-social values of children together added substantial explanation proportions to predicted family size and planning attitudes even after background variables had been taken into consideration.

Badran, Hoda
1974 "The cost of a child; the decision to have a big family depends on the more or less concious evaluation of the cost/benefit ratio." Ceres 7(4):25-30.

Discusses the importance of the perceived cost of children to the wife, who usually initiates contraceptive behavior. Rural women in Egypt were found to perceive child contributions to production as their most important benefit, although urban women generally did not. Child costs are kept low in urban areas because schooling is free. Old age security benefits were rated lower in import. Actual costs for lower-income families seem to be lower because an additional child does not cause additionally equal marginal expenses. A change in actual costs and a closer relation between actual and perceived costs are suggested as policy variables.

Bagozzi, Richard P. and M. Frances Van Loo
1978 "Toward a general theory of fertility: a causal modeling approach." Demography 15:301-20.

Presents a social-psychological model of fertility that incorporated both environmental (exogenous) and social-psychological (endogamous) process in

fertility decisions. Says best label is "interactionism." Claims fertility is the result of "two broad social processes within the family unit." The first is shared, socially constructed attitudes of household members and the second is social exchanges between husband and wife. Indirectly related to fertility through these processes are the socioeconomic constraints on family size.

Socioeconomic constraints are elaborated to include norms and socioeconomic status. Norms are seen as operating through (1) processes of social interaction, (2) society-wide transmission of values (media), and (3) impact of social exchange between husband and wife, that is, social expectations such as distributive justice or sharing of child care. It is noted that sanctions operate to enforce the norms. SES operates to influence egalitarianism of husband-wife exchange, using Rainwater's approach.

Attitudes have an affective, behavioral, and cognitive component (beliefs). Social exchanges consist of rewards and punishments which may be physical, psychological, or social in nature. These depend on the relative social influence, power, conflict, and role relationships of the two members. Husband-wife exchanges do not occur in isolation but are subject to inputs from the exogenous economic and social settings.

Two general hypotheses are:

1. "The more balanced the power, the less the conflict, and the greater the egalitarianism, on the one hand, the greater the probability that the couple will pursue joint careers, desire a life-style and mode of consumption at odds with producing a large family, engage in fertility planning and the use of contraceptives and in general be susceptible to antinatalist social, economic, and attitudinal constraints, on the other hand."
2. "As attitudes and social exchanges within the family become more modern (in the sense that greater 'quality' is demanded for children, aspirations for career and personal growth increase for both spouses, and the interactions between husband and wife generally become more equal), less children will be demanded."

The model was tested with data from Ankara and Mexico City. In general the data support the theory and it is concluded that from the stand-point of policy, one must look past socioeconomic correlates and examine the attitudes and social relationships of family members and gain a better understanding of the decision-making processes within the family. (However, the data used to measure the variables are actually surrogate measures and therefore the empirical tests are a little disappointing.)

Banguero L., Harold E.
1977 "The social and economic determinants of fertility in Colombia." PhD. dissertation, University of North Carolina at Chapel Hill.

Presents an analysis of the determinants of fertility in Colombia. Recent survey data are explained and used in the model which is developed. The coefficients obtained for purely microeconomic variables are weak. The explanation given is that the proxies for money cost and family income may be inaccurate and that social factors have incorporated some of the economic effects on demand for children. Besides the model development and testing, there is a large section of the determination of costs and benefits of Colombian children to their parents.

Barkut-e-Khuda
1977 "Value of children in a Bangladesh village." Pp. 681-728 in John Caldwell (3d.), The Persistence of High Fertility. Vol. 1. Canberra: Australian National University.

Presents data from a survey of families in a Bangladesh agricultural village. Parents overwhelmingly favor large families. Costs of children are perceived as food, clothing, and education, in that order. Value of children is in agricultural production. Considerable data are presented to support this. Child productivity was found to be almost equal to adults at ages 10-14 and virtually the same after that age. Children's value is also important in economic old-age assistance to their parents.

Basu, D. N.
1978 "Impact of agricultural development on demographic behavior, with particular reference to fertility." Pp. 242-59 in J. R. Rele and M. K. Kain (eds.), Population Change and Rural Development in India. Bombay: International Institute for Population Studies.

Directly relevant to the present study. Presents conceptual framework of development's changing the costs and value of children. Experimental and control villages were chosen and matched to study. Developed villages showed lower fertility rates than similar under-developed agricultural villages. Surveys showed an increased cost consciousness and parents' higher aspirations for children. This is assumed to be one of the causal processes but the data do not permit statistical verification. The author suggests that the upcoming study of which this was a pilot, should focus more upon the process issue.

Beaujot, Roderic P., Karol J. Krotiki, and P. Krishnan
1978 "Socio-cultural variations in the applicability of the economic model of fertility." Population Studies 32:319-25.

Using 1973-1974 data from Edmonton, Alberta on 1,054 women aged 18-54, members of one of eight ethnic groups, the authors show that the economic model is not applicable in all socio-cultural circumstances. Only two of the eight yielded statistically significant findings for current fertility and only three for expected family size. (Thus the report criticizes universal application of the model.) In some situations, utility considerations may not be central to fertility behavior.

Becker, Gary Stanley
1960 "An economic analysis of fertility." Pp. 209-40 in A Conference of the Universities--National Bureau of Economic Research. Demographic and Economic Change in Developing Countries. Princeton: Princeton University Press.

The seminal article on the economic model of fertility analysis. Its scope is broad and it discusses the costs of children relative to a quantity-quality trade-off which Becker feels that parents make. Data from the Indianapolis Survey in 1941 are used to test the hypotheses of the model. He suggests that the cost of children may have increased while the quality almost certainly has. He postulates a positive fertility-constant. James Duesenberry and Bernard Okun comment on the model and evidence.

Becker, and H. Gregg Lewis
1973 "On the interaction between the quantity and quality of children." Journal of Political Economy 81:279-88.

Briefly presents a revised mathematical model to show a complex relationship between quantity and quality of children in a household. Discusses income and price effects and their elasticities determined theoretically to show that the price elasticity of quantity is greater than that of quality. Income elasticities show the reverse. The conclusion is that quality and quantity of children demanded, like other household goods, are related because their shadow prices are mutually dependent.

Ben-Porath, Yoram
1973a "Economic analysis of fertility in Israel: point and counterpoint." Journal of Political Economy 81:202-33.

Examines the relationship of wife's education to fertility behavior, particularly in regard to opportunity costs of children. Presents a model to test the hypothesis and analyzes data from the 1964 Israeli Family Expenditure Survey. Results show that the marginal decline in fertility as a result of education is greater at lower levels of education. The relation between women's education and the price of a child is then likely to be positive, causing decreased fertility. Discusses the quality of children component in terms of time spent on child services.

1973b "Short-Term Fluctuations in Fertility and Economic Activity in Israel." Demography 10:185-204.

Reports on a study which found a procyclical movement of births and marriages for subgroups of Jewish populations and for non-Jews (mostly Arabs) which seems to derive from fluctuations in economic activity. Period studied was 1950-70. Does not control for compositional changes. Importance for VOC studies is not clear. However, short-term responses to changing immediate situations apparently exist among many types of people. Response existed for others as well. Study presents detailed findings, summary of theories, and tables of regression statistics.

1977 "The economic value and costs of children in different economic and social settings." Pp. 77-90 in International Union for the Scientific Study of Population,

International Population Conference, Mexico 1977. Vol. 2. Leige, Belgium: IUSSP.

A new theoretical discussion of the economic model of fertility behavior based on values and costs. The emphasis is on institutional and "contractual" arrangements within the family in LDCs and in super-developed societies. No hard data are presented. Author points out the problems with measuring economic benefits and costs and coming up with a pat number for the value of a child. Discounting and psychosocial variables are the crucial problems emphasized.

Birdsall, Nancy
1976 "Women and Population Studies." Signs 1:699-712.

Indicates the size of the family is dependent upon the wife's education and labor force participation, and in most cases, independent of husband's occupation. The major emphasis is that education and employment may change the status of women and contribute to fertility reduction, but these are neither necessary nor sufficient conditions for a reduction.

1978 "A cost of siblings: child schooling in urban Colombia." Paper presented to Population Association of America Annual Meeting, 13-15 April, Atlanta.

Discusses the various economic models of fertility in relation to child costs and investments. Analyzes data from the 1967-68 Colombian Household Expenditure Survey via regression to show that, when children are educated, siblings cause a decrease in the investment for any one child. This implies that having fewer children is associated with "higher quality" children in terms of education inputs. Causal factors may be tastes, money costs, or decreased opportunity costs.

Blake, Judith
1968 "Are babies consumer durables? A critique of the conomic theory of reproductive motivation." Population tudies 22:5-25.

A response to Gary Becker's seminal 1960 article on the economic treatment of fertility. Blake reviews Becker's data and opens them to question. She presents additional data showing a nonpositive relationship between income and fertility, contrary to Becker. Blake also critiques the economic

theory on the theoretical level. Discusses direct and indirect (opportunity) costs, with the latter considered a key variable that Becker did not consider earlier. Direct costs arguments are made relative to the quantity-quality argument.

1972a "Coercive pronatalism and American population policy." Pp. 81-109 in Robert Parke, Jr., and Charles F. Westoff (eds.), Aspects of Population Growth Policy. U. S. Commission on Population Growth and the American Future Research Reports, Vol. 6. Washington, D. C.: U. S. Government Printing Office.

This chapter is in the sixth volume of the Commission's report, a convincing argument that institutionalized sex role expectations are coercively pronatalist even though awareness of this consequence is very low. Americans are expected not to remain single, not to be childless, not to have only one or even two children. Through the primacy of parenthood and the definition of sex roles pronatalism is locked into the structure of American society and American personality. There is widespread opposition to threats to sex role expectations. Blake shows this by discussing the operation of these biases in the areas of women's labor force participation, women's education, feminism, and homosexuality. She further points out the reaffirmation of these biases in social sciences and the law and the effects of sex role imprint on the personality.

1972b "Fertility control and the problem of voluntarism." Pp. 279-88 in Scientists and World Affairs; Pugwash Conference on Science and World Affairs, 22nd, London, England, September 7-12, 1972; Proceedings. Population Reprint Series No. 442. London: Institute of International Studies.

Blake argues the utilities-cost of children framework applies to all societies, that is, "given the constraints and coercions concerning reproduction in any society, pursuit of these reproductive goals is as 'rational' or 'calculated' in one society as in another." What is frequently not taken into consideration is that the adjustment to lower mortality is not spontaneous but is made through the institutional structure of the society, particularly family and kinship. Further, she argues, it is not necessary to change the institutional prescriptions of the society through industrialization. The utilities-cost balance in France changed as adjustment

to changing mobility and stratification situations.

Bongaarts, John
1977 "A dynamic model of the reproductive process." Population Studies 31:59-73.

The model depicts intermediate fertility variables which include duration of postpartum amenorrhea, fecundability, incidence of abortion, contraceptive use, age at marriage, risk of marital disruption. An elaboration of the Davis-Blake Model.

Boulier, Bryan L.
1976 "Children and household economic activity in Laguna, Philippines." Institute of Economic Development and Research, University of the Philippines, Paper No. 76-19. Rizal: University of the Philippines.

Uses data from a survey of Philippine families to measure children's economic activity, both household and market production. Reviews the effect of children on parental time-allocation. Regression results from the model show that additional children are correlated with an increased amount of work by the father and more child-care (less income-earning activities) by the mother, particularly true for young children. On the value-of-children side, children were found to earn a substantive income and do a great deal of household and child-care production at a later age. The data used are comprehensive and disaggregated well.

Bryant, Barbara Everitt
1977 "American women today and tomorrow." Washington, D. C.: National Commission on the International Women's Year.

Bryant finds the women's movement has had a significant impact in expanding the outlook and changing the attitudes of American women.

According to this survey, American women perceived their roles as either traditional, balancing, or expanding. The traditional outlook shared by women over 50, views homemaking as a primary goal. The expanding outlook shared by women under 35, regards women on an equal basis with men. The balancing outlook, held by women in their 40s or of black or Spanish-American heritage, combines the two views.

Bryant, Ellen Skoog
1966 "Fertility: its theoretical aspects and empiric relationship to socioeconomic status in Mississippi counties, 1960." Master's thesis, Mississippi State University.

A restatement of demographic transition theory.

Bulatao, Rodolfo A.
1975 The Value of Children: A Cross-National Study. Vol. 2, The Philippines. Honolulu: East-West Population Institute.

A presentation and analysis of the data gathered in an original survey of households. Values and disvalues were sought and categorized. Economic disvalues (costs) were mentioned as prominent disincentives to fertility. The economic value of children in old age was the most important economic incentive to having children. Data were analyzed in many different ways. As predictors of family size desired, none of the value variables were consistently significant at high levels, suggesting no easy policy intervention. The conclusion compares Philippine data to those of the other countries in the study.

Findings are very detailed. They indicate that (1) The values most tied to number preference are those involved with social interaction. (2) Economic costs and benefits are important, the former for urban and the latter among rural groups. (3) The differential effect of values on family planning is slight. (4) Differential effects on desires and preferences are variable.

This report introduces the idea of each value having three characteristics: salience determined by frequency of response; centrality determined by respondent designating its importance; and differential effect of ability to highlight contrasts between groups.

Bulatao, Rodolfo A. and Fred S. Arnold
1977 "Relationships between the value and costs of children and fertility: cross-cultural evidence." Pp. 141-56 in International Union for the Scientific Study of Population, International Population Conference Mexico 1977. Vol. 1. Leige, Belgium: IUSSP.

Analyzes data from Value of Children study for Korean, U. S., and Philippine families. Relative to completed or desired family size, money costs were consistently a key factor in limiting further births. Opportunity costs were found to be only important in the U. S. Economic value did not seem to be an important motivation for increased fertility in any of the three countries. The results generally suggest the household economic model of fertility has some value but needs to consider psychosocial value as well as interaction effects such as the desire for siblings for children.

Bumgarner, Norma Jane
1971 "Can a woman afford to give up motherhood?" Child and Family 10:308-313.

Develops some ideas about the value of children which are experienced through the motherhood role. Cautions against advice which encourages young women casually and superficially to give up becoming a mother. Such decisions may not be reversible after a certain age is passed. Parenthood is seen as a process for growth and maturity.

Buripakdi, Chalio
1977 The Value of Children: A Cross-National Study. Vol. 4, Thailand. Honolulu: East-West Population Institute.

The report from this nation, part of the larger cross-national study, is based on interviews with 180 couples evenly divided among urban-middle, urban-lower, and rural subgroups. This study, like the others, is exploratory and nonrepresentative. Data were collected with 165 standardized core questions and 11 specific questions sensitive to Thailand culture and locality. Includes highly detailed tabulations of findings based on the same general types of analysis, a summary of findings, and policy recommendations. Major findings include: (1) The most important advantages for having children are companionship, economic and general help, and continuity of family name. For urban-middle, companionship, and for rural economic help were most important. Continuity of name most frequently mentioned by rurals. (2) Disadvantages for having children most frequently mentioned were financial cost, rearing difficulties, and physical work. Again economic factors were strongest for rurals, who expressed both the strongest positive and the strongest negative motivations.

(3) There was a strong preference for sons. (4) In general, size desires were related to having a family large enough for economic benefits and security, but not so large as to exceed the cost limits of raising and educating it. (5) Family size and family planning variables seem to be sizeably influenced by socioeconomic background and socio-psychological factors. However, desired and ideal family size had significant correlations with background variables in only a few cases. (6) Most of the VOC dimensions correlated rather well with background variables but weakly with fertility variables. (7) Regression analysis showed that the VOC measures added substantial explanatory power to the prediction of family size after the socio-demographic factors had been considered.

Butz, William P.
1972 "Puzzles in the demographic and economic behavior of rural southeast Asians: an economist's view." Rand Corporation Paper P-4903. Santa Monica: Rand Corporation.

A look at five seemingly contradictory puzzles in the economic-demographic relationship in Southeast Asia. Relative to child costs and benefits, why are five- to six-child families prevalent? This is argued to be the optimal number for economic maximization and when one child leaves and migrates elsewhere (which is increasingly common), another is born.

Butz, William P. and Julie DaVanzo
1978 "Digest of 'contracepting, breastfeeding and birth-spacing in Malaysia: a model of decision making subject to economic and biological constraints.'" International Family Planning Perspectives and Digest 4(3):95.

More women have "given up breastfeeding than have adopted contraception, and that has led to shorter closed birth intervals." This trend has consequences for both the health and survival of children and mothers and for fertility rates. However, overall, there has been a decline of fertility rates in Malaysia.

Cain, Glen George
1972 "The effect of income maintenance laws on fertility in the United States." Pp. 323-73 in Robert Parke, Jr., and Charles F. Westoff, (eds.), Aspects of Population

Growth Policy. Vol. 6 of U. S. Commission on Population Growth and the American Future Research Reports. Washington, D. C.: U. S. Government Printing Office.

Cain attempts to estimate the fertility effects of an income maintenance program, such as family assistance plans, in the U. S. A priori assumptions about the effects are made and tested using tabular data on the proposed programs. The conclusions are that direct costs of children will be reduced by almost 50 percent with the payments and that the effect of more income will lower the opportunity costs of the wife's not working. According to the model used, this would result in a 15 percent increase in fertility for families receiving payments, not enough to rule out such programs on fertility grounds.

Cain, Glenn George and Adriana Weininger
1973 "Economic determinants of fertility: results from cross-sectional aggregate data." Demography 10:205-23

Uses the economic model of demand for children to analyze U. S. Census data for cities in 1940 and SMSAs in 1960 to test hypotheses. Results are a large and significant negative effect on fertility of wife's opportunity costs, and a slight positive effect of husband's income, consistent with the model. The authors point out some problems with the study, including unsatisfactory proxy variables and the use of cross-sectional data to infer changes over time.

Cain, Mead T.
1977 "The economic activities of children in a village in Bangladesh." Population and Development Review 3:201-27.

Cain explains a study of the economic value of children in farmwork and housework made in a typical agricultural village in Bangladesh. Data are presented on the hours put in by children in the various activities. Although no cost-of-children estimates are made, considering only caloric intake, males are net producers by age 12, compensate for their total consumption by age 15, and additionally compensate for a sister's total consumption by age 22. Other cost figures are not analyzed, as food is the most salient, and opportunity costs are neglible. Economic contributions to parental old age are not considered. In sum, Cain shows

that high fertility is rational, particularly for sons.

Caldwell, John C.
1967 "Fertility attitudes in three economically contrasting rural regions of Ghana." Economic Development and Cultural Change 15:217-38.

Caldwell's purpose was to determine if high fertility were a rational, economic response. To test this, he gathered data from three contrasting regions (in terms of development) of Ghana in 1963. The data show that children are more valuable in rural, agricultural areas. Whether or not the children are net benefits in their growing years (that, is apart from old-age assistance to parents) is a function of the child's age and schooling and the local economy. Generally, only the older children, age 15-19, showed significant net benefits.

Caldwell, Edward
1975 Population growth and socioeconomic change in West Africa. New York: Columbia University Press.

A compilation of papers from a project supported by the Ford Foundation and assisted by the Population Council. Caldwell summarizes in his introduction material from the papers making up this book on whether or not children are too valuable an asset to allow for fertility decline. Children enter traditional farm labor force at ages 4-6, performing such labor as animal tending; carrying water, messages, and kindling; and looking after children. However, they are not efficient and there is no clear evidence they add to prosperity. But large families are prestigious in tree crop areas. Migratory labor restricts children's economic value and in towns children invariably go to school. Except in the most traditional farming areas, children are not an economic advantage. Africans are highly interested in educating their children and this is also changing the economic meaning of children. One factor that tends to mediate the felt strain of children is the feeling of obligation to a wide circle of relatives. Parents don't really save anything by restricting their fertility.

1977 "The economic rationality of high fertility: an investigation illustrated with Nigerian survey data." Population Studies 31:5-27.

Argues that previous studies of benefit-costs of children have been biased; by using Western concepts they have focused on nuclear families and have disregarded child-supplied services in the household. Using data gathered in Nigeria from 1973-75, Caldwell argues that there is sound economic rationality for large families based on cost-benefits and social obligations to extended families. Children not only contribute prior to their adult status but assist parents in their old age. The data presented from sample surveys are not highly quantitative.

Caldwell, Edward and Helen Ware
1977 "The evolution of family planning in an African city: Ibadan, Nigeria." Population studies 31:487-507.

Based on data drawn from a 1973 probability sample of 6,606 Yoruba women, 15-59, in Ibadan City which indicate that:

> Only 1/6th had ever used a method of birth control other than abstinence. However, the rate of increase since 1960 has been so rapid that projection of these rates would show close to total adoption before the end of the 1980's.

The diffusion of modern family planning has been mostly among the educated and in urban areas. However, use is largely a substitute measure for abstinence and is adopted not to limit the number but to space pregnancies. Most women using contraception want more children.

Carder, Michael
1974 "Bogus psychology." Concerned Demography 4(2):52-53.

In a review of two of Bogue's publications, Carder comments on his "Population Perspectives: Some Views from a Sociologist," (Population Dynamics Quarterly, Vol. 2, No. 2, 1974) and his use of psychological factors in explaining why people have not flocked to family planning clinics as predicted.

Bogue is reported as writing that psychological factors which might have impeded the spread of family planning knowledge were not as formidable as predicted. These were religious and moral opposition. Lack of use of the new services is explained by new psychological variables--malaise, fear, mistrust, misinformation, and disappointment. People were discouraged by experiencing illness from use of the contraceptives, and often experienced mistreatment and bureaucratic indifference. Carder questions whether these reasons are psychological or simply good reasons for not using.

Carder concludes: "Family planning programs operate on the assumption that attitudes toward childbearing and family size can be altered independently of the material basis for these attitudes. Recent research has confirmed what should have been obvious from the beginning--namely, that social and economic conditions for a sustained decline in fertility do not exist in most of the underdeveloped world. People are neither stupid nor ignorant as Bogue seems to believe. They will have fewer children if they see it in their interests to do so."

Choi, Chin Yan and K. C. Chan
1973 "The impact of industrialization on fertility in Hong Kong: a demographic, social and economic analysis." Hong Kong: Social Research Centre and The Chinese University of Hong Kong:

Concludes that the desire of women to become economically independent coupled with the rising costs of raising children have most likely led to increased use of contraceptives which has in turn undoubtedly depressed fertility. Critical costs of children are their education, commercial nurseries, and the basic necessities of life.

Chowdhury, Alauddin K. M., Atiqur Rhaman Khan, and Lincoln C. Chen
1976 "The effect of child mortality experience on subsequent fertility; in Pakistan and Bangladesh." Population Studies 30:249-61.

Using data from the Pakistan National Impact survey of 1968-69 (2,910 cases) and longitudinal vital registration data, 1966-70 in Bangladesh (5,236 cases) the study attempted to assess the importance of child-replacement motivation as a response to the death of a child.

By controlling for the effects of child loss on fecundity and effects of fertility on mortality through considering only those birth intervals in which the first born child survives to end of the interval, it was shown that there were few behavioral influences. However, elimination of infant mortality would reduce fertility 4 percent by prolonging postpartum sterility, but this would be counter-balanced by an overload increase of 7 percent in net reproduction due to better survival of infants.

Chung, Betty Jamie
1972 "Costs and benefits of children in Hong Kong: measurement in a pilot study." Pp. 210-30 in James T. Fawcett (ed.), The Satisfaction and Costs of Children. Honolulu: East-West Center.

A basic article on the preliminary findings in a survey made in Hong Kong. Economic costs and benefits are inferred from questionnaires which deal with perceived values by the parents. In the preliminary analysis, the expected relationships were shown, increasing costs imply less demand for children. Opportunity cost is particularly relevant in Hong Kong because almost 50 percent of the women are in the labor force.

Cicourel, Aaron V.
1974 "Two views of decision-making and some consequences for field studies of fertility." Pp. 15-26 in Aaron V. Cicourel (ed.) Theory and Method in a Study of Argentine Fertility. New York: Wiley-Interscience.

This chapter (and the whole book) presents an ethnomethodological approach to studying fertility. Basically critical of standard research and survey interview techniques, it points out that the prestructuring involved biased results, and the processes by which the individual interprets his environment, constructs his social reality, and makes decisions are missed. Cicourel reviews and criticizes Besher's decision-making model stating that the "process whereby choices are recognized by the actor as relevant and are negotiated is never explained."

Following Schutz, Cicourel says that "the actor makes sense of his environment by creating loose equivalence classes (as opposed to clear-cut true-false categories). The typifications in the actor's stock of knowledge

interact with emergent meanings from a setting to concretize what is likely or unlikely. When the actor concretizes an ambiguous defined scene, he creates a temporally bounded set by experiential fiat, thus achieving practical decision-making" (p. 23).

Thus, "the perception of means and objectives must be understood as a process that is relative to the actor's typified conceptions of practical adequacy. Whatever is 'rational' about administrative activities, law, statutes, household budgeting, or fertility behavior, always occurs in the context of everyday experience and typifications based on past conduct" (p. 23). "Family organization does not necessarily revolve around planning of children or their future, based on such factors as present and future expected income, husband-wife communication about family planning, knowledge about contraceptives, occupation, or rural or urban residence" (p. 26).

Clifford, William B., II
1971 "Modern and traditional value orientations and fertility behavior: a social demographic study." Demography 8:37-48

Tests the general hypotheses that the association between fertility and SES can be explained via the intervening variable of value orientation (modern traditional or intermediate as described by Kluckholm) with a survey of 275 women in Lexington, Ky., in 1968. Three specific hypotheses were tested. It was found high status wives prefer smaller families, and are more successful planners and that the modern value orientation was associated with low fertility.

However, all of the effects of status could not be explained by value orientation. In fact, SES, with value controlled explained more than value with SES controlled.

Other factors in SES besides value and other factors in value besides SES are related to fertility. A suggested hypothesis is that SES plus residential background produces value orientation and family structure. They in turn produce attitudes and behavior about fertility.

Clifford. William B., II and Thomas R. Ford
1974 "Variations in value orientation and fertility behavior." Social Biology 21:185-94.

Measured five dimensions of traditional, intermediate, and modern value orientation and compared them in fertility behaviors measured as number of children expected, proportion of live births unplanned, number of live births. The five dimensions were orientation to nature, time, human relations, activity and sex. Data are from a family formation and values project conducted at Lexington, Ky., in 1968 which surveyed resident, white, nonfarm females who had a legitimate birth in Fayette Co. in 1967--275 were interviewed.

For expected number of children, hypothesis held for nature and relations; for planning effectiveness, hypothesis held for nature, relations, and sex; for number of births, hypothesis not significant for nature, time, and relations--activity and sex are the reverse.

(Findings indicate value orientations are probably complex and as Clifford and Ford say, assumptions about activity and its relationships to higher SES may be incorrect. Evidence points to the striver being in the working class. Also, as they point out, a modern attitude toward sex seems to associate with better contraceptive use, but also with having more children.)

Cochrane, Susan Hill
1975 "Children as by-products, investment goods and consumer goods: a review of some micro-economic models of fertility." Population Studies 29:373-90.

Describes four models of fertility decision making which are translated into the common paradigm, indifference curve analysis. Two of these view children as a means to an end (a and b) and two as ends in themselves. In a, children are a by-product of sexual activity and of zero utility. In b, they are seen as investment goods. In c, they are consumption goods, and in d, the choice is between quantity and quality. Author admits that the models are abstractions from real world situations.

Collver, O. Andrew
1963 "The family cycle in India and the United States." American Sociological Review 28:86-96.

Not information on the value of children. Points out the importance of the extended family to survival. The mortality of widows, widowers, and orphans is higher than in the general public.

Concepcion, Mercedes B.
1974 "Female labour force participation and fertility." International Labour Review 109:503-17.

The author looks at survey data for various Asian countries, including Japan, Indonesia, Malaysia, Philippines, Thailand, and Hong Kong in the 1960s. These data show that holding female labor force participation (FLFP) constant, the urban-rural distinction is a more salient factor in fertility behavior. Only in the urbanized areas of the developing countries is a negative relationship between FLFP and fertility shown. It is speculated that this is true because in agriculture, both FLFP and child-care can occur.

Cook, Michael J. and Boonlert Leoprapai
1977 "Labor force participation, village characteristics and modernism and their influence on fertility among rural Thai women." Bangkok: Institute for Population Research, Mahidol University.

An attempt to measure the important factors in Thai fertility behavior. Thailand is particularly interesting because of the very high rate of female labor force participation. Uses data from the 1970 Thai Census. Multiple regression analyses are made for many variables. The work experience of nonfarm female employment is one of the most significant variables associated with decreased fertility. Most women, however, still work in agricultural, family employment and thus have not experienced this decline through contact with urban modernism.

Coombs, Lolagene C. and Te-Hsiung Sun
1978 "Family composition preferences in a developing culture: the case of Taiwan, 1973." Population Studies 32:43-64.

The 1973 Taiwan DAP study of fertility among a sample of 5,588 wives under age 40, found underlying preferences at variance with single-valued statements

and more production of fertility, use of contraception, and fertility intentions. However, the preferred number is reportedly declining from 4.0 in 1965, to 3.2 in 1973 for those aged 22-39.

Study also shows existence of a strong sex bias for sons which has an impact on fertility behavior. However, size preference appears to dominate sex preference.

Cowgill, Donald O.
1963 "The theory of population growth cycles." American Journal of Sociology 55:163-70.

Cramer, James C.
1975 "The opportunity costs of children and expected family size in the United States, 1968-72." Pp. 223-47 in Population Association of America, Annual Meeting, Seattle, Wash., Apr. 17-19, 1975; Collected Papers. Vol. 2.

Cramer uses data from the 1968-72 Panel Study of Family Income Dynamics (U. S.) to study the relationship of opportunity costs of children to expected family size. He finds large variations in opportunity costs but husbands' wage rates and wives' education are not significantly related. Additionally, husband's income and opportunity cost are not correlated with expected family size. Cramer does not claim to have disproved the micro-economic theory of fertility, but suggests that the empirical burden of proof is on the micro theorists.

1979 "Employment trends of young mothers and the opportunity cost of babies in the United States." Demography 16:177-197.

Reports on a study that estimates opportunity costs with data from a panel study of income dynamics (conducted at the University of Michigan) by regressing wife's annual hours employed in 1971 on hours employed in 1977. For second and higher parity the estimate is 400 hours a year. Points out the complex problems in measuring this concept, and the necessary string of assumptions on which such estimates are based.

DaVanzo, Julie S.
1972 "The determinants of family formation in Chile, 1960: an econometric study of female labor force participation, marriage, and fertility decisions." Rand Corporation Report R-830-AID. Santa Monica: Rand Corporation.

Analyzes a model of the relationships of female labor force participation, marriage, and fertility in Chile. Data are from the 1960 Chilean Census of Population. For opportunity costs, female wage opportunities are inversely related to fertility behavior. Husband's income is positively correlated with increased fertility. The trade-off between educating a child or having the child work is discussed and the data show that the latter decision increases the demand for children, and, ultimately, fertility behavior.

Davis, Kingsley and Judith Blake
1956 "Social structure and fertility: an analytic framework." Economic Development and Cultural Change 4:211-35.

The classic analytical model for viewing the biological basis of fertility in terms of reducing reproductive rates. It diagrams the necessary intervening variables between social factors and birth, but these are not sufficient causes in explaining birth differentials. These are variables affecting exposure to intercourse, affecting exposure to conception, and affecting gestation and successful parturition.

However, the incidence of each and variations in incidence can often be explained by grosser social variables and thus detailed knowledge of the variables is not absolutely necessary to study fertility. The chief unknown is the characteristics of contraceptive users and of persons who voluntarily destroy a fetus.

DeJong, Gordon F. and R. R. Sell
1977 "Changes in childlessness in the United States: a demographic path analysis." Population Studies 31:129-41.

Using data from the 1/100 POS a path analysis model is developed which explained (R^2 = .57) a major portion of the variation in the change in the proportion of childless white ever married women 1960-70 (age 18-40). Exogenous variables are changes in percent of central city residents, percent in labor force, mean educational attainment, percent students; endogenous variables are change in mean age at first marriage and percent disrupted marriage. Thus, explanations are achieved on the basis of change in structural and institutional features. (Implies a trend toward a situation in which children have little or no value.)

Demeny, Paul
1972 "Economic approaches to the value of children: an overview." Pp. 17-26 in James T. Fawcett (ed.), The Satisfactions and Cost of Children. Honolulu: East-West Center

A brief justification of the economic model of fertility behavior which answers some common complaints relative to it. Demeny suggests the need for empirical research to solidify and modify the theory. Eva Mueller's discussion points out the relevant factors of income, tastes, and alternatives to child-bearing and how these factors can be integrated into the model.

Desai, Arvindrai N.
1974 "Motivation for fertility limitation in a rural-urban setting: a demographic profile." Journal of Family Welfare 21:40-49.

Both rural and urban Indian families are finding numerous children an economic drain, although children of both begin to earn their bread by age five, and add to family income by providing more labor during peak work periods in agriculture. Upper SES women desire and expect fewer children. However, there is needed parallel changes in the social, economic, psychological, moral, and cultural spheres to bring about the necessary motive changes to reduce fertility.

DeTray, Dennis N.
1972 "The interaction between parent investment in children and family size: an economic analysis." Rand Corporation Report R-1003-RF. Santa Monica: Rand Corporation.

Presents a mathematical model of the household decision process in the demand for children. Uses data from the 1960 U. S. Census to find regression coefficients for the hypothesized causal variables. The trade-off of numbers of children versus economic investment (via education) in fewer children is explicitly built into the model. Results are consistent with the model and show that female earnings (opportunity costs) are the most important determinant of family size. Racial fertility differences were shown to be small when income was controlled. Also, the regressions for child quality were significantly weaker than for numbers of children.

1973 "Child quality and the demand for children." Journal of Political Economy 81:70-95.

Presents a model of desired family size based on quantity and quality of children, as restrained by income. The model is explained and justified. Empirical data from the 1960 Census are used to find regression coefficients of the relevant variables. Female education is found to have a large negative effect on fertility outside of the effect upon female wage rates. It is also suggested that when economic variables are controlled, race plays no role in family size. Orley Ashenfelter's comments suggest both theoretical and empirical flaws in the paper which limit the applicability of conclusions.

Development Forum
n. d. "Children, the 'building blocks' of the community." Development Forum supplement: Children UNICEF pII.

Emphasizes the central role of children in a society and suggesting that focusing on providing a better life for them is likely to be an acceptable way to develop the community.

In fact, the drive to make life better for their children is perhaps the most powerful force for change in these communities . . . UNICEF learned quickly that children do not exist in a vacuum, to be helped in isolation from their surroundings. They are part of a family and community . . . If participation and involvement of the residents is a basic prerequisite for efforts to better the life of their community, UNICEF has found that nothing is more likely to get them involved than the feeling that their children will benefit from their efforts. In this very real sense, children themselves are the "building blocks" of human settlements, representing not only the motivation but also the channel by which a better future might be attained.

(Has implications for VOC and fertility and use of social policies and programs.)

Dow, Thomas E., Jr.
1978 "Digest of 'family planning policy for tropical Africa'." International Family Planning Perspectives and Digest 4(3):94-95.

Sub-Sahara Africans, according to Dow, who have always used lactation and sexual abstinence to space children and ensure their survival and protect the health of mother, have been reluctant to accept modern contraception offered by family

planning programs because the emphasis has been on concerns about population growth and development instead of building on the African's own concerns about family well-being. Recommends a shift in emphasis.

Easterlin, Richard Ainley
1969 "Towards a socioeconomic theory of fertility: survey of recent research on economic factors in American fertility." Pp. 127-56 in S. J. Behrman, Leslie Corsa, Jr., and Ronald Freedman (eds.), Fertility and Family Planning: A World View. Ann Arbor: University of Michigan Press.

A summary of the fertility models up to 1969 which tries to tie the economic and sociological aspects together. The author surveys the literature of post-World War II American fertility and emphasizes the importance of permanent relative income rather than cross-sectional income in analysis. The importance of opportunity costs for U. S. housewives is emphasized and the author calls for more research on the subject.

1973 "The economics and sociology of fertility: a synthesis." Philadelphia: Department of Economics, University of Pennsylvania.

A major theoretical statement of an integrated socioeconomic model of fertility. In Easterlin's view, economic and sociological factors determine parental demands for children, while their supply depends upon health and nutritional conditions that are a function of the stage of economic development. Easterlin describes how economic development leads to declining demands for children at the same time that the ability of parents to produce them rises markedly. Relatively little attention is paid to the role of the opportunity cost of children as a determinant of parental demands for them.

1975 "An economic framework for fertility analysis." Studies in Family Planning 6:54-63.

A basic article on the economic fertility model, and a condensation of Easterlin (1973). Demand and production sides are explained and analyzed relative to their effectiveness in describing empirical trends.

The author attempts to tie in sociological factors as well as economic. He concludes that fertility changes can occur independent of changing demand conditions due to noneconomic considerations of fertility. It is argued that this is particularly true in less developed countries where fertility control is limited.

Ermisch, J.
1979 "The relevance of the 'Easterlin hypothesis' and the 'new home economics' to fertility movements in Great Britain." Population Studies 33:39-57.

Ermisch explores the relevance of the Easterlin, the Oppenheimer variation of the Easterlin, and the "new home economics" models to the 1955 to 1975 fertility swings in Great Britain. Although the test and estimates of the parameters of the models were not definitive because of data deficiencies, it was concluded that the cause of fertility decline was associated with rising women's wages and employment opportunities which had a direct effect on opportunity costs. Thus, the "new home economics" and the Oppenheimer variant are supported and there is a prediction of continued low or declining fertility rates.

Esparza, Ricardo
1977 "The value of children among lower class Mexican, Mexican American and Anglo couples." PhD. dissertation, University of Michigan, Ann Arbor.

Using the Hoffman and Hoffman model, Esparza compares three cultural groups--Mexican Catholic, Mexican-American Catholic, Anglo Catholics--on the basis of data taken on 30 couples from each group from among those attending a community health clinic in Detroit.

Concludes that differences exist along ethnic/religious lines but that the major factor is a different ordering of similar values. Both cultural factors and social changes appear to be important influences in intended family size and sex preference.

Sample couples were a highly fecund group. Data were collected in 1975 and may have been biased by social conditions.

Children were valued under Hoffman and Hoffman categories for primary group ties, stimulation, expansion of self, and adult status and economic utility. Parents articulated a wide variety of disadvantages which were more pronounced as family size increased--especially costs, and emotional disadvantages. All respondents preferred sons.

Espenshade, Thomas J.

1972 "The price of children and socio-economic theories of fertility: a survey of alternative methods of estimating the parental cost of raising children." Population Studies 26:207-21.

A brief discussion of the socioeconomic fertility models. Critically reviews the methodology of historical attempts to measure the monetary costs of children. The attempts are categorized into relative measurement, measurement at a constant living standard, and those taking into account income and family size. These are discussed relative to their historical development and how they fit into current knowledge.

1973 The cost of children in urban United States. Population Monograph Series, No. 14. Berkeley: Institute of International Studies, University of California.

An estimate of costs of children in urban U. S. families. Reviews socioeconomic fertility literature and the author presents and justifies his method for measuring direct costs. He uses data from the 1960-61 Consumer Expenditure Survey. Results show a higher direct cost than previously estimated and a substantial difference in marginal cost of different numbers of children in a family. Espenshade suggests that high direct costs suggest policy applications at least as important as changing opportunity costs.

1975 "The impact of children on household savings: age effects versus family size." Population Studies 29:123-26.

Reexamines Kelley's analyses of an 1889 sample of 1,956 households data on income, expenditure, and savings and replicates with a study using 1960-61 Consumer Expenditure Survey data, and regression analysis.

He found that (1) Kelley's original finding that

savings increased with the second child and thereafter decreased could be altered with a different method of computation; (2) savings behavior in America may be more tied to ages of children than their number; and (3) the way children influence savings behavior is tied to the underlying level of economic development. The later data indicates that family size has no effect on household savings.

1976 "Compensating changes in fertility and mortality." Demography 13:357-68.

A methodological report which investigates use of Leslie matrices in studying compensating fertility and mortality changes which result is a relatively stable intrinsic rate of growth. Illustrated with data from Japan.

(While the idea of a compensation in the birth rate for decreases in infant mortality is important in looking at how VOC effects fertility, there are no particular guidelines here.)

1977 "The Value and Cost of Children." Population Bulletin. 32(1):3-47.

A comprehensive review of recent literature on the subject in both LDCs and DCs. It deals with conceptual and measurement problems, then looks at the relationship of measured costs and values to fertility. Conclusions are presented relative to population policies. Mueller's data are used to show that children are actually net costs even in LDCs, although they may not be perceived as such. Espenshade's and Turchi's data are reviewed relative to U. S. costs of child-rearing. The link to demand for children is reviewed and evidence presented that the economic incentives are more significant statistically than are psycho-social variables.

Fawcett, James T. (ed.)

1972 The Satisfactions and Costs of Children: Theories, Concepts, Methods. Honolulu: East-West Population Institute.

A collection of articles on economic, psychological, sociological, and anthropological costs and satisfaction of having children. An introduction is included as well as working papers on various topics of methodology, model validity, and case

studies or surveys. The particularly relevant articles are annotated elsewhere in this bibliography and include: "Economic Approaches to the Value of Children," by Paul Demeny; "Economic Value of Children in Agricultural Societies," by Moni Nag; "Economic Cost and Value of Children," by Eva Mueller; and "Costs and Benefits of Children in Hong Kong," by Betty Jamie Chung.

1976 "Cost and Value of Children: New Research Direction." Population Index 42:428.

Summary of a roundtable discussion at the 1976 Annual Meeting of the Population Association of America, Montreal. The substantial body of recent empirical research on this topic in Asia and the United States especially can be classed under the complementary perspectives of microeconomic, socio-demographic, social-structural, and social-psychological. Discussion was concerned with the similarities and differences between these perspectives, and attention was paid to the issue of decision making and definition of "rationality" with respect to fertility decisions. Future needs were described as needs (1) to integrate or interrelate the various theoretical/conceptual frameworks; (2) pay more attention to collecting original data at the household level for testing the theoretical approaches; and (3) new studies at the community level done within the social and cultural contexts and with consideration for such influences as intergenerational flows of wealth. The micro-economic perspective emphasizes household decisions in which income prices and tastes are major determinants of choice, with emphasis on human capital. The socio-demographic perspective emphasizes long-term change in social and economic circumstances that produce changes in value and cost of children and awareness of alternatives. The social-structural perspective involves norms, values, and opportunity structures as they affect VOC for various segments of the society (especially women). The social-psychological perspective emphasizes needs of individuals and alternative ways they are fulfilled.

1978 "The value and cost of the first child." Pp. 244-65 in Warren Miller and Lucile Newman (eds.), The First Child and Family Formation. Chapel Hill: Carolina Population Center, University of North Carolina at Chapel Hill.

Discusses economic, anthropological, and psychological

approaches to value of children. Data from the cross-cultural VOC project are used to discuss the relative importance of different kinds of costs and benefits of children, particularly the first child. In rural Asian areas, economic benefits, particularly in parental old age, are an important motivation to having the first child. In the U. S., the opportunity costs of a first child are found to be much more salient as a negative factor in fertility levels.

Fawcett, James T. and Fred S. Arnold
1973 "The value of children: theory and method." Representative Research in Social Psychology 4(1):23-35.

Points out that an approach other than the demographic is useful for studying fertility--namely the focus on the individual and his motivations. Reviews Hoffmans briefly giving their summary of five concepts useful for studying motives for having children: value of children, alternatives, costs, barriers, and facilitations. For the first concept, nine categories are given. Second, they preview and give results of pretests for their own cross-cultural study of the value of children, listing eight conceptual categories and their major dimensions. Likert items developed are not given.

Fawcett, James T., Fred S. Arnold, Rodolfo A. Bulatao, Chalio Buripakdi, Betty Jamie Chung, Toshio Iritani, Sung Jin Lee, and Tsong-Schien Wu
1974 "The Value of Children in Asia and the United States: Comparative Perspective." Paper No. 32. Honolulu: East-West Population Institute.

A shorter version of the first volume of the final set of reports presented at the IUSSP meetings. Re-emphasizes the cost, value, and satisfaction of children in both urban and rural settings. Out of this review of literature, the authors extract three themes which identify clusters of modern traits which seem relevant to fertility change: (1) subjective efficacy, (2) orientation toward time, and (3) openness to change. Three major settings affect the individual directly in societal modernization: school, city, and factory.

(This, of course has policy implications for societies attempting to reduce fertility.)

Fawcett, James T. and Marc H. Bornstein
1973 "Modernization, Individual Modernity, and Fertility." Pp. 106-31 in James T. Fawcett (ed.) Psychological Perspectives on Population. New York: Basic Books.

Modernization, usually described as "the movement of socioeconomic systems toward higher levels of development," as revealed by cross-national comparisons and by terms of a change in the modal personality. Assuming that fundamental reproductive motives are derived from social and economic conditions, then the links between the social system and individual behavior are important, particularly the intervening processes.

First reviews the more classic findings relating fertility to modernization then presents findings from two studies on individual modernity, those of the Harvard Project on Social and Cultural Aspects of Development, and of modernism in Brazil and Mexico by Khal. The major finding of the first was a "coherence of a modernity syndrome across cultures" and of the second of a "core of modernism." Seven characteristics were in the latter core--activism, low integration with relatives, preference for urban life, individualism, low community stratification, mass media participation, and low stratification of life chances. The former nine were similar: readiness for new experience, disposition to hold and awareness of opinions about a wide number of issues, time orientation to future and present, orientation toward planning and organizing, efficacy calculability, awareness of the dignity of others, faith in science and technology.

Social status was found to predict modernism better than geography. In both Brazil and Mexico social values were helpful in predicting ideal family size with SES and residence held constant, but correlation values were higher in Mexico than in Brazil where location was a better predictor of ideal family size. In the case of Mexico families are larger, and in Brazil smaller.

Findley, Sally Evans and Ann Orr
1978 Patterns of Urban-Rural Fertility Differentials in Developing Countries: A Suggested Framework. Washington, D. C.: General Electric-Tempo.

Discusses and analyzes the differential factors in urban and rural fertility behavior. Relative to

costs of children, educational costs, opportunity costs of the wife and of other consumption, and maintenance (food, clothing) costs are discussed briefly. Their role in fertility is analyzed as it has been shown in the literature and the opportunity cost relation is shown to be spurious in many cases. All economic benefits are analyzed from the literature with old-age support being the most important. Presents a case study of urban-rural difference in costs and benefits in the Philippines. Rural parents perceive a higher economic value from children but the actual difference in costs seems to be mainly a function of opportunity costs, not maintenance.

Freedman, Deborah S.
1975 "Consumption of modern goods and services and its relation to fertility." Journal of Development Studies 12:95-117.

An econometric analysis of 1967 survey data from Taiwan. Data support the hypothesis that increased consumption of modern goods is associated with declining fertility. On the micro-level this is because the parents seem to develop tastes for these products as opposed to spending further on children. Generally, the results suggest that rapid development favors other goods more than increased fertility behavior as income rises in Taiwan.

Freedman, I. R.
1978 "Digest of 'theories of fertility decline: a reappraisal' (forthcoming in Social Forces)." International Family Planning Perspectives and Digest 4(3):86-87.

Freedman notes that several Asian nations experienced declines in fertility in the absence of substantial industrialization. In some of these societies, health and life expectancy have been improved, education for both sexes has become more widely available, and governments have assumed some welfare responsibilities. Most LDCs today have benefits of modern transportation and mass communication technology. Even when governments do not use the media for dissemination of information about family planning, contact with the modern world seems to affect changes in fertility desires and values. Such Western items as bicycles, sewing machines, small pumping motors, radios, and television (occasionally) seem to stimulate an interest in change. People may perceive a possibility for a different kind of life when they have some actual validations in change apart from abstract ideas. This appears to be why mortality declines

actually precede fertility declines. Once people are motivated they must realize change is possible and acceptable. Freedman notes the rapid adoption of family planning technology in Taiwan which has affected all strata of the population, while the family retains many traditional forms and attitudes. He also notes that cultural factors are also important.

Freedman, Ronald and Lolagene Coombs
1966 "Economic considerations in family growth decisions." Population Studies 20:197-222.

Uses 1963 Detroit Area Survey data to test the effects of economic variables on fertility decisions. The concept of permanent income over the life-cycle is very important to the argument presented, as a causal variable. The data seem to show relationships between child investment and fertility, and a wife's out-of-home aspiration (work or other non-income bearing activities) and fertility. Both of these relationships were found to be negative.

1974 Cross-Cultural Comparisons: Data on Two Factors in Fertility Behavior. An occasional paper of the Population Council. New York: The Population Council.

A report of a project of the subcommittee on comparative fertility analysis of the International Union for the Scientific Study of Population. Purpose was to see if useful methodological and substantive findings could be obtained from studies in different countries not originally planned to yield comparative findings. Several fertility surveys carried out during the last decade were used to study two substantive issues--sex preferences and wanting no more children but not practicing contraception. Both problems and possibilities emerged.

On sex preference, the available data showed that countries could be placed in three broad groups. While differences were great between developed and LDCs, there were also differences among the latter. Further, "a consistent or marked preference for sons was not found in any of the developed countries, and it was found only in some of the developing countries." The countries with a clear preference for sons were Korea and Taiwan and to a lesser extent India. Those with some preference for sons on some criteria but not on others were Calcutta, East Malaysia, the Philippines, and Thailand. In the third group with no systematic indication of sex preference either in attitude statements or in behavior are Belgium, Great Britain, Hungary, and the United States.

On contraceptive use of those wanting no more children, in developing nations, this proportion is moderately large to very large and is much greater than in the developed world. This proportion increases with age in the LDCs. Variations by parity depends on the balance between two opposite forces: "(1) fewer younger women at any parity want no more children, but (2) among this smaller number a larger proportion practice contraception." In terms of education, discrepant behavior tends to decrease with education in every developing country considered. However, the proportions of wives over age 30 who say they want no more children is high in all educational strata and does not vary systematically with education.

The data on which these findings were based had problems in terms of lack of direct measurement and direct comparability.

Several suggestions are made for guiding future empiric work.

Frenkel, Izaslaw
1976 "Attitudes toward family size in some east European countries." Population Studies 30:35-57.

Reviews and summarizes findings on attitudes toward family size (and value of children) from a number of reports, mainly national reports and statistics on Czechoslovakia, Hungary, Poland, and republics of the U. S. S. R. National reports selectively cover years from 1956 through 1972.

Findings from the reviewed studies suggest that: "except in the Asian part of the USSR, most families in the EER tend to use their growing ability to plan their families to achieve one goal: to avoid having many children." This is especially characteristic of the women who are better educated, urban, employed, and especially employed in white collar jobs. The reason for this trend is apparently "the decreasing 'value' of children, both as an economic and spiritual asset." However, childlessness and one child preferences remain rare and the decreasing desire for children is not the only factor in explaining fertility rates. Increase in the knowledge and practice of birth control is another factor. Still there is considerable discrepancy between desired and actual fertility and this gap seems to be caused mainly by socioeconomic factors. Only in Hungary among the highest income and nationality groups has the downward trend in expected fertility been reversed. It appears

that the disappearance of the family's economic function and the increase of competitive goals makes a large number of children unnecessary and undesirable. This attitude seems to be spreading rapidly among the young, throughout the entire urban populations, and into the rural areas.

Friedl, Ernestine
1975 Women and Men: An Anthropologist's View. New York: Holt, Rinehart and Winston.

This is an anthropological study describing and typing (1) hunting and gathering and (2) horticultural societies, on the basis of their environmental base; technology; sex differentiation in division of labor and acquisition of power; and institutions based on these differences. Four patterns of sexual division of labor are described for the rangers: In the first, both sexes are mainly gatherers; in the second, hunting is a communal effort involving both sexes; the third assigns women to gathering and men to hunting; and fourth, the hunting by the men provides virtually all of the subsistence. Among horticulturalists, three types are reported based on patterns of cultivation. In the first, men clear and both men and women cultivate; in the second, men clear and women cultivate; and in the third the men both clear and cultivate. The status of women varied according to these divisions. In all societies, it was found that norms on family size and child care were arranged to conform to the other functions (productive work) the women fulfilled. Illustrative case studies are given.

Fuller, Gary A.
1973 "The diffusion of illegal abortion in Santiago de Chile: the use of a direction-bias model." East-West Population Institute Reprint No. 41. Honolulu: East-West Center.

After finding disappointing results from classic diffusion models and explaining only 15 percent of variance in the abortion pattern and with 22 socioeconomic indices and 5 measures of distance producing a PPM coefficient of no more than .23 even though the associations were statistically significant, Fuller observed that a graph of demand for abortions by monthly time periods produced a pattern which resembled a sine function with an amplitude of +2. Found he could explain a large proportion, with a coefficient of .87, of variation with a Gaussian "tunnel" of probabilities of least resistance. The street was

used as the tunnel. This is logical since the "foci for face-to-face interaction" in lower class neighborhood is the street.

(Could have relevance for diffusion of development possibilities.)

Fulop, Marcel
1977 "A survey of the literature on the economic theory of fertility behavior." The American Economist 21:5-13.

A discussion of the three main microeconomic models of fertility: the Chicago model, Leibenstein's model, and Easterlin's theories. The crux of the differences, according to Fulop, is in the role of opportunity costs. All of the models try to explain the seeming contradiction between rising income and declining fertility which does occur empirically.

Galal el Din, Mohamed El Awad
1977 "The economic value of children in rural Sudan." Pp. 617-32 in John Caldwell (ed.), The Persistence of High Fertility. Canberra: Australian National University.

Explains why families in Sudan desire to have as many children as possible. Their costs are practically neglible in money terms. Presumably this is also true of opportunity costs. The value of children in agriculture is large and the author speculates that boys are net producers early in their lives (early teens). No data are presented to justify this. Finally, it is asserted that children are also valuable in non-agricultural areas because of the tradition of financially supporting their parents in older age.

Gardner, Bruce
1973 "Economics of the size of North Carolina rural families." Journal of Political Economy 81:99-122.

A model is developed to explain fertility decline in rural areas. Two surveys of North Carolina rural areas are analyzed via regressions. The results are explained and interpreted relative to the model. The conclusions are that the wife's possible wage (opportunity cost) is negatively related to family size but that the effect of differing educational levels is hard to separate out. It also showed that farm families have more children than rural non-farm families, ceteris paribus. Glen Cain's comments point out that the data used in regression do not fit exactly into the model and that biased coefficients may have resulted.

Goldberg, David
1975 "Socioeconomic theory and differential fertility: the case of the LDCs." Social Forces 54:84-106.

Investigates the relationship between individual, social, and economic characteristics and fertility comparing sociological and microeconomic theoretical approaches. Illustrates the pertinent nature of the sociological approach with empirical research from Turkey and Mexico. The empiric data showed that the association between wife's education and the dependent variables could be explained by an intervening variable: Truncated Modernization Index. Points out need to study joint decision making. States that "education creates competitive roles for women and places men in a better position to 'accomodate' more children to the extent that they are not responsible for the direct costs involved in raising the children." Economists' use of husband's education as a surrogate for income and of wife's education as a measure of opportunity cost may be reasonable.

Goldstein, Sidney
1972 The influence of labour force participation and education on fertility in Thailand. Population Studies 26:419-36.

Report of a study based on a 1 percent sample tape of the 1960 Thailand Census. The nation's low mortality and high fertility levels places it among the fastest growing countries in the world; however, some segments of the population have lower rates of fertility.

In general it was found that in urban areas labor force participation by the wife was associated with lower fertility, but this was not true in rural areas where agricultural employment did not conflict with child rearing. Apparently it is the separation of work from home that makes the difference. Education was a factor in both urban and rural areas however.

1973 "Interrelations between migration and fertility in Thailand." Demography 10:225-242.

Using 1960 Census data for Thailand on place of birth and place of residence five years ago, it was concluded, despite deficiencies in the data, that

migration, whether as cause or effect, was associated with lower fertility.

Compared to nonmigrants in place of destination, migrants had lower fertility levels, and below levels of nonmigrants in the rural agricultural residence category. Fertility is also lower for those living in urban places as opposed to rural.

Fertility measures are based on census question about number of children ever born.

May have policy implications.

Griffith, Janet
1975 "Social pressures on family size intentions." Pp. 300-12 in Kenneth C. W. Kammeyer (ed.), Population Studies. Chicago: Rand-McNally.

The trend in family size expectations decreased from 1965 to 1973 but the general range from two to four persists as an ideal. The research reported here uses data from the July 1972 Opinion Research Corporation Caravan Survey on 311 ever-married men and 412 ever-married women 18-39.

Found women expected greater social pressures than men and that pressures are exerted to have no less than two children. Also, over half the respondents think five children is too many. There seems to be an absence of social pressures for avoiding a three- or four-child family.

Groat, H. Theodore
1975 "A social psychological approach to family formation." Pp. 46-59 in Kenneth C. W. Kammeyer (ed.) Population Studies. Chicago: Rand-McNally.

Asking why people have children implies rational decision making, and from this perspective children are the result of choices between "alternative combinations of costs and rewards." An alternative approach is to question the extent to which rational decision making applies, and to what extent is the decision process a joint activity.

This study examines fertility within the alienation framework which states that "ineffective family planning derives not so much from lack of knowledge or of access to methods as from social psychological

inaccessibility of 'knowledge,' generating dominance of emotional over rational elements in the decision-making process."

Using data from a random sample of 750 mothers in Toledo, Ohio, a substantial relationship between levels of alienation and fertility behavior was found. In this and other related research it was found that the more highly alienated tend to have higher levels of unplanned fertility regardless of age or parity and also higher rates of premarital pregnancy, and to marry at younger ages. Premarital pregnancy is surprisingly persistent in spite of widespread knowledge and availability of contraception.

Gronau, Reuben
1973 "The effect of children on the housewife's value of time." Journal of Political Economy 81:168-99.

Presents a model wherein the size of the family is taken as a given and the value of a wife's time is determined relative to this and other factors. The model is explained and data from the 1960 U. S. Census are used to find regression coefficients. The findings are that children under three years of age have a much greater effect on the wife's value of time than those older. Generally, a good model and study of correlations but the discussion is the reverse of our present focus, causally. Robert Hall's comments praise the study as superior to those which use market wage as an estimate of shadow price.

Guest, Iain
1978 "Children: winners and losers." Development Forum 6(7):12.

An overview of the international symposium in Athens in July 1978, on "The Child in the World of Tomorrow." While the overall focus is on the welfare of children in the changing world situation, it also points out the effect of high birth rates, which is burdening the extended family in the LDCs with overwhelming problems--especially since death rates have plummeted. Recommended is a rise in age of marriage, greater literacy, education for women, better health facilities, and a rise in income. These families need to be relieved of the constant burden of ill health and infant mortality and allowed the chance to limit the size of their families through choice.

Gustavus, Susan Orr
1975 "Fertility socialization research in the United States: a progress report." Paper No. 35. Honolulu: East-West Population Institute.

A review paper that summarizes findings from research on this topic. In general the research seems to show: (1) that the existence of a norm of family size has credence; (2) that there are reductions in family size preferences of young people as they grow older; (3) that factors that influence the socialization process in size preference include sex, race, religion, size of family or orientation, socioeconomic status, and career aspirations.

Harman, Alvin J.
1970 "Fertility and economic behavior of families in the Philippines." Rand Corporation Memorandum RM-6385-AID. Santa Monica: Rand Corporation.

Presents a model of family decision-making in the Philippines relative to fertility and tests it using 1968 National Demographic Survey data. It was found that the opportunity costs of children were salient factors in family size but mainly for younger children. Harman points out that policies geared to female labor force participation and other indirect effects on fertility behavior may be more effective than birth control emphasis.

Harrell-Bond, Barbara
1975 "Some influential attitudes about family limitation and the use of contraceptives among the professional group in Sierra Leone." Pp. 473-89 in John C. Caldwell (ed.) Population Growth and Socioeconomic Change in West Africa. New York: Columbia University Press.

Gives an overview of sex attitudes and value of children among elites in Sierra Leone. These people are still very much a part of the traditional extended family and are involved in the net of mutual obligations and social pressures at the same time they are being caught up in such rapid social change that prestige structures are inconsistent.

Fathering children is prestigious to males in the traditional systems. There is some tendency to shift to sex activity without offspring. The pressures to be sexually active are so strong as to make marital fidelity virtually impossible. Children

are still valued and to be childless is thought shameful. However, couples caught in the intense cross-fire of demands from kin added to the demands to become upwardly mobile and educate one's children are seeing a family of four, rather than an unlimited number, as an ideal.

Hashimoto, Masanori
1974 "Economics of postwar fertility in Japan: differentials and trends." Journal of Political Economy 82:170-99.

Seeks to analyze the import of economic variables in the fertility decline in Japan. Postwar time-series data show a correlation of fertility decline with increased contraceptive and abortion use. However, the author argues that these were partially caused by a rising opportunity cost of the female's time. This hypothesis is tested via regression of 1960 cross-sectional data and shown to be significantly correct, with female education used to measure opportunity cost. Gary Saxonhouse's comments point out some problems with the regression analysis.

Hawthorn, Geoffrey P., N. J. Busfield, and M. J. Paddon
1974 "Some factors affecting family size and spacing in recent English cohorts." Pp. 316-22 in H. B. Parry (ed.), Population and Its Problems: A Plain Man's Guide. Oxford, England: Clarendon Press.

States that the evidence shows that the decrease in the crude birth rates in England and Wales since 1964 are not consistent with hypotheses relating it to economic restraints, higher standards of leisure and consumption, a greater ambition, and better birth control. The point is made that the change at the individual level is very slight, in spite of the trend noted at the aggregate level.

Heer, David M.
1968 "Economic development and the fertility transition." Daedalus 97:447-62.

A discussion of the literature on the relationship of economic development and fertility. He postulates the relationship to be directly positive but indirectly, and in sum, negative because of the intervening effects including opportunity costs of having children. Presents and interprets data from various countries. Overall, a brief summary of the intervening variables between development and fertility behavior, in a nonrigorous manner.

Heitlinger, Alena
1976 "Pro-natalist population policies in Czechoslovakia." Population Studies 30:123-135.

In this nation where the sources of labor supply have been generally exhausted and where only immigration for COMECON countries is allowed, there has been concern over lack of population growth. As a result, policies have been aimed at increasing the birth rate. Specific efforts to raise the birth rate include:

1. Restrictions on a once very liberal abortion law (in 1969 abortions exceeded births).
2. Lengthened maternity leave
3. Increased family allowances and single grants given at childbirth
4. Maternity allowance (Monthly payment to mothers who wish to stay home until child is two). Time so spent counts towards the mother's retirement pension and seniority and job is held open for her.

Henderson, A.
1949-50 "The cost of children." Population Studies 3:130-50; 4: 267-98.

An early attempt to measure the cost of a child. The methodology is presented and justified and the data are gathered in order to use the model. The method used is the compensating income that would be necessary to maintain a constant standard of living when an additional child is added to the family. Manipulations of the data and exclusions of government assistance take up much of the article.

Hill, Althea
1975 "The fertility of the Asian community of East Africa." Population Studies 29:344-72.

Persons of Indian, Pakistani, or Goan origin in Kenya and Uganda were studied from census data going back to 1931 and from other enumerations. Calculated fertility indices indicated sharp declines during the 1950's and 1960's. Analysis indicates that declines result from both changes in marriage patterns and fertility declines.

Speculating on the cause of changes in marriage, Hill suggests that increased age at marriage might be attributed to equalization of the sex ratio or, more likely, as part of a process of increased prosperity and westernization which results in daughters being allowed to get training and job experience rather than being kept home and married

off. She also speculates that political uncertainty may have given an extra impetus to the restriction of reproduction.

Hill, Reuben, J. Mayone Stycos, and Kutr W. Back
1959 The Family and Population Control. New Haven, Conn.: College and University Press.

Reports on a Puerto Rican Experiment in Social Change which treats population control as a phenomenon of family planning, and constructs a model of conditions for family planning which includes values and family structure.

Hoffman, Lois Wladis
1975 "The value of children to parents and the decrease in family size." American Philosophical Society Proceedings 119:430-38.

Criticizes current thinking that the U. S. is progressing to a situation of zero population growth and decreased desire for children, since this thinking is based on extrapolation, and although, given the modern contraceptive technology, unwanted births will probably decline, it is not known why the desired number of children is down or that it will stay down. It may be that temporary impediments are the cause.

Gives some first results from a cross-national U. S. study, still underway at time of writing, based on a sample of 1,569 women and 456 of their husbands, which tests her previously developed nine value categories. (See below) Most important of the nine for women were primary group ties and stimulation and fun (66.2 percent and 60.1 percent). Next was expansion of self (35.2 percent). Power was low (2.2 percent) possibly because this value is not easily elicited. Women and men gave very similar responses.

The most important disadvantages for women were loss of freedom and financial costs (52.9 and 39.39 percent). Third was traditional worries (19.8 percent). Responses were very similar for men.

Financial matters were the chief reasons for not wanting more children for all parties. Overpopulation was fairly significant for families of two for women and up to three for men (9.1 to 18.8 percent).

Author concludes that children have not ceased to be valued in the U. S. and that family size may be being

held in check by financial matters. In case of change, desired number of children may also change.

Hoffman, Lois W. and Martin L. Hoffman
1973 "The value of children to parents." in James W. Fawcett (ed.), Psychological Perspective on Population. New York: Basic Books.

A fruitful overview, synthesis, and abstraction from the literature spanning the period from the Indianapolis study to the early 70's. A section on methodological issues considers the problems of conceptualization and measurement, pointing out strengths and weakness in major fertility studies, and concludes by outlining a theoretical framework developed by Hoffman and Wyatt earlier which overcomes the problems pointed out in the literature review. This theory proposes four levels: (1) social conditions, (2) personality factors, (3) value or meaning of children (partly the result of interaction between 1 and 2), and (4) fertility plans. The need for complex research designs and their possible contribution to policy making is stressed.

The theoretical section gives a description of the classes of values of children developed from the literature. These values are (1) anchored in particular psychological needs, (2) tied to the social structure and influenced by it, and (3) subject to cultural variations.

The value scheme includes nine categories: (1) adult status and social identity; (2) expansion of the self; (3) morality; (4) primary group ties; (5) fun, stimulation, novelty; (6) activity accomplishment, competence; (7) power, influence, effectance; (8) social competition; (9) economic utility.

The theoretical model which incorporates these values includes four other classes of variables: (1) alternative sources of value; (2) costs; (3) barriers; and (4) facilitators.

Holds up the need to consider group differences, differential access to alternatives, and variations in application of value to different numbers and parity of children. These differences affect the way a policy will affect fertility.

Hohm, Charles Frederick
1975 "Social security and fertility: an international perspective." Demography 12:629-44.

An analysis of social security programs and fertility in 67 countries. A model is developed wherein increased social security coverage and benefits should cause (or be related to) subsequent fertility declines, due to the intermediate mechanism of a decline in the potential value of children as old-age supporters. Uses 1960 data for SS programs and 1965 fertility data. A multiple regression is run, controlled for economic development variables, and Hohm finds the effect of SS on fertility to be as important as traditional explanations such as infant mortality, education, and income.

Holsinger, Donald B. and John D. Kasarda
1976 "Education and human fertility: sociological perspectives." in Ronald Ridker (ed.), Population and Development: The Search for Selective Interventions. Baltimore, Maryland: Johns Hopkins University Press.

A useful survey of the paths through which educational attainment may have an impact on human fertility. The authors present a sociological model of the interactions between various education variables and reproductive behavior and survey the literature on this important link. This is an important reference for anyone interested in a comprehensive introduction to education-fertility interrelationships.

Hout, Michael
1976 "The determinants of marital fertility in the United States, 1960-70." Ph.D. dissertation, Indiana University.

Analyzes the economic models of fertility and modifies them to include sociological factors. The determinants are analyzed by regression relative to U. S. data from the 1960 and 1970 Public Use Sample. The expected results are shown for opportunity costs and for increased income beyond the second parity. Many other factors are studied and broken down. The conclusions are that a socioeconomic model is necessary to have predictive validity and that more specific fertility data are needed to test subsequent hypotheses.

Illsley, Raymond
1974 "Fertility control and individual behavior." in H. B. Parry (ed.) Population and Its Problems: A Plain Man's Guide. Oxford: Clarendon Press.

Using data from fertility studies in Aberdeen, Scotland during the period 1951 to 1964 to substantiate his logic, Illsley argues that fertility cannot be projected from retrospective data and that "large-scale theory drawn from classical demography cannot be applied to our own present needs without...supplementation." Suggests a need to study decision-making processes; development of normative expectations; and effects of power, status, and ambivalence in institutionalized attitudes as they impinge on fertility behavior. Cites Hawthorne's amplified version of Deusenberry's dictum that "Economics is all about how people make choices. Sociology is about why they don't have choices to make." The Aberdeen data showed that the mean preferred family size was the same as the mean achieved family size, but that on the bases of matches for individuals, a correlation of only .43 was obtained. The mean achieved size included under-achievers, achievers, and over-achievers. The first of these represented scaled down preferences. The last did not represent scaled-up preferences.

International Union for the Scientific Study of Population, Committee on Economics and Demography.

1976 "Household Models of Economic-Demographic Decision-Making." IUSSP Paper No. 8. Liege, Belgium: International Union for the Scientific Study of Population.

A report on a seminar held in Mexico City, November 4-6,1976. It gives a succinct abstract of the conceptual framework, empiric results, identified problems, the controversy over the value of children topic, a summary of conclusions, and a summary of each of 16 papers. Authors include Christine Oppong, John C. Caldwell, Olanrewaju J. Fapohunda, Richard A. Easterlin, Ali Khan, Ismail Sirageldin, Dennie DeTray, Cigdem Kagitcibasi, William Butz, Terence H. Hull, Moni Nag, Robert Creighton Peet, Benjamin N. F. White, Yoram Ben-Porath, Dov Chernichovsky, Nwanganga G. Shields, Oey Astra Meesook, T. Paul Schultz, and Carlos A. Benito.

The VOC discussion underlines the problem of the implied measurement of work performed in situations where market relations are absent and where the existence of the extended family also makes it difficult to measure the contribution of the child and to the child. The difference between economists and anthropologists regarding the definition of productive work is also pointed out. The reproductive strategy in societies where children are valuable may be maximum reproduction.

The conclusion summary states that "in terms of their impact on fertility the relative importance of economic, social and biological factors has yet to be determined." Nor is it "clear which factors operate at the individual level and which at the social." Further, the identification of the decision-making unit and the interpretation of family income are concrete problems.

Jaccard, James J. and Andrew R. Davidson
1976 "The relation of psychological, social, and economic variables to fertility-related decision." Demography 13:329-38.

Noting that psychological and social-psychological variables add little to the explanation of fertility over the contribution of sociological and economic variables, the authors state that despite their statistically explanatory value, these types of variables do not explain the differences which occur.

The study uses Fishbein's model which states: "a person's intention to perform a behavior (e.g., have a child during the next two years) is determined by (a) her beliefs about the consequences of performing the behavior and the value of these consequences for the individual, and (b) her beliefs about what relevant others think she should do and her motivation to comply with those others." Authors explore religious and economic differentials in three fertility-related intentions (two-child family, child next two years, use of birth control pills) with a sample of 270 women in a Midwest city. Respondents were married, Caucasian, and between ages of 18 and 38.

The only sociological variable which showed a difference was religion and then only for having a two-child family.

Catholic women intended to have more children in their completed families and perceived more normative pressure from husbands, close friends, and religion (but not parents). They also perceived the consequences of having a two-child family as less favorable, that they could afford and give adequate time to more, but did not feel favorable toward helping the population problem, and thought having only two children selfish.

The authors feel they furthered the explanation of why a difference by religion was found. Seven of ten beliefs about consequences were statistically significant and four of ten of evaluations were.

Jaffee, Frederick S.
1972 "Family planning services in the United States." Pp. 199-248 in Robert Parke, Jr., and Charles F. Westoff (eds.), Aspects of Population Growth Policy. Vol. 6 of U.S. Commission on Population Growth and the American Future Research Reports. Washington, D.C.: U.S. Governmental Printing Office.

Presents data from the National Fertility Survey on the desired family sizes of Americans which shows that in 1970 from 13 to 33 percent of American women reported never using contraception, depending on the era in which they married, their race, and poverty level. Also desired family size for the total population was 2.7. The highest subgroup, those below 150 percent of poverty, nonwhite, and married before 1966 wanted 4.0. These sizes were inferred. Also included ia a general overview of family planning history and operation in the United States.

Kasarda, John Dale
1971 "Economic structure and fertility: a comparative analysis." Demography 8:307-17.

Kasarda analyzes data from 50 nations with respect to a model of fertility correlates. The model proposed is that high use of children in household production will be positively related to fertility and high female labor force participation will be negative. The data bear both of these points out significantly. Kasarda theorizes that this is due to different economic structures, along a development continum, in which household-oriented production structures will necessarily favor more children than commercial-industrial societies.

Keeley, Michael C.
1976 Population, Public Policy, and Economic Development. New York: Praeger.

The "Review and Evaluation of the Literature by Anne D. Williams discusses the economic model of fertility from pages 119-59. The studies regarding determinants of fertility are well-documented and the general results of the research are noted. For child-costs the convergence of data supporting the negative relation between fertility and wife's labor opportunities, and the positive relation between child-labor and fertility, are noted. Other determinants are also discussed and relate tangentially to costs of children. Overall, a good summary of the model and the data to support it.

Khoo, Srew-Ean and Chai Bin Park
1978 "The effect of family planning programs on fertility decline in four Asian countries." International Family Planning Perspectives and Digest 4(3):67-73.

Korea, Singapore, Taiwan, and Thailand recorded declines in age-specific fertility rates for all categories except age 20-24 in Thailand. Some of this reduction results from postponement of marriage and some from reduction of marital fertility rates. The former occurs chiefly in the ages below 30 in Korea, Singapore, and Taiwan. Effect of programs appears to vary from 30 percent in Taiwan to 60 percent in Singapore. The age group most affected are those between 25 and 39. Periods covered varied some by country: Korea 1963-73; Singapore 1966-75; Taiwan 1964-75; Thailand 1968-75. Estimated effects give only a gross order of magnitude and measure only direct effects.

Kirk, Dudley
1966 "Factors affecting Moslem natality." Pp. 561-79 in Family Planning and Population Programs: A Review of World Developments. Chicago: University of Chicago Press.

Summarizes the available statistics on fertility in the various parts of the Moslem world and concludes that Moslem natality is universally high, shows no significant variations over time, and as a rule is higher than fertility among neighboring peoples. "Empirically Islam has been more effective a barrier to the diffusion of family planning than Catholicism." However, this effect is more the result of Islamic attitudes and family life practices than of political or religious doctrine. The Moslem marriage institutions, its emphasis on sexuality, and the subordination of women are pronatalist in effect. Islam also incorporates the pronatalist forces that generally exist in peasant and pastoral societies and which place high values on children. These include high infant death rates; the need seen for sons to continue family line and land ownership, provide agricultural labor, build up numbers to aid family in village rivalry and strife; old age support; and religious intervention after death. Also, costs of children to parents are reduced by the assistance from the joint family members.

Kiseleva, Galina P.
1977 "The impact on demographic behaviour of historic changes in the forms of family organization and the social status of women." Pp. 517-27 in International Union for the Scientific Study of Population, International Population Conference Mexico 1977. Liege, Belgium: International Union for the Scientific Study of Population.

An historical overview of social, economic, and family changes in their impact on demographic behavior. Changes in the desired family size are noted and survey data collected in 1970 show that women are not willing to give up their activities in paid employment to become full-time homemakers. Their need for children can be met often by "an only child in the family."

Kiser, Clyde V. and Pascae K. Whelpton
1958 "Social and psychological factors affecting fertility: XXXIII. summary of chief findings and implications for future studies." Milbank Memorial Fund Quarterly 36: 282-329.

A summary of findings from the Indianapolis Fertility Study.

Knodel, John and Visid Prachuabmoh
1973 "Desired family size in Thailand: are the responses meaningful?" Demography 10:619-37.

Reports on an empiric test of the reliability of responses to questions seeking to determine ideal family size. Parker Mauldin (1965) and Philip Houser (1967, p. 404) have critized data collected on this question and suggest that the reliability may be even less in LDCs and illiterate populations. An effort to get some indication of the validity of the concept was made by comparing responses on number of living children, desire for additional children and use of birth control with statements on family size preference. In 1969 and 1970 data were gathered in the first rural phase of the Longitudinal Study of Social, Economic, and Demographic Change in Thailand. It was assumed that women who had achieved or exceeded the stated number desired would be more likely to say they wished no additional children and would be more likely to be practicing birth control. Results support the hypothesis (see Table 6, p. 634). A rural-urban differential can also be noted.

Knodel, John and Nibhon Debavalya
1978 "Thailand's reproductive revolution." International Family Planning Perspectives and Digest 4:34-49.

"Thailand's reproductive revolution is preceding widespread development. Although Thailand is primarily rural, fertility has declined by about 20

percent and contraceptive use has risen by about 150 percent in the last six years. The traditional urban-rural fertility gap is closing. A strong national family planning program has had substantial impact. Furthermore, knowledge of contraceptive practices is now close to universal among married women and the preferred number of children is declining" (p. 34).

The report summarizes four conclusions which are presented as hypotheses rather than established fact. These are:

1. "The spread of family limitation practices can precede and influence declines in preferred family size" (p. 47). The process apparently begins by the adoption by a minority of couples of birth control without a change in the number of children desired. Then as a realization of the possibility to control family size develops, knowledge and practice spread. Though there are no hard data to support the idea, it is probable that number of children desired began to decline with reduction in mortality and it has been indicated from surveys that prior to the onset of recent declines desired fertility was lower than actual fertility.

2. "The modernization of tastes and attitudes influencing fertility-related behavior may in some cases be linked only weakly to socioeconomic development" (p. 47). The expansion of communication via transportation networks (minibuses), transistor radios, etc., has reduced the isolation of villages and stimulated tastes, aspirations, and attitudes of people who are neither urban nor industrial. However, simultaneous SES changes undoubtedly reinforce the other changes.

3. "Cultural factors, including the status of women, may be important in facilitating or inhibiting the fertility decline to a large extent independently of the level of socioeconomic development" (p. 48). Buddhism in Thailand emphasizes individual responsibility. There are regional differences in fertility. The status of women is also a factor. Women are linked to the modern communication networks. Most contraceptive methods are female methods. Childrearing is mostly done by women.

4. "Deliberate intervention through organized family planning programs can have a substantial impact on facilitating the fertility transition in a receptive setting" (p. 48). The situation seems to have been one where actual fertility exceeded desired fertility, where awareness of the possibility of family limitation was just emerging, where women were linked to the broader networks of communication and transportation, and where there were no strong cultural proscriptions against birth control.

Kocher, James E.

1973 "Rural development, income distribution, and fertility decline." Occasional Paper of the Population Council. New York: Population Council.

See Chapter 4. The framework of development resulting in lowered fertility is discussed in terms of higher direct and opportunity costs of children as well as a lower perceived value. Cross-national data are presented in an aggregate sense which support the hypotheses. Kocher's contention is that a more equal income distribution results in lower fertility for a given level of development because more families feel the modernizing effect of increased costs and aspirations. He presents aggregate data to support this. He also points out the need for time-series data on specific projects.

1977 "Rural development and fertility change in North-Eastern Tanzania." Pp. 378-98 in Population Association of America Annual Meeting, St. Louis, Mo., Apr. 21-23, 1977; collected papers. Vol. 5.

An analysis of the effect of rural development upon fertility in four areas of Tanzania. An Easterlin supply and demand model of fertility behavior is used. Data from the 1973 National Demographic Survey of Tanzania are used in a multiple regression model to test for the significance of independent variables. Supply variables were significant but demand factors (although perhaps inaccurately approximated by proxies) were not. Kocher suggests that the effect of rural development on demand components has a longer lag-time relative to fertility which has not yet been shown to be significant. The areas showing the most development has more parents preferring small families. The conclusion is that supply variables are important in the short-run but demand variables are key in the long-run.

Kunstadter, Peter
1978 "Child mortality and maternal parity: some policy implications." International Family Planning Perspectives and Digest 4(3):75-85.

The article, which concludes that reduction of infant mortality will serve a humanitarian purpose but will have little effect on reducing fertility rates, is based on a review of existing research. It uses published tables from the World Fertility Survey on Fiji, Korea, Malaysia, Nepal, Pakistan, the Dominican Republic, and Thailand data from the 1970 Census of Thailand; and the 1973 National Demographic Survey of the Philippines.

The idea that when people perceive their children will live they will reduce their fertility rests on further assumptions concerning motivations and desires for having children, the value and cost of children, and availability of means to control reproduction.

Kupinsky, Stanley (ed.)
1977 The Fertility of Working Women: A Synthesis of International Research. New York: Praeger.

A broad study of the relationship between working women and fertility behavior. All of the articles were written for the book and, in sum, it has a wealth of data on the LFP of women. The areas looked at are Africa, South East Asia, China, India, Middle East, U.S., Western and Eastern Europe, Japan, and Latin America, with an article for each. The findings of the relationship between working women and fertility is consistently negative with the exception of Africa where familial child-care and normative expectations of high fertility are more prevalent. Many of the articles do not deal directly with economic costs of children but the opportunity costs concept is, of course, the basis for the book. If these costs are minimal, increased fertility may cause more female labor force participation because of the need to feed children.

Lamanna, Mary Ann
1977 "The value of children to natural and adoptive parents" Ph.D. dissertation, University of Notre Dame.

The study attempts to elaborate the values and costs components of Hoffman and Hoffman's theory of the

value of children, which include also concepts of alternatives, barriers, and facilitations. The data are from interviews with 200 parents--half biological and half adoptive in a medium-sized Midwestern city.

Concludes that children meet needs not easily replaceable by other relationships and activities, but that parents can have values of children which include destructive aspects. Biological fathers had high evaluation but were emotionally detached and oriented to expecting fulfillment of nonmature expectations. Adoptive fathers were intermediate between mothers and biological fathers. Biological mothers had high evaluation, were oriented toward intrinsic enjoyment and fun but less gratified and more sensitive to restrictions than adoptive mothers. Adoptive mothers derived more meaning and intrinsic enjoyment and fun in parenthood, but were high in tension.

Lee, Sang Joo
1974 "Selection 26--Korea." Pp. 294-301 in Henry P. David and Sung Jin Lee (eds.), Social and Psychological Aspects of Fertility in Asia. Choonchun, Korea: Korean Institute for Research in the Behavioral Sciences and Transnational Family Research Institute.

A discussion of recent and ongoing research in Korea, which includes a few major findings on family-related values and fertility. Chung, Palmore, Lee, and Lee (1972) state that a major finding is the suggestion that individual modernity factors that reflect socio-cultural changes are more significant in explaining fertility behavior than culture or situation-free basic personality factors. The strong preference for sons is the most serious psychosocial barrier to changing family size desires. Other studies have found that those who are young, better educated, and raised in an urban area have smaller family size preferences and about equal preferences for boys and girls.

Leibenstein, Harvey
1975 "The economic theory of fertility decline." Quarterly Journal of Economics 89:1-31.

A basic theoretical statement by a major scholar in the field. Leibenstein adopts a microeconomic model to explain the forces that lead to declining fertility as economic development proceeds. According to Leibenstein, economic development and structural transformation bring about a compression in

the income distribution that narrows the differences in income received by members of different status groups in society. This requires increasing expenditures on "status goods" by parents to maintain or improve positions in the status hierarchy. At the same time economic development leads to increased claims by children on material resources and parental time. This conflict between the increasing cost of children and the increased cost of improving or maintaining status leads to considerable pressure to reduce family size as a natural concomitant to economic development.

1977a "Beyond economic man: economics, politics and the population problem." Population and Development Review 3:183-99.

A discussion of traditional microeconomics and some of the flaws in the theory relative to motivations for various behaviors. Relative to population policy, it is argued that the "free-rider problem" of costs of children being borne by an extended family or governmental unit in LDCs and not the nuclear family may result in a nonoptimal fertility rate, which is too high. Policies, then, should aim at this problem.

1977b "The economic theory of fertility--survey, issues and considerations." In International Union for the Scientific Study of Population, International Population Conference Mexico 1977. Vol. 2, pp. 49-64. Liege, Belgium: IUSSP.

Focuses on the "fertility problem as it manifests itself in the process of economic development." Points out the variations in the patterns of fertility decline experienced by developed and developing nations and the unlikelihood of using present economic models to predict future declines. Lists the variables identified by socioeconomic theories of fertility. Gives an overview of the benefits and costs of children approach, summarizing the contribution in terms of three kinds of effect: (1) income, (2) effect, and (3) economic development structure. The several price effects suggested in the literature are: (1) higher social status, (2) desires to increase child quality, (3) increased value of time used for nurturing, and (4) status commitment expenditure.

Perhaps the most important is the last section which sketches out a suggested micro-theory which Leibenstein labels a "Selective Rationality Theory," compares to conventional micro-theory, and explains how it differs.

This model postulates individual decision units, inert areas, an effort factor, differential agent-principle interests, and the existence of some important interpersonal interactions. Starting with these postulates, it is possible to introduce more flexibility into the decision making process. A significant contribution seems to be the idea of inert areas or a section of activity which is strongly institutionalized and which will remain unchanged unless pressures to do so are extreme. This factor can be applied to changes in tastes and would apply to the Easterlin model. Felt costs vs. costs are also brought in and interpreted in terms of inert areas. Time vs. expenditure, for instance, may have a wider band of inertness than money costs. Commitment expenditures are also approached in terms of degree of inertness, particularly where status is involved. Rationality is thus looked at in terms of degrees, gross tuning, and fine tuning.

Lieberman, Samuel S.
1976 "An economic approach to differential demographic behavior in Turkey." Ph.D. dissertation, Harvard University.

A comprehensive analysis of the relationship of economic development and population changes in Turkey. Much of the paper does not relate directly to "costs of children." A microeconomic model of fertility, based on the household, is presented and used to run a regression equation using 1973 National Population Survey data. The conclusion is that the value of children as sources of family labor and income security is a significant variable in fertility behavior.

Lindert, Peter H.
1978 Fertility and Scarcity in America. Princeton, N.J.: Princeton University Press.

Lindert presents a case for increased fertility causing an increase in income equality using data from twentieth century trends in the U.S. The intervening explanation is that high fertility causes less expenditure on any one child, and reduces the individual's educational and thus income-earning

potential. To develop this argument a relative cost scale of children is developed based on various survey data. In all, this book has a great deal of methodological development and summarizes much of the prior work done on child costs.

Lloyd, Cynthia Brown
1974 "An economic analysis of the impact of government on fertility." Public Policy 22:489-512.

An analysis of the effects of government programs on fertility behavior in the developed nations. The direct and indirect costs of children are discussed and an analysis is made of the likely effect. Then, a regression model is used and the results for various subsidies show a small but significant pronatal effect. Data are from the United States and Europe. It is suggested that discrimination against women in the labor force is likely to have a positive effect upon fertility behavior.

Markle, Gerald E. and Sharon Pasco
1977 "Family limitation among the Old Order Amish." Population Studies 31:267-80.

Using linked demographic data from the Indiana Amish Directory and personal property tax records at 5, 15, and 25 years after marriage, fertility differences were found by occupation and wealth. Wealthier women had their first child sooner after marriage than did poor wives, had shorter birth intervals, and more children. Nonfarmers had fewer children than farmers. An unexpected finding was that recently fertility has increased among younger couples, in spite of worsening man/land ratios. Authors speculate that off-farm labor pays extremely well by Amish standards and that unless they spend it in nontraditional ways, they must save or consume it by having children. The option of putting their money into land and farm activities has diminished.

Conclusion is made that the data support Easterlin's and Davis' reasoning that fertility adjusts to the environment and with Coale's term "making conscious decisions which balance the advantages of having another child."

Marshall, John F.
1972 Culture and contraception: response determinants to a family planning program in a North Indian village. Honolulu, Hawaii: Ph.D. dissertation, University of Hawaii.

This anthropological study of a small (570 people) village in North India provides rich insights into the factors that make children valuable in a rural context.

Mason, Karen Oppenheim, Abraham S. David, Eva K. Gerstel, Quentin W. Lindsey, and Michael V.E. Rulison
1971 "Social and economic correlates of family fertility: a survey of the evidence." Research Triangle Institute Project SU-518.

This review presents a sociological model of fertility behavior. The variables included in the model are reviewed and discussed relative to the then-available literature on costs and values of children, and other factors in demand. In general it is shown that positive child value of labor leads to higher fertility although the linkage is weak. Opportunity costs are found to be negatively related to fertility in a strong manner, except when childrearing and working can occur simultaneously. The other variables discussed are largely sociological in nature.

Massey, Douglas S. and Lucky M. Tedrow
1976 "Economic development and fertility: a methodological re-evaluation." Population Studies 30:429-37.

Identifies serious questions regarding the validity of Heer's finding in his classic study* on the relationship between economic development and fertility. Points out the limitations of multiple regression analyses and partial correlation coefficients. Authors show that two of Heer's core variables are superfluous and that rather than having uncovered a network of direct and indirect relationships he has done no more than establish an association between "fertility and a broad factor reflecting societal modernization."

Maurer, Kenneth, Rosalinda Ratajczak and T. Paul Schultz
1973 "Marriage, fertility, and labor force participation of Thai women: an econometric study." Rand Corporation Report R-829-AID/RF. Santa Monica: Rand Corp.

An analysis of female labor force participation in Thailand was chosen because of the substantial level of labor force participation by women. Data are from the 1960 Census. A simultaneous equation

* D. Heer's "Economic Development and Fertility." Demography 3:423-444.

technique is used. It is shown that increased female wage opportunities are related to decreased fertility for all cohorts, except ages 25-29. The prediction is made that the 1970 Thai Census (when available) should show a decline in fertility.

Mazur, Dennis Peter

1975a "The influence of human fertility on the economic conditions of the rural population in Poland." Population Studies 29:423-38.

Based on data compiled during the December 1970 Census of Population and drawn from a 5 percent probability sample of every married woman up to age 70.

Purpose of the study was to demonstrate that economic status does change in response to changes in fertility. The hypotheses used infer that "declining fertility is not an antecendent to industrialization but its consequence, and the antecedent to the development of agricultural institutions." In the first case it is a dependent variable and in the second an independent one.

It was found that "when controlling for the influence of age at marriage and the duration of marriage, the average number of children born per woman among the farming population increased directly with the amount of privately owned agricultural land." Thus high fertility is seen as the "main determinant of economic status among Polish peasants whose sources of support derive primarily from farming." High fertility leads to increased numbers of animals, getting more land, and more intensive farming.

(Not stated, but differences in the value and cost of children are implied.)

1975b "Social and demographic determinants of abortion in Poland." Population Studies 29:21-36.

Study is based on 215,046 registered abortions in Poland in 1966, a year when abortion was openly sanctioned by law. It began informally as an investigation of the coincidence of abortions and suicides in Hungary. Using multiple and partial correlation analyses, it was found that "the evidence overwhelmingly points to what may be called the 'divorce-abortion symptom'" in which there appears

to be a reciprocal relationship between the two. It appears to be involved with a common factor-modernization.

McGreevey, William Paul
1974 The Policy Relevance of Recent Social Research on Fertility. Washington, D.C.: Interdisciplinary Communications Program, Smithsonian Institution.

This monograph looks at 18 determinants of fertility to see which are most important and policy manipulable. The literature is reviewed on costs and value of children, and the link to effects on fertility. It is suggested that this area is very important for policy research, and several current surveys are mentioned as potentially rich sources of data. The Population Impact Statement is discussed as an important component of future development decisions.

Meade, Robert D.
1971 "Assessment of personal motivation for child-bearing." Pp. 69-70 in Proceedings of a Conference on Psychological Measurement in the Study of Population Problems. Berkeley: University of California.

Discusses techniques of analysis and measurement giving a few findings gathered from use of projective techniques to determine motives for or against organized childbearing. Unmarried males gave as reasons, loss of personal freedom, economic drain, and fulfillment of ideals. Unwed females, on the other hand, gave love of children, happiness of family, loss of freedom. Importance was in the order given.

No information is given on the number or location of persons sampled.

Meier, Gitta
1966 "Research and action programs in human fertility control: a review of the literature." Social Work 11:40-55.

A short review of 25 references written from a social work prospective, namely the use of such material to spread family planning and reduce or interrupt the "vicious cycle of poverty."

Merrick, Thomas William
1978 "Fertility and land availablity in rural Brazil." Demography 15:321-36.

Relationship of this research to value of children is only indirect. However, there is an implied linkage.

The research reported is a partial replication of Easterlin's study which found that in the U.S. rural fertility in the late nineteenth century declined as land for starting new farms became more scarce. In Brazil it was found that literacy, child survival, and access to land were relatively more important than availability of land for explaining fertility differentials. However, land scarcity has an indirect effect through literacy and literacy has an indirect effect through child survival. Child survival has a direct effect.

Michel, Andree
1972 "Prediction of a theoretical model in family planning sociology." Pp. 195-204 in Marvin B. Sussman and Betty E. Cogswell (eds.), Cross-National Family Research. Leiden: E.J. Brill.

Tests and finds support for the Hill, Mayone, and Back paradigm that the higher the aspirations for children the greater the likelihood of contraceptive usage. Population studied was Algerians in Paris.

Miller, Warren B. and R. Kenneth Godwin
1977 Psyche and Demos; Individual Psychology and the Issues of Population. New York: Oxford University Press.

The authors, a psychiatrist and political scientist, approach the study of population from a problems, decision making, and government policy standpoint. Models are presented from both micro and macro positions from individual decision making to government policy.

Chapter 1 gives a general systems model which incorporates the individual, institutional, and aggregate level factors in decision making and adaptation. Each of these are further elaborated in chapters which follow. Chapter 6 elaborates types of government policy and in Chapter 7, potential population policy actions are discussed and classified by type.

Mincer, Jacob
1963 "Market prices, opportunity costs, and income effects." In Carl Christ (ed.), Measurement in Economics: Studies in Mathematical Economics and Econometrics in Memory

of Yehuda Grundfeld. Stanford, California: Stanford University Press.

A pioneering attempt to ascertain the impact of the time cost of children on fertility. Uses data from the 1950 Bureau of Labor Statistics Consumer Expenditure Survey in the United States.

Mincer, Jacob and Solomon Polachek
1974 "Family investments in human capital: earnings of women." Journal of Political Economy 82:76-108.

Discusses the factors influencing the potential earnings of married women (a crucial component of opportunity costs of having children). Data from the 1967 National Longitudinal Survey of Work Experience are used to test the model which is developed. The effect, not only of lost labor wages as an opportunity cost but also skill depreciation, is measured.

Muellbauer, John
1977 "Testing the Barten model of household composition effects and the cost of children." The Economic Journal 87:460-87.

A highly technical paper which attempts to test the Barton model relative to costs of children. The effect of children on demand for household commodities is examined. The data used to test the model are from the 1968-73 United Kingdom Family Expenditure Surveys. Among the conclusions is the fact that older children cost more than younger ones in terms of direct costs.

Mueller, Eva
1972a "Economic cost and value of children: conceptualization and measurement." Pp. 174-205 in James Fawcett (ed.), The Satisfaction and Cost of Children. Honolulu: East-West Center.

A good general article about the methodology used in a study done in Taiwan. The specific data are presented, but the emphasis is on the justifications for certain uses of different analytical methods. Geoffrey McNicoll's summary discusses some further methodological issues.

1972b "Economic motives for family limitation: a study conducted in Taiwan." Population Studies 26:383-403.

The article deals with fathers' perceived direct costs and old-age economic benefits of children. Data from 1969 show the salience of education as a child cost. An index methodology is presented and used for analysis. Cost sensitivity and child utility indices are then tested relative to fertility behavior and shown to be significant, with cost sensitivity more so. The conclusions show that cost-benefit calculations are becoming more salient in fertility decisions. The key factor in Taiwan is rising educational objectives, and thus, child costs.

1974 "The impact of agricultural change on demographic development in the Third World." Pp. 425-39 in International Union for the Scientific Study of Population, International Population Conference, Liege, Belgium, Aug. 27-Sept. 1, 1973. Vol 1. Liege, Belgium: IUSSP.

Mueller looks at the macro changes that occur in population due to large-scale agricultural advancement in Japan, Taiwan, and Punjab-India. Data from other studies are discussed, but no new data are presented. The central hypothesis is that rising aspirations for children are a result of an increase in farm income resulting from agricultural improvements. Thus, the cost of education for children increases, and the demand for modern goods (other than children) also increases. It is also argued that in the short-term fertility increases may occur because children become more valuable in providing financial assistance to parents.

1976 "The economic value of children to peasant agriculture." Pp. 98-153 in Ronald G. Ridker (ed.), Population and Development: The Search for Selective Interventions. Baltimore: Johns Hopkins University Press.

Summarizes data on consumption and production differential literature and presents a model for comparison. It is shown conclusively, using aggregate and life-cycle models, that the economic value of children is actually negative in peasant agriculture. This study, unlike many others, does not discount future values. Housework is not included in the value or cost assumption. Data from around the world are used, and the results seem very conclusive. The production/consumption differentials are presented very clearly. Policy ramifications suggest changing people's perceptions of economic value relative to the actual data.

Mueller, Eva and Richard Cohn
1977 "The relation of income to fertility decisions in Taiwan." Economic Development and Cultural Change 25:325-47.

This article analyzes data from the 1969 Taiwan Economic Correlates of Fertility Study. No significant relationship between income and fertility behavior was found despite various definitions of income. An attempt to explain why and to separate out various effects via a path analysis showed the importance of changing tastes for other "consumer goods." The conclusion is that demand for children does not seem to be affected by income in less developed countries. The authors then point out the salience of child-cost as a key economic variable in the demand for children.

Myrdal, Alva Reimer
1968 Nation and Family: The Swedish Experiment in Democratic Family and Population Policy. Cambridge: M.I.T. Press.

This is the first paperback edition of the original 1941 edition and contains a Foreword by Daniel P. Moynihan. The work is a detailed overview of the Swedish experiment in democratic family and population policy. While it covers the total spectrum of the family, all ages, and the problems of each, the sections on children show that, in spite of low fertility rates, Swedish policy is not antinatalist. Rather, it is very supportive of the rights, benefits, and potential development of all its children, whether legitimate or illegitimate. This supportiveness has not led to explosive population growth.

Nag, Moni
1972 "Economic value of children in agricultural societies: evaluation of existing knowledge and an anthropological approach." Pp. 58-93 in James Fawcett (ed.), The Satisfactions and Cost of Children. Honolulu: East-West Center.

A discussion of prior evidence is presented indicating the higher value of children in rural areas. Then, the proper use of methodologies regarding economic output and value measurement in agricultural areas is discussed. The unit of caloric energy is presented as a useful

tool for the measurement of economic activity. Peter Kunstadter's discussion and summary emphasizes the need to consider social factors in an economic model via examples and the need to look more closely at long-term values and not just activities of teenage children.

Nag, Moni, Robert Creighton Peet, and Benjamin N.F. White
1977a "Economic value of children in two peasant societies." Pp. 123-39 in International Union for the Scientific Study of Population, International Population Conference, Mexico 1977. Vol. 1. Liege, Belgium: IUSSP.

Presents findings of two studies on hours worked by children in a Javanese and a Nepalese village. The anthropological field investigations collected data regularly over periods of several months. Contrary to what Eva Mueller found, these studies indicate that there is a net economic gain from children in peasant economics, in addition to support in old age.

Children spent increasing amounts of time at work as they grew up; girls worked more hours than boys (possibly because of time spent at school by boys). This was true of both productive and nonproductive labor. Also, average work inputs are greater for large than for small families.

Nag, Moni, Benjamin N.F. White, and Robert Creighton Peet
1977b "An anthropological approach to the study of economic value of children in Java and Nepal." Population Council Center for Policy Studies. Working Paper No. 11. New York: Population Council.

This paper attempts to estimate the economic value of children in two nations. Contrary to Mueller's previous evidence, these findings show a slight positive value over costs and a definite contribution to family income by children prior to age 15. The data were gathered via interviews and observations of work input. The probable reason given for the finding of more childlabor in this study is a willingness to look at nonagricultural activities in these peasant areas, such as household maintenance. The value of old-age security is also analyzed, and the data show a significant value with many parents living with children.

Nagel, John S.
1978 "Mexico's population policy turnaround." Population Bulletin 33(5).

Mexico's government, formerly pronatalist, officially switched to a policy of encouraging smaller families in 1972, and with the unanimous passing of a revised General Law of Population by the Congress, in November 1973, began implementing an aggressive program to reduce population growth. Methods used include extension of family planning services, education through mass media which stresses responsible parenthood, awarding prizes for short plays and posters to publicize the campaign, and population and sex education in the public schools. There is evidence of success from various studies. Current plans are attempting to reach the critical rural population through new channels which go beyond the standard health service program, using in part existing outlets Agrarian Reform Field Agents, malaria education workers, schools, 4-H clubs, and town councils and training community workers and leaders in this field. Preliminary figures from the World Fertility Survey indicates 42 percent of all nonpregnant currently mated fecund Mexican women of childbearing ages are active users of contraception. Unofficial 1978 estimates puts the growth rate at 2.9 percent, down from 3.5. If the current goal of a 1 percent rate of growth by 2000 is to be achieved, average family size must be brought down from 6+ children in 1973-75 to 2 children by that date.

(While no reference to VOC is made, the vigorous program to reduce the birth rate through education and an abandonment of pronatalism is worth watching.)

The church, drug companies, international organizations, and Mexico's growing body of demographic institutions are playing a part. There may be a switch back to pronatalism by the church bishops.

Namboodiri, N. Drishnan
1972a "Integrative potential of a fertility model: an analytical test." Population Studies 26:465-85.

This article is a follow-up to the presentation of an economic framework (Namboodiri, 1972b). More specific analytical issues are taken up here. After discussing various sources of differential

fertility and how these are incorporated into the model, the author concludes that the fertility decision ultimately comes down to a constrained rational analysis of cost-benefits of children. It is apparent that in rural household economies the benefits of children are seen as far greater than those in urban economies.

1972b "Some observations on the economic framework for fertility analysis." Population Studies 26:185-206.

Namboodiri attempts to reintegrate important fertility determinants into the economic framework in order to make it more applicable. Becker's original assumptions are discussed, as are subsequent revisions and criticisms by Easterlin and Blake. The author develops a socioeconomic model which takes the relevant factors, including the costs of birth control, into account.

1972c "Some observations on the economic analysis of human fertility." Pp. 78-94 in Ishrat Z. Husain (ed.), Population Analysis and Studies. Bombay: Somaiya Publications.

Analyzes the development of the economic model of fertility and expands on it, presenting a modified formulation. The author argues that opportunity costs are very important in the model. The criticisms of "children as consumer durables" are addressed, and the result is a recommendation to integrate sociological factors into an economic demand model. A discussion of how to select dependent variables is also included.

Newland, Kathleen

1979 "Why women want children," Agenda 2(1):13-19. (Excerpted from Worldwatch paper #16. Women and Population Growth--Choice Beyond Childbearing, C. Worldwatch Institute, December 1977.)

Women who are not members of the working labor force receive a sense of purpose by having children. In order for people to understand this maternal desire, they must (1) look at conditions that motivate women to have children, and (2) evaluate women as a whole.

Niemi, Albert W., Jr.

1978 "The impact of children on female earnings." Journal of Comparative Family Studies 9:83-91.

Presents a methodology for measuring the opportunity costs of a wife's staying out of the labor force due to the presence of children at home. The model is applied to U.S. Census data. The results show significant costs presented in various combinations of number of children, time out of the work force, level of education, and the discount rate. Niemi concludes that for females with low educational attainment, it is economical to stay at home until the children are of school age. For highly educated women, it makes more economic sense to return to the labor force sooner and use day-care facilities.

Park, Chai Bin
1978 The Fourth Korean Child: The Effect of Son Preference on Subsequent Fertility. Reprint No. 87. Honolulu: East-West Center.

Using data obtained from the 1971 Korean Institute for Research in the Behavioral Sciences Survey of a national probability sample of married women of childbearing age, it was shown that third parity women varied their future fertility in terms of the sex composition and ordering by sex for the first three children. It is emphasized that the influence of sex composition did not become apparent until after family planning programs were started. This last factor is given as a possible explanation of the contradictory findings of other studies that find sex preference is not important enough to affect family size.

Peek, Peter
1975 "Female employment and fertility: a study based on Chilean data." International Labor Review 122:207-16.

Analyzes 1965 Chilean survey data to test whether increased FLFP causes lowered fertility. The data manipulations are not presented or justified in the article, only the results. These suggest a negative relation between FLFP and completed fertility <u>only</u> for modern nuclear households with small children. Otherwise the relationship was neglible or slightly positive (i.e., in traditional families more children led to more FLFP).

Peterson, William
1969 Population 2d. ed. London: Macmillan.

A general population textbook that deals in detail with the conditions of population during the demographic transition in the Western World and the population histories of other parts of the world.

Pirie, Peter
1976 "The demographic effects of local socioeconomic change on small populations: a Samoan example." Reprint No. 79. Honolulu: East-West Center.

A sequel to a 1956 study that recommended attacking the problems generated by migration at the village level. Since that time, the trends observed have had a dramatic expansion. Governments have attempted rural development with roads, schools, hospitals, water, and electricity. However, villagers seem to seek remedies from outside their system via immigration, urbanization, paid employment, and money from overseas.

Although cultural erosion may be distressing, productivity in agriculture of those areas suffering most from outmigration of youth has not necessarily suffered. There is a change from the village system to the traditional system of agricultural organization.

Poffenberger, Mark and Mary Furbuchen
1975 "Attitudes affecting family planning behavior among villagers in the Katmandu Valley of Nepal." The Journal of Family Welfare 22:3-14.

Most villagers had positive attitudes toward having a small family, feeling that the cost of raising a large family was too high and that filial piety was fading among the younger people and therefore one would be better off to raise a few children properly. There was still concern over child survival, but there was no evidence that parents saw economic benefits deriving from children. Saw rising costs of food, the need to educate children, take them to doctors and clinics and provide them with better food and clothing as the reasons for the prohibitive costs.

Poffenberger, Thomas
1975 "Fertility and family life in an Indian Village." Michigan Papers on South and Southeast Asia No. 10. Ann Arbor: University of Michigan Center for South and Southeast Asian Studies.

The study is based on data from Rajpur village in Gujarat State which was in part gathered as a census and in part as a sample study and included intensive family studies and a younger generation study.

Family systems with arranged marriage and patrilocal residence tended to result in very poor communication between husband and wife. Often it was not until the fifth child was born that communication was established. However, family limitation could begin before or without communication, largely through sterilization.

A wife's major function was to bear sons, and without them she had very low status. Sons were wanted to strengthen the family and caste group, for ritualistic reasons, and eventually for economic support. Women especially had very real personal economic reasons for wanting sons. By age 50 they were usually widows entirely dependent on sons for social and economic status. Daughters were considered an economic liability. The ideal was to have two sons surviving (which usually required the birth of four) and one daughter. A first daughter would usually be well cared for. Younger ones might be neglected.

Abortion was not unknown. Marital infidelity existed for both husbands and wives. References to fate or god as determining the number of children one had seems to have been rationalization rather than a cause of high fertility. It was not infrequent that older parents asked the research team how to stop having children. Parents were aware of the cost, the strain, and health problems of having many children.

Pohlman, Edward
1973 "Birth-planning incentives: psychological research." Pp. 450-67 in James T. Fawcett (ed.), Psychological Perspectives on Population. New York: Basic Books.

A general overview of incentives programs and research on such programs, giving pros and cons and some illustrative hypotheses.

Population Reference Bureau
1978 "World Population: Growth on the Decline." Interchange 7(2):1-2.

World growth trends since 1950.

Rainwater, Lee
1965 Family Design: Marital Sexuality, Family Size and Contraception. Chicago: Aldine.

The research is based on interviews with 409 individuals in Chicago, Cincinnati, and Oklahoma City, which were selected by a purposive sampling method organized around quotas for class and religion groupings. Its focus is to trace the influence of social class subcultures on family size preferences and on family limitation behavior and it is directed at advancing hypotheses about family size and limitation, while controlling for religion.

Social class is seen as exercising its influence primarily through two characteristics: (1) the conjugal role--organization, values, and practices and (2) the particular role concepts, values, and practices deemed appropriate for men and women. The first has to do with role segregation within the family and the second with nonfamilial role behaviors. They are seen as intervening variables which help explain why there are demographic differences between social class groups.

Reed, Ritchie H. and Susan McIntosh
1972 "Costs of children." Pp. 333-49 in Elliott R. Morss and Ritchie H. Reed (eds.), Economic Aspect of Population Change. Vol 2. Commission on Population Growth and the American Future Research Reports. Washington, D.C.: U.S. Government Printing Office.

An attempt to measure the money and opportunity costs of a child using 1960-61 U.S. Government Survey data. Estimates are made for various costs up to and including a college education, and the money costs are given both discounted and not (1971 dollars). Opportunity costs are estimated as years absent from the labor force. These are estimated for both part-time and full-time employment, and for the marginal opportunity costs of additional children.

Repetto, Robert G.
1976 "Direct economic costs and value of children." Pp. 77-97 in Ronald G. Ridker (ed.), Population and Development: The Search for Selective Interventions. Baltimore: Johns Hopkins University Press.

A good summary of the successes and failures of trying to manipulate fertility via changing costs and values. The key variables discussed are price inputs and value of child-labor in the market. The historical evidence presented suggests a positive correlation between value of labor and high fertility. Attitudinal evidence shows a weaker, long-run relationship. The direct costs found to be most important are food, clothing, and housing. It is pointed out that no evidence has shown a relationship between family-size taxes and fertility decline, although income effects are difficult to separate out. The main policy suggestion is incentives for primary schooling, to raise costs, and lower value.

Reyna, S.P.
1975 "Pronatalism and child labor; Chadian attitudes to birth control and family size." Pp. 582-91 in John C. Caldwell (ed.), Population Growth and Socioeconomic Change in West Africa. New York: Columbia University Press.

A preliminary report on the KAP project on attitudes toward family size and birth control projects which surveyed about 1,600 married women in the capital and selected rural areas of Chad in July-September, 1970. This report is based on 301 from the Capital and 155 from villages. On examining the labor requirements of one preindustrial population, Thi Barma, it concludes that children are "disjunctive" and that the existing pronatalism should not aspire toward as many children as possible but toward "enough" children.

Richards, Toni
1977 "Fertility decline in Germany: an econometric appraisal." Population Studies 31:537-53.

Using sophisticated analytical techniques, two versions of the Demographic Transition are tested on data from Germany. The method which simultaneously takes into account time series and cross-sectional effects is the analyses of error components technique applied to pooled series of cross-sections. The approach assumes that some variance can be explained by independent variables alone, some by secular trend, and some by cultural peculiarities of regions (cross-sectional).

Richards claims to show the need for sophisticated models. He has argued that the demographic transi-

tion must be explained by multivariate causes, and demonstrated that structural changes alone cannot explain changes in fertility over time. "Throughout the analysis and across the different conceptual and statistical models, we found industrialization to be a variable of overwhelming importance and consistent impact. We also found that infant mortality had a stable, strong effect on fertility throughout." Thirty percent of variance was explained by trend alone, 50 percent by independent variables, and together 70 percent.

Ridker, Ronald Gene (ed.)
1976 Population and Development: The Search for Selective Interventions. Baltimore: Johns Hopkins University Press.

Contains a number of important articles on economic costs and values of children. Ridker's introductory article explains the importance of these factors, as they are often the most manipulable in population policy.

Rindfuss, Ronald R.
1978 "Changing patterns of fertility in the South: a social-demographic examination." Social Forces 57:621-35.

Uses the total fertility rate to show the crossover in differential fertility for South and non-South which occurred about 1955 and has since characterized fertility experience of the regions.

Includes separate (if not as detailed) analyses by race, age, and education and indicates similar trends for these categories by region. Less increase in fertility during baby boom years and more decrease during postboom period.

Explains recent situation of lower fertility in the South by referring to data from the 1970 National Fertility Study which showed via multiple regression analyses that southerners want fewer children than nonsoutherners.

Ritchey, P. Neal
1975 "The effects of minority group status on fertility: a re-examination of concepts." Population Studies 29:249-57.

Using data from the PCS, 1970, on black and white wives and subdividing in subpopulations based on

level of racial inequality for residence, six linear regression equations were run. Minority status appears to have a significant independent influence on behavior to the extent that social distance and discrimination are associated with minority status.

Robinson, Warren Clayton
1973 "Benefits of fertility reduction." Studies in Family Planning 4:262-66.

A discussion of who pays for high fertility, and who benefits from its reduction. Three cases are used to illustrate the relative costs to the individual family and the rest of the society. In one there are transfer payments and in two there are essentially none. However, in all three cases, it is shown that in the long-run the cost of high fertility is shared by the whole population chiefly in the form of intersector flows of commodities and people. Were it not for the factor of migration, costs might be restricted to an isolated high-fertility group. In the long run, high fertility groups will begin to perceive net benefits from fertility reduction as they begin to enjoy the benefits of higher socioeconomic levels of living, including better health. It will not be felt where costs are low and positive benefits are perceived or where the low-fertility group feels isolated and does not make transfer payments to the high-fertility group.

1978 "Economic policy and population change in Thailand." World Development 6:1261-69.

Analysis of the effect of the government's rice premium (export fee) on fertility behavior which has kept prices low and stimulated investment in other projects. Economic development history is discussed, as are demographic trends. The analysis suggests that rural-urban migration increased the costs of children and decreased the benefits. Evidence from the Survey of Fertility in Thailand in 1975, and other surveys support this conclusion. The causal links are not shown empirically but seem to be plausible.

Rodgers, G.B.
1978 "Fertility and desired fertility: longitudinal evidence from Thailand." Population Studies 30:511-26.

Same households were interviewed in 1969 and 1972 for the Longitudinal Study of Social, Economic and Demographic change in Thailand by the Institute of Population Studies, Chulalongkorn University, Bangkok. There were about 600 usable records. An earlier paper, using the first wave of data found that "ideal family size" and "desired additional children" had some useful meaning. This report goes beyond the earlier analyses. Rodgers found that: the independent use of demand for children does not...significantly improve the explanatory power of a model relating fertility to socio-economic variables directly." Thus, the theoretical preference for a measure which separates demand for children from supply of children is not empirically supported. However, the "desire" variable has some empirical value: (1) short term predictive value; (2) relevance for contraceptive acceptance; and (3) potential for illuminating the nature of the decision-making process.

Rosen, Bernard C. and Alan B. Simmons
1971 "Industrialization, family and fertility: a structural-psychological analysis of the Brazilian case." Demography 8:49-69.

Uses data from a survey of 726 currently mated women with proven fertility residing in five Brazilian communities selected "to represent different points on a rural-urban-industrial continuum" in an attempt "to identify the linkages between macro-structural and psychological levels of analysis."

Introduces the research with a brief review of older studies on modernization and the demographic transition and stating these works suggest two general hypotheses: (1) that modern life produces motivational constraints on marriage and procreation; (2) that it produces changes in attitudes, values, and abilities that allow a better response to demands and pressures to modern life. It is the second which is the focus of this work.

It was found that industrialization was more closely related to reduced fertility than urbanization and that in industrialized communities there was more sharing by wives in decision making. Women in the rural communities worked in low-status, agricultural jobs, often on a part-time or seasonal

basis and thus, are less likely to come into contact with new social influences and values.

The study shows that the key factor in fertility change and the one linking industrialization to lowering of birth rate is the increasing exposure it gives women to different values and attitudes and their incorporation into family decision making. One of the new values is a desire for smaller families. However, how value of children changes is not explored.

Rosenweig, Mark Richard
1976 "Female work experience, employment status, and birth expectations: sequential decision-making in the Philippines." Demography 13:339-56.

Uses a sequential choice framework to analyze household data from 1973 Philippines National Demographic Survey on birth parity, accumulated market skills, current labor force participation, and birth expectations--the last two of which were dependent variables. Findings from regression analysis of this data indicate that: "Women of a given parity who have worked more in previous years appear to participate more fully in the labor market currently at every age but expect less additional births only in the later stages of their childbearing." Thus, a population policy of encouraging women to enter the labor market in a developing country would have a slight antinatalist impact, judging from the results of this study. Expresses the opinion that studies should take account of the increased investment in human capital as women acquire work experience, and consequently experience higher opportunity costs with the addition of more children.

1977 "The demand for children in farm households." Journal of Political Economy 85:123-46.

A model of farm family fertility in the U.S. is presented relative to the value of children. It is shown how this model differs from urban household models due to factors such as farm wage rates, technology, and nonfarm wage opportunities. U.S. data from 1939-60 are used to test the hypotheses. The results are consistent and suggest fertility declines in the farm sector resulting from reduction in the need for farm manpower, and thus children, as a result of technological progress. The

article suggests that more studies of this nature are crucial in finding differences in fertility behavior between LDCs and industrial nations.

Rosenzwerg, Mark and Robert Evenson
1977 "Fertility, schooling and the economic contribution of children in rural India." Econometrica 45:1065-79.

This is an econometric analysis using a simultaneous equations model to determine the relation of fertility to both schooling and work activities of children. District-level data from the 1961 Census of India are used. A model is presented and estimated. The results show a positive correlation between child labor-force activity and fertility; and negative correlations between FLFP and fertility and child-schooling and fertility (suggesting the salience of the quality-quantity trade-off when child value is decreased).

Ryder, Norman B.
1976 "Some sociological suggestions concerning the reduction of fertility in developing countries." Papers on the East-West Population Institute No. 37. Honolulu: East-West Center.

Sees change as systemic in character, and that fertility changes can be expected to have wise ramifications throughout many aspects of social life. "A sociological approach impels one to consider demographic change as embedded within the general rubric of societal transformation."

Judges modernization and fertility reduction to be gravely impeded by conservatism in two senses: (1) by those who have vested interests in the status quo, such as miliarists, property owners, employers, and the priesthood; (2) by studying the problem through the individual and prescribing cures "which may modify individual behavior but leave the encompassing social structure unchanged."

Suggests that it would be better if LDCs instituted "profound change in social values and social institutions," rather than to insist that "policy proposals should meet the tests of political feasibility and ethical acceptability."

Salaff, Janet W.
1972 "Institutionalized motivation for fertility limitation in China." Population Studies 26:233-62.

A report drawn from the literature and from data given by refugees from China in Hong Kong. Describes change from a situation when children were valued for economic utility, religious and ceremonial functions, and social and power opportunities (for women) to one where reforms in the marriage system, land tenure and organization, and religion reduced the productive and ceremonial utilities of children and turned them into an economic drain. Fertility behavior changed accordingly (contraceptive usage).

Salaff, Janet and Aline K. Wong
1978 "Are disincentives coercive? The view from Singapore." International Family Planning Perspectives and Digest 4(2):50-55.

In 1965, one year after gaining independence, this republic of 2.3 million people inaugerated its Family Planning and Population Board. Its population was growing at 2.3 percent a year. Dissatisfied with its progress, the government in 1969 liberalized its abortion law and set up a disincentive program. These disincentives consisted of: (1) increased accouchement fees, (2) restricted choice of schools for third children or higher, (3) withdrawal of two-month paid maternity leave for third parity for women holding civil service jobs or jobs in unionized enterprises, (4) withdrawal of priority in public housing for large families, and (5) no income tax allowance for fourth children or higher. The government that formulated these regulations is still in power. The population is now growing at a 1.3 percent a year rate. The pervasiveness of government in housing, medicine employment, etc., makes it easier to get compliance, but implementation is far from completely enforced. However, a survey of about 100 couples indicates that "because the government seems to have persuaded" the people "that development is possible only if population growth is slowed, and that they will prosper only if family size is cut, its disincentive program is not seen as coercive."

Coercive measures did not fare as well in India, perhaps because they exceeded limits. Overzealous officials were reported to have forced unwilling men to undergo vasectomies and even shooting at resisters. Said to have been one factor in toppling Indira Gandi's movement.

Sanderson, Warren C.
1976 "On two schools of the economics of fertility." Population and Development Review 2:469-77.

A brief summary of the similarities and differences in the two main economic models of fertility (Becker and Easterlin). The major point of disagreement is, and has been, the co-evolutionary factor which has caused an increase in income to be accompanied by a decline in fertility, when the opposite is expected to occur. The Becker model stresses child-cost as the key, in regard to "child-quality." Easterlin emphasizes taste formation so that parents desire more for their children, and spend it on fewer numbers of children.

Schultz, T. Paul
1974 "Fertility determinants: a theory, evidence, and an application to policy evaluation." Rand Corporation Report R-1016/RF-AID. Santa Monica: Rand Corp.

A comprehensive literature review of studies made about the economic theory of fertility demand in less developed countries. Schultz analyzes these data to gain more conclusive evidence on points which had been obscured in past theoretical discussions. A statistical model is presented, as is a method for testing the efficacy of Family Planning Programs. Data from Taiwan in the 1960s are then used as an example of the methodology. Of the data surveyed in the literature, women's wages were found to have the largest negative regression coefficients relative to fertility, for low income levels.

Schultz, Theodore William
1973 The value of children: an economic perspective." Journal of Political Economy 81:2-13.

A justification of the economic theory of fertility and a broad overview of its development. Schultz points out that little policy research or few implications can be drawn so far, as the problems are initially analytic. The recommendation is made for further development of the theory to be followed by empirical research and, finally, policy outcomes.

1974 "The high value of human time: population equilibrium." Journal of Political Economy 82:2-10.

This brief article is a summary of the research on opportunity costs of children and a general

discussion of the rising value of human time. The argument is that investments in human capital are more "profitable" than other investments and that this may continue to be the case. The last section of the article deals with the application of the household model of fertility to low-income countries.

Seiver, Daniel A.
1975 "Recent fertility in Mexico: measurement and interpretation." Population Studies 29:341-54.

Based on 1970 data, and using cross-section regressions, Seiver concludes that demographic transition theory does not have a good fit with Mexican data although income and sex ratio seem to have an effect in explaining fertility variations.

Shildkrout, Enid
1973 "The fostering of children in urban Ghana: problems of ethnographic analysis in a multi-cultural context. Urban Anthropology 2(1):48-73.

Documents the many types of child fostering in Kumasi, Ghana, from the viewpoint of transactions in parenthood. The practice which occurs between biological kin, fictive kin, and nonkin is said to be integrative.

Simmons, Alan Burtham
1974 "Ambivalence toward small families in rural Latin America." Social Biology 21:127-43.

In attempting "to analyze social definitions of 'large' and 'small' families in rural Latin America, a hypothetical model of the relationships between patterns of perceived advantages and disadvantages, diverse measures of family size preferences, and interest in learning about contraceptives" was developed.

Data are from CELADE survey in of 2,100-3,000 women aged 15-49 in Costa Rica, Colombia, Mexico, and Peru in 1968 and 1969 in rural and small urban places.

Chief benefit of a large family (9.5 to 11.4) was help from children. Chief disadvantage was costs followed by lack of care and educational support. A small family was perceived as ranging between 3.2 and 4 children.

Answers to the question, whether more children were desired, related to interest in contraception, concludes that: (1) ambivalence is common, much higher than in Asia; (2) the norms of best size (5) will produce rapid population growth; (3) sizeable minorities completely or partly favor families of 10-12; and (4) the awareness of implications of different size families is still latent and never discussed with husbands. Thus, asking about desire for more children elicited several attitudinal dimensions.

1977 "The VOC approach in population policies: new hope or false promise?" International Population Conference: Mexico 1: 157-180. Liege, Belgium: International Union for the Scientific Study of Population.

An overview and comparison of earlier efforts, pointing out their disappointing results in terms of application to policy. Includes a review, description, and evaluation of the VOC approach. Only a few early studies indicated possible effects of motives, etc., on fertility. Concludes that the VOC framework which incorporates economic, social, and emotional determinants is the most encompassing of all approaches. But there are unanswered questions--especially in societies with many vestiges of a traditional past. Includes suggested hypotheses for VOC and fertility in terms of, (1) identifying values children mediate, (2) social circumstances as determinants of childbearing motivation, (3) value of children and behavior, and (4) direct attempts to manipulate beliefs and values. The discussion focuses on the policy manipulations that the model could suggest. It is stated that many of these policies have socioeconomic development impacts beyond population planning. The context of the "value" question is in terms of psychosocial value as well as economic.

Simon, Julian Lincoln

1975 "The effect of foster-care payment levels on the number of foster children given homes." Social Service Review 49:405-11.

Simon attempts to judge the demand for foster children relative to the payment levels given. A regression model is developed and the results show that a 10 percent increase in payments is correlated with a 5-10 percent increase in foster-home availability. These results were true for both cross-sectional and time series data regressions. Depending on the differences in demand for adopted and "natural" children, this kind of methodology can be construed as being an alternate way of funding the demand for children based on their costs.

1977 The Economics of Population Growth. Princeton, NJ: Princeton University Press.

Part 2 of this book concerns the effects of economic variables on population, particularly income effects. The many complex studies of income and fertility are discussed and the apparent contradiction between cross-sectional and time-series data is explained. The cost of children does not really figure directly into Simon's analysis although he indicates that more research is needed in this area, particularly as to the own-price elasticity of demand for children. The short-run and long-run income effects studies are explained and policy implications are presented.

Smith, M. Brewster
1973 "A social-psychological view on fertility." Pp. 3-18 in James T. Fawcett (ed.), Psychological Perspectives on Population. New York: Basic Books.

In general, points out the contribution psychology can make to explaining fertility recommending decision making orientation as a point of departure. (Refers to Hill, Stycos and Back, 1959 study of Puerto Rico which found men wanting smaller families than women in spite of the cultural machismo tenet, p. 10).

Smith, Stanley K.
1978 "Determinants of female labor force participation and family size in less developed countries." Paper presented at Population Association of America, 1978.

Smith adds two new components to the socioeconomic theory of household fertility and the opportunity costs of children. Data from the 1971 Mexico City Metropolitan Area Survey are used, via a regression, to test the significance of these additions. The first result is that it is necessary to add a coefficient to account for labor force work and child-care occurring at the same time in LDCs. The effect of this is as expected--the less simultaneity, the less fertility. The second addition is extension of decision time-period beyond marriage so that the effect of excess fertility of female labor force participation can be seen. The effect is that more wives work in LDCs, in simultaneous-type jobs.

Snyder, Donald W.
1974 "Economic determinants of family size in West Africa." Demography 11:613-27.

Reports on a test of the economic theory of fertility in Sierra Leone with data on 717 predominantly urban households, with husband's education used as a proxy for income and wife's education as a proxy for the "price" of the child.

Generally found support for the theory: (1) there was a positive association between income and births and a negative one with price and births; (2) quality of child was positively related to number of births; (3) child mortality has a strong positive influence on number of births; (4) life-cycle variables were important--parents seem to crowd births into the early years of marriage; (5) wife's labor force participation was positive with number of children. However, a question is raised as to why the dependent variable is better explained among younger than among older cohorts.

1975 "Tribal affiliation and fertility: a note." Population Studies 29:151-54.

Using data from the 1966-68 Western Area Household Survey, conducted by the Sierra Leone Central Statistics Office on 717 households which excluded single person, childless couples, polygamous households, those with resident non-relatives and where wife was older than 49 years.

Using multiple regression analysis it was concluded that "inter-tribal fertility variation may be present but if so, its influence is greatly outweighed by the effects of age structure, economic factors and response to child mortality. This conclusion is based on a small sample, subject to selective migration and other sources of bias. Whether or not it can be extended to the country as a whole is a question to be resolved in future research."

1978 "Economic variables and the decision to have additional children: evidence from the survey of economic opportunity." The American Economist 22:12-16.

A regression analysis of the effect of certain variables on additional family size, based on 1967 data. The general conclusion is that the opportunity cost of the wife's not working and her education are separate variables and that the latter should not be used to estimate the former. The model used is introduced, explained, and justified. The results are compared to other studies. Another important finding was that the opportunity cost had a negative effect at all levels of education, but showed a positive (income over substitution) effect for additional births in white households.

Spengler, Joseph J.

1969 "Population problems: in search of a solution." Science 166(5 December):1234-38.

Reiterates the general arguments about too rapid population growth and the limits of the earth to produce, stating that growth will not cease until a general will to halt it is developed and becomes institutionalized and supported by sanctions, preferably automative economic sanctions. Steps to follow include: (1) setting clear-

cut targets; (2) introducing social security systems for the aged with penalities if families are too large; (3) providing incentives to parents not to exceed targets; (4) providing bonuses, etc.

Stinner, William F., and Paul Douglas Mader
1975 "Governmental policy and personal family planning approval in conflict settings: the case of the Muslim minority in the Southern Philippines." Population Studies 29:53-59.

It was found that Muslim women who correctly identified the government's position on family planning "exhibited substantially lower levels of personal approval than their counterparts in predominantly Muslim areas, or Muslims in the pluralistic setting who were not aware of the position." Tends to support the contention that while cultural pluralism fosters dissemination of information, the nature of culture contact and intergroup conflict can provoke personal opposition to government programs such as family planning. This finding has policy implications.

Stinson, Sara
1978 "Child growth, mortality and the adaptive value of children in rural Bolivia." Ph.D. dissertation, University of Michigan.

The study, conducted in the canton of Ancoraimes, Bolivia, at an altitude of 3,800-4,000 meters, included taking anthropometric measurements of 539 Aymara children aged 4-26 (379 males, 160 females). Stinson's aim was to determine the nutritional significance of the economic contribution of children to agricultural families; to describe the effects of attitude and SES on child growth; and to describe childhood mortality rates and the interrelationship of fertility and mortality.

SES was positively related to child growth. Farm children were smaller. Also younger children in large farm families were larger than those in small farm families. Apparently the economic contribution of the older children is used as the explanation of this difference. The same effect was not found for nonfarm families.

The study concludes with the hypothesis that high fertility is adaptive in this society because of the economic value of children to the agricultural family. Childhood mortality also seems to stimulate higher fertility. Women with high losses of children had significantly higher fertility.

Stone, Charles T.
1978 "The economic importance of the child." Development Forum 6(6):8.

Abridged summary of a larger survey by Robert Cassen raises the questions: (1) what are the economics of the family? (2) are parents aware of cost effectiveness of children?

The discount rate depends on alternative investments. Sometimes there are none. Fewer children might simply mean more consumption by parents and existing children. Children may, in fact, be a form of enforced savings. Children's potential earnings depend on sex and the nature of the family's economy (farm, laboring).

Whether or not children are a good investment, fertility will probably remain high in societies where the family is the only source of social and economic security. Mates are aware of this and this awareness may inhibit recourse to deliberate family limitations.

The child's point of view is that one is better off with fewer siblings but this may not count where parents are poor and uneducated. Patterns of high fertility are ancient and accompanied by high mortality rates.

Stycos, J. Mayone
1978 "Recent trends in Latin American fertility." Population Studies 32:407-25.

Presents evidence that while the fertility of women in the reproductive ages increased in Latin America between 1935 and 1959, since then it has stopped rising in nearly all countries and has fallen significantly in several. Outstanding or early decreases have occurred in Chile, Trinidad, Barbados, Costa Rica, and Puerto Rico. In Costa Rica the decline was preceded by increases in the percent of young couples where literacy rate was high and agriculture was declining. Also, after the national family planning program was introduced, fertility also tended to fall in regions comparatively low in literacy and agriculture change. Both culture and planning programs were apparently causal agents. The latter appears important in Colombia and Mexico also.

Sweetman, David
1978 "More time for the child." Development Forum 6(1):6.

Points out the need to improve the lot of the child in peasant Africa through improving the lot of and the work load of the mother. Women are often opponents of change. Women have suffered more from the regression of Third World economics than men. They need to restore their authority or assume responsibility for their own development, and by extension improve the lot of children.

Taylor, Carl. E., Jeanne S. Newman and Naridar U. Kelly
1976 "The child survival hypothesis." Population Studies 30:263-78.

Using time series data for local and national vital events, special in-depth studies, and from service statistics of family planning programs, the study investigates the child

survival hypothesis which states that improved child survival will contribute to increased family planning. The investigation resulted in five suggested clarifications for redefining the C-S hypothesis: (1) improved child survival is not a necessary precondition for fertility decline; (2) there is no one-to-one relationship between child loss and another birth, nor can it be shown that overcompensation for loss of a child occurs. Fertility motivation is complex; (3) the balance of multiple fertility causes changes with the developmental stage of the society. Its greatest impact is probably during periods of most rapid growth; (4) any effects will probably be indirect and subconscious--the latter possibly being derived from personal childhood experiences with death. The hypothesis may be adaptable to a manipulatable impact through education which will produce awareness of better survival by combining child care with programs to increase contraceptive use.

Terhune, Kenneth W. and Sol Kaufman
1973 "The family size utility function." Demography 10:599-618.

Investigates the broader range of family size preferences for four potential advantages, two of which are a clarification of the concepts "wanted" and "unwanted" children and a "better understanding of the connection between family size desires and motives for contraception."

Assumes desired family size is a fair predictor of fertility and develops the concept "family size utility function (FSUF) which is a net utility function, or the result of satisfactions and "tastes" as defined by Becker and Easterlin. Also, it represents preferences at a particular time and can be expressed as a curve spreading between outside ranges. The peakedness of the curve indicates the strength of commitment to one particular family size, and thus is an indication of motivation for commitment to family planning and contraceptive use. Several interview techniques are included and a method for using FSUF for predicting fertility. This may have later methodological relevance.

Terry, Geraldine Bryant
1975 "Rival explanations in the work-fertility relationship." Population Studies 29:191-205.

Using data from the Growth of American Families Survey, a regression analysis shows that (1) the work-fertility relationship is more complex than is commonly stated, and (2) it is not as significantly negative (if at all) when the influence of other characteristics have been removed. Thus, it sharply questions many theoretical propositions concerning the interrelationship between fertility and female employment.

The possibility that the current growth in population can be slowed down by policy actions which increase female employment appears less likely now, primarily because education, marriage duration, farm influence (both within and before marriage), and the timing of marriage in relation to parenthood appear to account for much of what has been observed as a negative relationship between work and fertility. In fact, controlling these characteristics completely eliminates the positive work-fertility relationship for blacks.

(Must note that this is a population that has already gone through the demographic transition. During the transition, this may still be a useful policy).

Tobin, Patricia Lysbeth
1976 "Conjugal role definitions, value of children and contraceptive practice." The Sociological Quarterly 17:314-22.

Data taken from 1970 interviews in Kentucky of 433 women between 15 and 45, married and with husband. It is part of a larger study on effectiveness of a family planning clinic.

Found that the VOC and reliable contraceptive use were related to the wife's definition of the conjugal role but that the impact of the role definition was a function of her education and the economic circumstances of the family. The greatest impact was in the best educated and the middle income groups when age and years married were controlled. The least effect was for middle education and lowest income groups. Thus the associations are complex. When four variables are cross-tabulated, it appears that the explanation of the failure of top income wives to show the strongest association between role definition and contraceptive use results from the fact that the association appears to develop only when high income women also have high education.

Tobin concludes that increased variation in conjugal role per se will have effects on family planning habits. Neither conjugal role, education, or income account for differences alone. Conjugal role differences is most effective among the best educated who tend to view children as less essential to marriage and start reliable contraceptive use sooner.

Tobin, Patricia Lysbeth, William B. Clifford, R. David Mustian, and A. Clark Davis
1974 "Value of children and fertility behavior in a tri-racial rural county." (Unpublished paper presented at the Annual Meeting of the Population Association of America).

After describing recent trends toward decreasing associations being found between the usual background factors (status, race, residence) and fertility, suggests the possibility of

using a VOC variable to account for differential fertility. The hypothesis--that the more an individual disregards the disadvantages of raising a large family and underscores the emotional benefits, the larger the desired and actual family size--is tested with tri-racial data from a North Carolina County. It was confirmed to a modest degree; more strongly with males than with females; and with Indians than with blacks or whites.

Topley, Marjorie
1972 "Some aspects of change in Hong Kong Chinese family life." Pp. 16-21 in Responsible Parenthood and Family Life Education: Proceedings of the Seminar, Western Pacific Region, International Planned Parenthood Federation, Hong Kong. Tokyo: Western Pacific Region, International Planned Parenthood Federation.

Includes references to problems experienced by poor mothers at work in the labor force, changing value of daughters, the anti-marriage movement, later marriage, the importance of the family and the elder sister.

Tsui, Amy Ong and Donald J. Bogue
1978 "Declining world fertility: trends, causes, implications." Population Bulletin 33(4).

Presents national population and fertility data 1968-75 which indicates that decreased growth rates cannot be accounted for by socioeconomic progress alone. Projections to 2000 indicate that (1) less than one-fifth of all nations will be in the explosive growth rate of 2.1 at that date; (2) most LDCs will be in a phase of fertility decline; and (3) many LDCs and the developed nations will be growing at or near replacement level. However these projections assume the continuation of certain conditions and are thus only a likely probability. In terms of policy, writers recommend that current family planning programs must be continued.

Turchi, Boone Alexander
1975a The Demand for Children: the Economics of Fertility in the United States, Cambridge, MA: Ballinger.

A socioeconomic model of fertility behavior. The model is explained and compared to other economic fertility models. Turchi estimates the money cost and opportunity costs of child-raising in the US using survey data from the Institute for Social Research, 1965 and 1970. Then, perceived income and costs proxies are presented to fit into the final demand model. The model is tested statistically and conclusions are drawn. The main problem seems to be the inadequacy of empirical proxies in the model for perceived costs and future income. Generally the book is a wealth of information on child costs and the socioeconomic fertility model in the United States.

1975b "Microeconomic theories of fertility: a critique." Social Forces 54:107-25.

Summarizes status of fertility research and the disappointing results achieved with use of social correlates of fertility. Indicates that microeconomic theory may have a real contribution to make in analyzing American fertility. Among American couples, it is generally argued, there is almost universal approval of and engagement in conscious fertility regulating behavior and a general sharing in a preference for families of moderate size. Cites Freedman, Ryder, and Westoff.

Consumer theory which assumes certain psychological characteristics of consumers argues that fertility decisions can be studied in the same framework as other decisions to expend resources to find utility satisfactions. However, Turchi points out, there are problems with this approach. The theories: ignore husband-wife interaction; pay little attention to possible social, demographic, and psychological determinants; do not adequately handle the child quantity vs. quality issue.

The theories do not consider that parents have or perceive a very narrow range of options regarding resources required to raise a child and that these are influenced by norms and peer pressures. There is need to account for different standards of childrearing.

Also ignored is the lack of match between preferences and ability to implement the family size desired. Problems of fecundity and contraceptive failure are involved.

The predictive value of microeconomic theories is not always good either. But, Turchi suggests new variables: preferences for children vs. other goods; time orientation of husband and wife; standards for childbearing; perceptions of resources available; perceptions of opportunity costs, psychic costs, economic costs, benefits of fertility control.

Other problems of these theories are: (1) using data collected by other persons for testing; (2) difficulty of getting objective measures of subjective assessments; (3) failure to allow for systematic differentials in time-orientation among social classes; (4) getting a good measurement of income; (5) question of a conscious choice on quality at time of fertility decision; (6) problem of measurement of the dependent variable; (7) change in preferences over time; (8) need for new statistical techniques: simultaneous equation context and logic analysis.

1977a "The monetary cost of a child: a methodology and new estimates." Chapel Hill, NC: Department of Economics, University of North Carolina at Chapel Hill.

A methodology for determining the monetary cost of a child. The advantages of this method over previous studies are introduced. The model itself is explained. Data from the 1961 Consumer Expenditure Survey are used to yield monetary estimates which are compared to those from other studies.

1977b "Comprehensive fertility policy, family planning programs and socioeconomic theories of fertility." Chapel Hill, NC: University of North Carolina at Chapel Hill.

An attempt to delineate an integrated socioeconomic model of fertility and family planning that pays particular attention to the potential role of public policy in fertility reduction programs. Beginning with a schematic view of a causal model of fertility, Turchi then attempts to pinpoint the effect of various policy interventions, both of fertility reduction policy and of development policy are generally. The paper ends with an agenda of policy-relevant research topics designed to further our understanding of how public policy does affect fertility and of how it may be modified to be even more effective.

Turchi, Boone A. and Gloria Kamenske
1978 "The financial impact of family size." Paper presented to American Public Health Association Meeting, 1978.

A brief and broad summary of current knowledge on opportunity and money costs of children in the U.S., and their relationship to family economic situations, Data from 1961 and 1972 Consumer Surveys are discussed in final form. The methodology is not emphasized in this work. Concludes that children are a significant expense and may eliminate much of the income gain made by families over time, and presents quantitative justification.

U.S. Bureau of the Census
1977 World Population: 1977--Recent Demographic Estimates for the Countries and Regions of the World. Washington, DC: U.S. Government Printing Office.

A detailed presentation of current demographic trends in the world by region, subregions, and countries.

Vaessen, Martin
1978 "World fertility survey: the current situation." International Family Planning Perspectives and Digest 4(3):73-74.

Reviews general status of the WFS giving a chart of participating nations and the stage of completeness of their survey. Currently participating are 35 developing and 17 developed nations; 14 developing countries are expected to participate in the future.

Vickery, Edward
1974 "Fertility determinants in West Africa: the case of Biriwa, Ghana. Triangle Park, NC: Research Triangle Institute.

Develops a model of fertility decision-making based on the supply and demand hypothesis and tests the model with Ghana survey data. The regression coefficients show no significant relations to direct costs or opportunity costs of children, probably because wives' work is not contradictory to childrearing, and schooling is free. Vickery argues that elasticity coefficients are more useful for policy than are betas, and these are presented. Additionally, the effect of a German development project in the area is discussed relative to fertility, although it turned out to be negligible.

Ware, Helen
1976 "Fertility and work-force participation: the experience of Melbourne wives." Population Studies 30:413-27.

The data for the study are drawn from a probability sample of 2,652 once-married wives under the age of 60 currently living with their husbands in metropolitan Melbourne in 1971. It investigates the frequently observed negative relationship between female employment and fertility, cited by Judith Blake as one of the most persistent and strongest associations identified over time and space by population studies. Ware's initial assumption is that "discussions of the direction of the causal relationship involved have generally been forced into a simplistic framework by the limited nature of the available data." Her overall conclusion is that "in the majority of cases, fertility influences work-force participation rather than the converse."

1977 "Economic strategy and the number of children." Pp. 469-590 in John Caldwell (ed.), The Persistence of High Fertility. Canberra: Australian National University Press.

This long article presents an analysis of large families in different areas of Africa. The differences between Western and African social structures are stressed on many topics related to fertility. In Europe, land was the scarce input into agriculture, but in Africa it is labor that is scarce. Ware touches on a number of different costs and values of children in an expository manner. There is little quantitative data. It is emphasized that child costs are low, benefits are apparent for youth and especially in parental old age, and thus large families are not "irrational."

1978 "The economic value of children in Asia and Africa: comparative perspective." Paper of the East-West Population Institute No. 50. Honolulu: East-West Center.

Ware, assuming that all parents have access to older methods of birth control, expresses the belief that the persistence of large families of four or more children in the Third World can be understood in terms of two opposing contentions:

(1) are the norms of the Third World societies powerful enough to induce parents to continue having children in spite of material loss? or (2) does such material loss occur? In other words, is the size of the family usually determined by different nonmaterial values or by different types of economics?

Wat, Sui-Ying and R. W. Hodge
1972 "Social and economic factors in Hong Kong's fertility decline." Population Studies 26:455-64.

An interesting study of the effect of family planning services in Hong Kong. Previously gathered data are fit into a regression model. The outcome suggests an indeterminant independent role of family planning services. Economic factors, including the rising costs of children due to increased female labor force participation (time costs) are found to be very important in the fertility decline. In this sense, the use of family planning services is a result of economic variables and not a causal factor of fertility decline.

Weinstein, Jay A.
1976 Demographic Transition and Social Change. Morristown, NJ: General Learning Press.

The interrelatedness of population and sustenance (Malthusian model) is discussed in terms of the Demographic Transition--that is the responsiveness of population to changing levels of development, drawing out key issues in the change process. Criticizes the urban growth thesis and offers alternative explanations of the "downward transition," which are summarized, by citing Leibenstein, as 11 factors of which three deal directly with the status of women and one with the value of children. Concludes that the solution to the Malthusian dilemma may be found by development of a Riesman type of "inner directed" personality in the developing nations.

Weiss-Altaner, Eric R.
1977 "The influence of socioeconomic conditions on the fertility of women in the Third World." Pp. 65-75 in International Union for the Scientific Study of Population, International Population Conference, Mexico 1977. Vol. 2. Liege, Belgium: IUSSP.

Elaborates micro-economic theory in a Marxian framework. Challenges the idea of maximizing or optimizing utility, stating that it is not the only rational decision rule, that it is not likely to be extensively used in societies going through massive change and that its use as neoclassical theory is ahistorical.

Rationality refers to mutual adjustment of means to ends and as such grow out of a particular social circumstance, which is related to the structural relations linking relevant socioeconomic groups. Thus, there is a need for class theory and a perspective that combines biography and social history. This intersection is obvious in fertility behavior which contributes to family continuity and society's stock of labor power.

The study thus translates quality of children into quality of labor power which is traded as average cost of labor power which is then termed its value.

The tie between class and the value of labor power is brought out and the idea stressed that economic actions not only produce goods, they also reproduce social relations that bind economic agents together.

The concept "'reproductive strategy' as a tool for interpreting class differences and trends in fertility" as an alternative to "optimizing" is introduced. Its use is illustrated by the example of a large Third World family with low quality labor power making fertility decisions with a view to family survival or success while families in a different situation might lower their fertility to give children a better "stake" and hold on to their class position.

Whitney, Vincent Heath
1976 "Population planning in Asia in the 1970s." Population Studies 30:337-51.

A critical commentary on the lack of coordination and integration in general development programs of many LDCs and their failure to incorporate family planning into more general population planning and an even more general national development program. While it is admitted that the absence of coordination is largely a function of the difficulty of the task, the advisability of bringing together such varied efforts is stressed. In fact, the process of focusing on the overall dimensions of the several approaches to development raises such important questions as the following: "Does the 'better life' imply controlled population growth?" Does the widespread goal of development require family limitation and, if so, are persuasion or even coercion necessary to attain targets set by planners? Are decisions on the numbers of children born not a 'basic human right' of parents? How are conflicts between individual benefits from having children and societal costs to be resolved? If sharp reductions in fertility are necessary to attain modernization, is it justifiable to postpone freedom of choice for one or two generations of parents to ensure a higher standard of living for future generations? Is the Western model of development the most promising one for currently less developed countries?

Williamson, Nancy F.
1977 "Book reviews of the value of children." Vols. 1, 2 and 3, East-West Population Institute in Honolulu. Sociology and Social Research 62:155-58.

Reacts favorably to the volumes and praises their cross-cultural nature. Includes a brief summary of some of the major findings. Reports that the second phase which deletes Japan but picks up Indonesia, Turkey, and Singapore has now been completed and reports are being planned. Emphasizes the limited extent to which the findings can be generalized.

Findings given include: (1) Koreans in all three social groups were more likely to approve of abortion than their Thai or Filipino counterparts; (2) there were more similarities between comparative socioeconomic groups than groups of countries (p. 34); (3) urban middle class emphasizes psychological benefits while rural emphasizes economic benefits; (4) Vol. 2 points out the values existing in the person in a situation setting or the value of children in social interaction. Also, Filipinos appear to value children more than their counterparts in other nations. Authors recommend population education programs emphasizing rational decision-making; (5) the Hawaii volume emphasized emotional benefits of children and very little social pressure. Boys preferred slightly and for differenc reasons; (6) the multivariate analyses (Arnold and Fawcett) economic and psychological/sociological VOC added substantial explaining power in predicting family size, attitudes and behavior even after sociological/dimension variables had been taken into account; (7) the Hawaii volume ends with a sensitive set of policy recommendations.

Willis, Robert James
1973 "A new approach to the economic theory of fertility behavior." Journal of Political Economy 81:14-64.

A highly mathematical, static model of the economic approach to fertility. Fertility demand is discussed in terms of child quality. Opportunity costs are considered relative to the supply of child services. The model is tested for empirical accuracy relative to data from the 1960 U.S. Census. It shows some success but Willis points out some of the problems with the methodology. Norman Ryder's comments suggest that Willis has left out important social factors in his model and that he has not adequately tested the model by using restricted data.

Wilson, Franklin D. and Larry Bumpass
1973 "The prediction of fertility among Catholics: a longitudinal analyses." Demography 10:591-97.

A report from the National Fertility Study on 468 white Catholics interviewed in 1965 and 1968. A possibly pertinent finding is that work experience has a noticeable difference in the likelihood of a birth. A relationship was underrated between fertility intentions and later fertility. Much variance was unexplained and some of this seems to have resulted from actual changes in fertility intentions.

World Bank
1974 Population Policies and Economic Development. Baltimore: The Johns Hopkins University Press.

A comprehensive overview of the relationship between population variables, economic development and demographic

policy. Particularly relevant are Chapter 3, "The effect of economic development on fertility," and Chapter 4, "Policies to reduce fertility in developing countries."

World Fertility Survey
1978 "Digest of 'World Fertility Survey, Sri Lanka, 1975, First Report'." International Family Planning Perspectives and Digest 4(3):89-90.

According to preliminary figures from this report, there has been a decline of about one-third in fertility in Sri Lanka in less than a dozen years, from five children per woman to 3.3 in 1974. This drop is the result of increase in age at marriage and decline in marital fertility. Fertility preferences have also shown a marked decline, and preference for sex of children does not appear to play an important role in determining desired family size. The nation has extensive health and communication systems networks. By way of explanation, the digest cites Charles Westoff: "as the practice of contraception increases, the demand for it also increases in the form of growing proportions who want no more children. That is, the more the norm of contraceptive practice grows, the more the overall need increases, leaving the unmet need relatively static."

The report is cited as recommending policies which are making acceptable and more accessible to women efficient methods of fertility regulation, especially sterilization of females which could be routinely offered as an option to women whose third or later birth takes place in a hospital.

Wu, Tsong-Shien
1977 The Value of Children: A Cross-National Study. Vol. 5, Taiwan, Honolulu: East-West Population Institute.

Reports on Taiwan as a part of this cross-national study within the same general format but with a few different questions asked. The new representative sample includes 72 middle-class, 72 lower-class, and 72 rural couples from particular areas. This study is exploratory. The additional questions concerned SES items, religiosity scale, consumer durables, and Chinese birth dates. Detailed findings, summaries of findings, and policy suggestions are included. Some of the major findings are: (1) excessive rates of population growth for Taiwan data only to 1949 with the immigration from the mainland. The government did not announce support of family planning until 1968. (2) For the total sample, the most important benefit was continuation of family name and this importance was greatest among lower-classes, the rural, and the male respondents. (3) For women in the urban middle-class, emotional benefits were more important. (4) Financial costs were most salient and most

important, but it was most keenly felt by rural persons and least by urban middle-class. Males made it more important than did females. (5) Noise and disorder ranked second. (6) In general, middle-class and female respondents were more sensitive to opportunity costs--urban middle classes perhaps because they are more modernized and individualistic than other groups. (7) Son preference was strong in Taiwan, and strongest among the two lower socioeconomic groups.

Wulf, Deirdre
1978 "Digest of J. M. Stycos 'Patterns of Fertility Decline in Costa Rica'." International Family Planning Perspectives and Digest 4(3):92-94.

Findings from the digested report show that Costa Rica leads in Latin American fertility decline. Although such declines are usually associated with social and economic development, this nation was not developed when it began its decline. There was, however, an early pervasive literacy and early availability of contraceptive methods, and fertility reductions seem to be strongly related with these characteristics as well as with declines in agriculture.

Two patterns of decline seem to have occurred. The first, in the early 1960s was in the more developed cantons where agriculture was losing importance and among the younger women. The second phase was in the more rural regions and among older women. During the second phase, family planning which received wide advertisement, especially via radio, is estimated to have accounted for 17 percent of all averted births. Although sterilization is not provided by the family planning program, the WFS survey reports one-fifth of women in non-metropolitan areas of most densely populated central valley have been contraceptively sterilized and that sterilization is not concentrated among any particular class or educational level of women.