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PERCEIVED ECONOMIC COSTS AND BENEFITS OF
CHILDREN, OCCUPATION AND FAMILY SIZE IN RURAL
INDIA.

IOWA STATE UNIVERSITY, PH.D., 1979
Perceived economic costs and benefits of children, occupation and family size in rural India

by

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INTRODUCTION

Every human society perpetuates itself through biological reproduction and through its nurturance and socialization of children. Societies vary greatly in the values they place on bearing and rearing children. These values have consequences in various ways for the number of children born in that society.

The failure of an ever increasing population to keep pace with world resources has led to conscious widespread birth control measures, especially in many developing countries. Continued high birth rates in several parts of Asia, Africa and Latin America, despite available contraceptive technology, have led to a shift in focus among population analysts. Current research efforts have attempted to understand people's motivation for having children. Blake (1971) has pointed out that a policy that penalizes fertility and leaves the desire for children untouched requires constant vigilance if it is to have any effect (Blake, 1971:219). Thus, an understanding of the values people place on children may suggest means of satisfying these values in ways other than having children. Subsequently, these means may help reduce the desire for children. If smaller family size can be achieved in ways other than compulsory government control, these ways may suggest appropriate forms of compensatory satisfactions that may be considered.

As information about determinants of economic and noneconomic aspects of the value of children becomes available, recommendations can be made for specific social and economic policies that will influence the
value of children and childbearing motivations. Recommendations also may be made for incentives, disincentives and educational programs that might have direct effects on the perceived satisfactions and costs of children (Arnold et al., 1975). Such recommendations would be useful to countries that perceive a need to accelerate fertility decline more immediately than that which accompanies general economic development and better economic distribution (Narayan, 1978, pp. 324-325).

One of the main changes usually occurring with general economic development in a country is that the costs involved in raising children become higher. The importance of the economic value of children declines with industrialization, the rise of cash in place of subsistence farming, increased pressure to send children to school, and an increase in the educational levels of parents (Caldwell, 1967; Siddique, 1967; Mueller, 1972). As an area becomes industrialized, in general the economic assets decline while the economic liabilities increase. For example, child labor laws may prohibit children's entry into the labor market; a child's help is less essential or a child is less available if attending school; at the same time the pressure to send the child to school and its cost increases (Hoffman and Hoffman, 1973; Narayan, 1978, p. 326).

Concurrently more women become wage earners (McCabe and Rosenzweig, 1976). Income brought in by these women would have to be foregone if they remained at home to raise young children. This forfeited income by mothers raises what economists call the "opportunity costs" of children (Snyder, 1974).
During this period of demographic transition health and nutritional status generally increase (Butz and Habicht, 1976), infant mortality falls (Schultz, 1976), and the state usually institutes old-age security systems. The emphasis then generally shifts to quality of children rather than quantity and fertility decline (De Tray, 1976; Da Vanzo, 1972).

People within every society derive psychic satisfactions from bearing and rearing children but when changes in the economy or sub-sections in the economy make large numbers of children a heavy burden, the satisfactions derived may become predominantly psychic (Nag, Peet and White, 1978). Thus in less developed countries characterized by the demographic features of scarce land, high mortality, low education, limited entry of women in an industrialized market and an agrarian economy, parents may perceive economic advantages to having large numbers of children.

India's population of 547.9 million (1971 census) (Facts and figures, 1978) occupies a land area of 3280 thousand square kilometers. The population density is 178 people per square kilometer. The decadal growth rate between 1961 and 1971 was 24.8%. The population is estimated to increase to 629.4 million by the end of 1978.

The national birth rate (sample registration scheme) (Facts and figures, 1978) in 1975 was 35.2 births per 1000 population while the death rate was 15.9 deaths per 1000 population making the growth rate 19.3 persons per 1000 population. The infant mortality rate was 89.9 per 1000
live births in urban and 136.4 per 1000 live births in the rural areas.

The rural segment of the population, 81.7%, predominates in India. In terms of occupational stratification 43.3% of the national population are cultivators and 26.3% are agricultural laborers. Of the total population, 71% is illiterate while an additional 10.7% is just literate. Female illiteracy (81.7% of the total female population) is higher than male illiteracy. Children below 14 years of age comprise 42% of the population. The per capita income based on 1960-1961 prices was Rs. 343 for the year 1974-1975 ($1 = Rs 8.5).

Land holdings in the rural areas are fragmented. A large number of households (47.5%) own less than two hectares. Only 20% of households own more than two hectares while 32% of households are landless and comprise the segment of landless agricultural laborers (Additional rural income survey, 1974, Note 1).

India's population continues to rise with an addition of one million every month so that the very considerable increases in agricultural and industrial production since 1949 have had a negligible impact (Agrawala, 1971). Economic surveys indicate that in 1969 about 40% of the rural population was below the poverty level defined as an income insufficient to provide 2250 Calories a day considered minimally adequate under Indian conditions (Dandekar and Rath, 1971).

Against India's demographic picture, it becomes obvious that India needs to actively intervene to reduce its population growth rate rather than wait for the natural reduction that usually accompanies rapid
economic development. Recognizing the need to curb the population increase, India has had a national family planning program since 1951. In the last decade efforts at disseminating family planning information and technology reached a peak so that it was estimated that in 1971, 60% to 70% of the rural and 80% of the urban population were aware of family planning methods (Agrawala, 1971). However, utilization of contraceptives, especially in the rural areas, remains low.

It is possible that a conflict exists between the interests of the society as a whole to curtail fertility, and that of the individual family in certain economic conditions to have large numbers of children for the economic good of the family. Thus, in rural India, when the father's occupation is farming, children may be seen as a means ofbettering the family's economic status. Children become workers at an early age helping in the father's economically productive activities on the farm.

On the other hand when the father's occupation is invisible to children and requires special skills, as when the father is a factory worker, children have little opportunity to help in the father's occupation. When the income coming into such a household is fixed and there is little chance for children to be an economic asset in the father's occupation, the economic benefits of having a number of children may appear negative or less than in the farming groups. The present investigation seeks to examine the economic rationality of fertility in two occupational groups in rural India.
Statement of Purpose

The primary purpose of the present investigation is to examine the relationship of independent variable of father's occupation, and the dependent variables of family size, perceived economic benefit of children, perceived economic cost of children, contraceptive use, attitudes toward contraception and preference for boys. The perceived economic benefit and costs of girls and boys will be examined separately. The relationships among measures of family size, perceived economic benefit and costs, contraceptive use and attitudes toward contraception are of interest. Also of interest are the relationships among three variables of family size; actual, desired and ideal family size.

Operational Definitions

Father's occupation is defined as landed farmer or a non-agricultural worker with a salaried income or a shopkeeper.

Family size indices are defined as:

1. Actual family size - the sum total of currently living children.
2. Desired family size - the sum total of currently living children plus the additional number of children desired or minus the number of children the subject would have preferred not to have.
3. Ideal family size - the total number of children most desired by a subject if he/she were to start a family all over again in the same circumstances.
Economic indices are defined as:

1. Perceived economic benefit of girls or boys - the sum total of the scores derived from the perceived economic benefit indices (Arnold et al., 1975).

2. Perceived economic costs of girls or boys - the sum total of scores derived from the perceived economic costs indices (Arnold et al., 1975).

Contraceptive indices are defined as:

1. Contraceptive use - the sum total of reported use of any contraceptive method in the past, the present and the probability of its use in the future.

2. Attitudes toward contraception - the general knowledge of contraception, attitude of approval or disapproval of contraception and attitudes toward use of contraception in certain specific circumstances (Arnold et al., 1975).

Preference for boys is defined as the proportion of boys desired in the ideal family plus the number of boys desired if the subject were to have exactly three children altogether.

Hypotheses

The null hypotheses to be tested are:

1. No relationship exists between father's occupation and family size indices of: a) actual, b) desired, or c) ideal family size.
2. No relationship exists between father's occupation and: a) perceived economic benefit, or b) perceived cost of boys.

3. No relationship exists between father's occupation and: a) perceived economic benefit, or b) perceived cost of girls.

4. No difference exists between occupational groups relative to preference for boys.

5. No difference exists between occupational groups relative to attitudes toward contraception and contraceptive use.

6. No difference exists in perceived economics benefit of girls and boys.

7. No difference exists in perceived economic cost of girls and boys.

8. No relationship exists between family size indices of: a) actual, b) desired or c) ideal family size and economic indices of d) perceived economic benefit or e) perceived economic cost of boys.

9. No relationship exists between family size indices of: a) actual, b) desired, or c) ideal family size and economic indices of: d) perceived economic benefit or e) perceived economic cost of girls.

10. No relationship exists between family size indices of: a) actual, b) desired, or e) ideal family size and contraceptive indices of: d) attitudes toward contraception or e) contraceptive use.

\[1\] The hypothesis will be tested by a one-tailed test.
11. No relationship exists between perceived economic benefit of:
a) girls or b) boys and contraceptive indices of: c) attitudes toward contraception or d) contraceptive use.¹

12. No relationship exists between perceived economic cost of:
a) girls or b) boys and contraceptive indices of: c) attitudes toward contraception and d) contraceptive use.

¹The hypothesis will be tested by a one-tailed test.
The following section reviews theories and research in the area of economic value of children. Two theoretical sources will be reviewed: 1) economic models and 2) a socio-psychological model. Research in the area of economic cost and benefit of children will be explored and their relationship to socio-economic variables will be examined.

Economic Models

Several models within the mainstream of economic theory have been proposed to explain the economic costs and benefits of having children. Leibenstein (1957) attempted to conceptualize the utilities derived and costs attributable to a child of a given birth order in terms of income effects, survival effects and effects due to changes in occupational distribution. He also described the nature of the shifts in utilities and costs as economic development proceeds. Further, he hypothesizes that with the rise of per capita income, the value of children as consumption goods remains more or less stable, while their value as productive and servicing participants and as potential sources of security decline. As Nag (1972) has pointed out, there is a paucity of data to test this hypothesis.

Within Becker's (1960) model, children are seen as a commodity providing psychic income or satisfaction. The demand for children can be interpreted in the same way as the demand for consumer durables. Theoretical frameworks outlining the economic determinants of fertility
also have been put forth by Easterlin (1969), Robinson and Hrolacher (1971), and Schultz (1973, 1974). Broadly, economic theorizing on fertility has focused on economic aspects of the value of children as production and as consumption units as well as sources of security in old age. The social and psychological values are largely unexplored. Nevertheless a few economists have pointed out the need to include such variables in a comprehensive model.

Economic theories of fertility have stimulated several empirical investigations of the economic cost and benefits of children (Cramer, Note 2; Espenshade, 1972; Mueller, 1972; O'Donnell, 1974; Turner, Note 3; Reed and McIntosh, 1972). Other researchers have pointed out methodological weaknesses and suggested new directions of research (Namboodiri, 1972; Easterlin, 1975; Leibenstein, 1975; Nag, 1972).

A Socio-Psychological Model

Hoffman and Hoffman (1973), based on an extensive review of literature of values of having children, developed a theoretical model useful for the study of variations in reproductive behavior. More specifically, their model has valuable implications for investigators of cultural differences in the motivation to have children. Their model contains five broad sets of variables: 1) the value of children, 2) alternative sources of the value, 3) costs, 4) barriers and 5) facilitators. They have defined the value of children as the function children serve or the needs they fulfill for parents.

The model identifies nine major categories of values which reflect
psychological needs or functions served by having children. The categories are:

1. Adult status and social identity
2. Expansion of self, tie to a larger entity, "immortality"
3. Morality: religion, altruism, good of the group; norms regarding sexuality, impulsivity, virtue
4. Primary group ties, affection
5. Stimulation, novelty, fun
6. Achievement, competence, creativity
7. Power, influence, effectance
8. Social comparison, competition
9. Economic utility

Alternative sources of the value refer to fulfilling a value in ways other than with children. The variable costs refers to that which must be lost or sacrificed to obtain a value in any particular way. Barriers and facilitators pertain to factors that make it more difficult or easier, respectively, to realize the particular value of having children. These five variables can be used to predict a group's or an individual's desire for children. Changes at other points in the social structure may effect any of the five variables which in turn have either a negative or positive affect on fertility. Thus, a program can be launched by directing an attack at any or all of the five variables (Hoffman and Hoffman, 1973).

In 1972 the East-West Population Institute, Arnold et al. (1975)
coordinated a large scale multi-nation project, the Value of Children (VOC) project which was developed in order to: 1) fill a gap in existing studies trying to link social and economic change to decision-making relative to fertility, and 2) to overcome conceptual and methodological inadequacies in previous formulations of childbearing and child limitation motivation (Simmons, 1977).

Hoffman and Hoffman's (1973) conceptual model provided the starting point for the six-culture study. The six cultures studied were Korea, Taiwan, Japan, U.S. (Hawaii), Philippines and Thailand. During this exploratory phase, 180 couples from each of the six cultures were interviewed. An interview schedule, Value of Children, was developed after several pre-testings and standardized across cultures. Hence an overall comparison was facilitated. Data from this phase of the study were analyzed largely using correlational and multiple regression techniques.

Based on the findings across the six cultures a conceptual model was developed. The set of value of children to parents was modified to fit the empirical findings. Inter-item correlations were used to eliminate items that were statistically redundant and did not yield new information. Several distinctive dimensions of value of children which were not incorporated in Hoffman's (1973) model emerged through factor analyses of parent's responses. These were included to make the model more encompassing (Appendix A).

Arnold et al. (1975) defined the value of children as the hypothetical net worth of children, with positive values (satisfactions)
balanced against negative values (costs). Conceptually, the value of children refers to the net balance of two opposing forces, positive values or satisfactions, and negative values or costs (Fawcett, 1974).

All the categories of values were incorporated in a conceptual framework (Figure 1) in which the value-of-children dimension was seen as intervening between background factors, situational variables and general psychological orientations on the one hand and attitudes and behavior relative to fertility on the other. A multivariate analyses showed that the value-of-children dimension had a substantial predictive effect independent of background and situational variables on fertility variables such as desired and ideal family size (Fawcett, 1974). The model in its present state is not an explicit predictive model, but needs refinement through further research (Arnold et al., 1975).

Value of Children

The value of children to parents varies with the culture, social setting and the possible role that children can play in the parental occupation. Although both the demographic and economic theories consider the value of children as a causal element in the determination of fertility, until recently very little systematic data were available (Fawcett, 1974). The focus in the following section is on the reported economic value and cost of children.

Data from the VOC six-culture study are based on interviews with
Figure 1. Conceptual framework for the Value of Children study (Arnold et al., 1975)
180 couples from each of the six cultures. Indices of perceived economic help and perceived economic cost of children were constructed yielding single scores obtained by the addition of relevant items in the interview schedule (Arnold et al., 1975).

The index of expected economic help from children was found to be inversely related to socioeconomic status with rural parents having the highest expectations of economic help from their children (Arnold et al., 1975). A consistent and generally strong inverse relationship was found between expected economic help and education, urban experience and income of parents (p > .01). The relationship between expected economic help and fertility variables was weaker and generally positive: expected economic help was related to higher parity, the desire for more children, and a larger ideal family size.

The measure of expected economic help also was correlated to family planning indices. There was in general a strong, consistent, negative correlation (p > .01) between a high score on expected economic help from children and all the family planning indices, i.e., parents who expected great economic help from their children also had less knowledge of contraception, less favorable attitudes toward the use of contraception in specified situations, and a lower level of current use of contraception.

The family size measures ideal family size, actual family size, wanted family size, also were found to be positively correlated (p > .01) with expected economic help from children. Thus the results indicate that expected economic help from children, including old-age security, is
linked to both family planning and family size measures (Arnold et al., 1975).

Measurement of perceived economic cost of children was found to be more problematic. In all countries, it was found in pretests that respondents were either unable or unwilling to discuss in detailed terms the financial aspects of childrearing. Most parents appeared to have little notion of what it actually cost to raise a child, and were reluctant to discuss children as if they were consumer goods (Arnold et al., 1975).

An attempt was made to measure perceived costs of children by asking parents the number of children they perceived as being a financial burden. A tabulation of the percentage of respondents who believed that three or fewer children would be a heavy financial burden suggested a curvilinear relationship between perceived costs and socioeconomic status. Of the three socioeconomic groups, the urban middle, the rural and the urban lower, proportionately more of the urban lower in most countries felt that three or fewer children would be a financial burden. One possible explanation of the finding is that while the lower-class couples are exposed to the same high costs of living as the middle urban group, they have a lower income. On the other hand, unlike the rural group, their children have fewer opportunities to play an economically beneficial role.

An index of financial ease of raising a large family was constructed by asking respondents the number of children they would consider no financial burden, a little financial burden, and a heavy financial burden. This index showed weak positive correlations with income
(except in Thailand), education (except in Thailand and the Philippines) and with parity. The pattern of weak positive correlations across variables that were not all themselves positively correlated suggested multiple influence on the economic index. The responses may have reflected partly an economic calculation and partly the justification of a preferred or actual family size. The investigators concluded that the index could not be considered a pure measure of the perceived economic costs of family size, although it did appear to assess some aspects of the economic value of children (Arnold et al., 1975).

The general trend of prominence of economic value of children to rural parents also was evidenced in response to open-ended questions about advantages and disadvantages of having children. Only the most important advantage for each set of parents was tabulated. This revealed that among rural parents in Taiwan, Philippines, Thailand, and Filipino families in Hawaii the anticipated economic benefits and security from children was the predominant reason for having children. In contrast the urban middle-class group reported noneconomic reasons for having children (e.g. primarily for the love, happiness, and companionship they bring).

Among disadvantages of having children, all groups mentioned emotional and financial costs and restriction on alternative activities. The urban middle-class voiced more concern about emotional costs and loss of freedom than financial costs while the opposite was true for rural parents. All the socioeconomic groups mentioned financial
costs as the most important reason for not wanting more than the desired number of children.

Some data from phase two of the VOC project are now becoming available. Bulatao and Arnold (1977) report data from Korea, the Philippines and the U.S. Interviews were conducted with nationally representative samples of approximately 1,600 currently married women under age 40 and approximately 400 of their husbands in each country.

Childbearing is a sequential decision-making process. Children of different parities may serve different functions for their parents and entail different costs as well (Bulatao and Arnold, 1977). Accordingly data were analyzed to see what values and costs of children were prominent at different parities and the relation of these values to fertility. The cost of children was the most prominent reason mentioned by parents in all three countries in response to the question why parents chose to stop at a particular desired family size rather than continuing to have more children. These costs became progressively more important in childbearing decisions at desired family sizes of two and three children but remained stable or even declined in relative importance beyond that number. In contrast parents did not mention the economic benefits derived from children as reasons for not wanting fewer than their desired number of children. Children were rarely mentioned as beneficial for helping on the family farm or in the family business or for providing economic security for the family (Bulatao and Arnold, 1977). However, this does not imply that children do not provide economic benefits but
that these benefits were not considered important factors by parents in making decisions about having additional children.

Mueller (1972) conducted a study to determine economic motives for family limitation. The data were collected through interviews with an island-wide cross section of more than 2000 Taiwanese husbands married to women of childbearing age. Husbands were asked open-ended questions about the advantages and disadvantages of large and small families. A majority of the husbands, 77%, mentioned both advantages of small families and disadvantages of large families, showing an awareness of both. Most husbands, 73%, expected financial assistance from their children in old age. Only between 10% to 20% were confident that they could manage without their children's assistance. Expectation of future assistance from children declined sharply with rising income and education.

Mueller (1972) constructed two indices, an index of perceived-utility and a cost-sensitivity index, based on several items in the interview schedule. Scores, assigned to these items, were summed to yield a single score. The relationship of the cost and utility indices to socioeconomic, demographic, and fertility variables were examined by the statistical technique of Multiple Classification Analysis (MCA). MCA is an extension of 'dummy variable' multiple regression analysis where the explanatory variables represent membership in classes rather than numerical values.

The relationship between economic utility of children and several
demographic variables was examined. These variables were: husband's education, wife's education, income per adult, husband's employment status, parity, urbanization of area, age of husband, family structure, nuclear vs. extended family and age of oldest child. The results indicated a strong inverse relationship between perceived utility of children and husband's education, wife's education and income per adult. Among occupational groups farmers expected the most economic help from their children and wage earners the least help while self-employed groups fell between the other two.

Cost-sensitivity was not a function of low income. There were no significant differences between income groups in the felt burden of raising children as the expenses which parent viewed as necessary also rose with income (Mueller, 1972). Interrelation of the indices revealed that low cost sensitivity was associated with high perceived utility and that high cost sensitivity was related to low perceived utility. But between these two extremes various combinations occurred, the relationship between the two indices being far from perfect.

In general Mueller's (1972) analyses suggests that rising income fosters a sense of economic independence from children and raises the consumption and educational aspirations of parents as well as the perceived economic cost of raising children. Perceived utility, cost sensitivity, husband's education, wife's education, and income were found to be important predictors of ideal family size, especially among women under age 30. However, even among older couples, perceived
utility of children and cost sensitivity did have some bearing on family size preferences.

There are two other methodological approaches to the study of economic costs and benefits of children to parents. One approach characterizes the work of economists while the other is characteristic of anthropologists.

Economists are developing methodologies to calculate the actual economic cost and benefit of children in money terms (Butz and Greenberg, 1975). The actual economic cost is usually considered as having two components: direct maintenance costs which consist of out-of-pocket expenses for food, clothing, education and the like and opportunity cost or income that wives (principally) forego by staying home to raise children and by not participating in the labor force (Espenshade, 1977). An example of this approach is Espenshade's (1973) study in which he calculated the costs of a first and second child at age 18 in three different income groups in the U.S. in 1960-1961. Thus he estimated that at age 18 in 1960-1961, a first child in the lower income group would cost $37,655 with the average annual cost being $2,092. Other researchers also have been involved in a similar economic approach (Reed and McIntosh, 1972; Turchi, 1975; Butz and Greenberg, 1975, Schultz, 1973).

Mueller (1976) calculated the actual economic value of children to parents in agricultural sectors of less developed countries, including India. Her analysis is based on scales of relative consumption
and production levels. Consumption and production per unit of time for males and females of varying ages relative to the consumption of an adult male aged 20-54 years were calculated. Through such calculations of consumption and production profiles, Mueller concluded that the work contribution of children was not large enough to prevent them from being an economic burden on peasant societies (Mueller, 1976).

Nag, Peet and White (1978) conducted anthropological field investigations in rural communities in Java and Nepal to collect time-budget data on children's work activities. They attempted to directly estimate the contribution of children's labor in terms of average time spent per day in different types of activities. The support provided by children to parents in old age was estimated by examining residential patterns.

Work-input data were collected from 20 households in the Javanese village and 45 to 50 households in Nepal. Time-budget and food consumption data on each member of the household and income and expenditure data of the household were obtained through interviews and observation. Time-budget data were collected on the amount and type of work performed by children and adults of both sexes. On the basis of data on total work-input of children, total child-producer units, the total adjusted income and the total expenditure on food, it was shown that households with a great number of child-producer units were economically more efficient. Their data also indicated that females spent more hours working than males, principally because boys were more likely to be in
school (Nag, Peet and White, 1978).

However, their study did not report measures of economic costs, and hence conclusions about net economic benefits cannot be made. The unit of economic productivity is time, a measure subject to misinterpretation. For example, an hour spent in tending cows may have less economic value than an hour spent in agricultural work like sowing or harvesting. As Nag (1972) pointed out, time-budget data have to be converted into measures that are comparable, like amount of energy expended by the body per unit of time. However, the data reported from Java and Nepal on hours of work have not been so transformed.

The economic value of children as a source of economic security to aging parents was studied by examining residential patterns. In Nepal, 80% of 180 elderly couples lived with sons, daughters or daughters-in-law. In Java out of a sample of 121 couples only 18 couples were found living alone. The investigators concluded that elderly parents in these two societies were heavily dependent on their children for support in old age (Nag, Peet and White, 1978).

Using a similar methodological approach as Nag, Peet and White (1978), Cain (1977) gathered data on economic productivity in the village of Gopalpur in Bangladesh. The economy of the village is based on rice cultivation. The results suggest that male children may become net producers as early as age 12, compensate for their own cumulative consumption by age 15, and compensate for their own and one sisters'
cumulative consumption by age 22 (Cain, 1977).

Caldwell (1977) found support for the economic rationality of high fertility among the Yoruba of Western Nigeria. His data are based on a probability sample of 1497 males and 1499 females over the age of 17 years. The survey was conducted in the years 1973-1975. The Yoruba have a polygynous extended family system of mutual obligations and help. Accumulation or display of wealth is seen by the community as an unwillingness to help, so that more money does not result in higher standards of living for the individual family but in dispersal of the wealth among the relatives. In a situation in which children are helped by their older siblings, by grandparents, uncles and cousins and by the other parent when that parent has a separate income and budget, the parent does not bear the full cost of a large family, nor does the parent escape expenditure on other children by limiting his or her fertility (Caldwell, 1977).

The economic utility of receiving help is reinforced by the strong bond of emotional gratification. There are sanctions preserving the system. A person who is able to meet obligations but refuses to do so no longer has access to communal property. Socially in such a society high fertility brings with it honor and prestige and children are identified with wealth (Caldwell, 1977). Thus within such a social and economic system adoption of contraceptives to limit family size would be both socially and economically detrimental to individuals within the system.
Several other investigations have been conducted to examine the relationship between socioeconomic variables and family size. Loebner and Driver (1973) studied the relationship between several socioeconomic variables and fertility through path analysis. The sample comprised of 2719 heads of households in Nagpur district, India. Data were collected through interviews. Five variables were found to have a significant and direct effect on number of children as shown by their path coefficients (p). They were: duration of marriage (p = 0.72), spouse's cohort (p = -0.09), caste (p = -0.07), spouse's age at marriage (p = 0.05) and number of siblings of husband (p = 0.05).

The use of contraceptives was effected by: the spouse's education (p = 0.09) the husband's education (p = 0.09), the husband's income (p = 0.09) and surplus children, i.e., number of living children exceeding ideal number of children (p = 0.06).

Snyder (1974) conducted a survey of 717 predominantly urban households in Sierra Leone, West Africa to study the economic determinants of family size. The independent variables were income measured by husband's education and "child price" which refers to the cost of raising a child at a specified quality level.

The cost of a child was considered to be made up of two components, a goods component and a time component (Mincer, 1963). Snyder (1974) in his study considered the goods component to be constant as the households were in close proximity and bought goods from the same market paying the same prices. The time component was composed of the opportunity costs. These costs consisted of earnings foregone by the parents and lost
earnings principally from wives diverting time from paid employment to childrearing activities (Mincer, 1963; Becker, 1960). Additional costs resulted from changes in human capital primarily from foregone addition to human capital (e.g., when a wife postpones further education) and depreciation of existing human capital (e.g., when skills become obsolete) (Michael and Lazier, Note 4). The "price of a child" was measured by wife's education and wife's wage rate.

Results indicated that the number of Sierra Leonean births responded positively to increases in permanent income and negatively to increases in price of a child. These relationships were not altered by demographic variables (e.g., occupation, family type, urban residence, Islamic religious affiliation). These results were equally true for households at various stages in the family life cycle (Snyder, 1974).

When parents have large numbers of children, according to the economic theory of fertility, parents may trade off child quality for child quantity. Parents can obtain the same amount of child services from "low quality" children (i.e., children who have had few resources devoted to their upbringing) as from "high quality" children from a small family. Snyder (1974) found that "quality" per child was positively rather than negatively related to number of births in Sierra Leone.

Anker (1977) studied reproductive behavior in 11 rapidly industrializing villages in rural Gujrat, India. Survey data were collected from 454 couples. Anker (1977) found that fertility differentials (ideal family size, completed family size and family
planning acceptance) were related to the couples unique socio-economic status as well as to two group-level variables, caste and village. These two variables, caste and developmental level of the village, were highly associated with the fertility measures even after numerous socioeconomic characteristics of couples were held constant (Anker, 1977).

A review of literature in the area of economic costs and benefits of children, socio-economic variables and their relation to fertility show several gaps and contradictory results (Butz and Greenberg, 1975; Goldberg, 1959; Mueller, 1972). Hence, there is a need to further delineate the role of these variables in fertility, especially in rural areas of the less developed world.
METHODOLOGY

The purpose of the study is to investigate the relationship of father's occupation to family size, perceived economic benefit of children, perceived cost of children, contraceptive use, attitudes toward contraception and preference for boys. Sex differences in perceived economic benefit and perceived cost of girls and boys also will be examined. Of interest are the correlations among the variables, family size indices, economic indices and contraceptive indices. The correlations among the three family size indices (actual, desired and ideal family size) also are of interest.

Location

The investigation was conducted in three villages in Lucknow district of the northern state of Uttar Pradesh in India. Uttar Pradesh is the largest (294,000 sq. kms.), and the most populous state of India (Tables 1 and 2). It has a population of 88 million and a population density of 300 per square kilometers (Facts and figures, 1978).

The government of Uttar Pradesh has its administrative headquarters in Lucknow, the state capital. Uttar Pradesh is comprised of 124,593 villages and 23 towns (1971 census) (Facts and Figures, 1978). For administrative purposes the villages are grouped into gram sabhas, several of which combine to make community development blocks. Tehsils are larger administrative units made up of community development blocks.
### Table 1. Vital statistics of Uttar Pradesh (1975)\(^a\)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Unit of Measure</th>
<th>Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth rate</td>
<td>Per 1000 pop.</td>
<td>43.1</td>
</tr>
<tr>
<td>Death rate</td>
<td>Per 1000 pop.</td>
<td>22.6</td>
</tr>
<tr>
<td>Growth rate</td>
<td>Per 1000 pop.</td>
<td>20.5</td>
</tr>
<tr>
<td>Infant mortality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>Per 1000 live births</td>
<td>110.2</td>
</tr>
<tr>
<td>Rural</td>
<td>Per 1000 live births</td>
<td>165.4</td>
</tr>
<tr>
<td>Sex ratio</td>
<td>Females/1000 Males</td>
<td>879.0</td>
</tr>
</tbody>
</table>

\(^a\)A profile, 1978.

### Table 2. Demographic features of Uttar Pradesh (1971)\(^a\)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Unit of Measure</th>
<th>Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban population</td>
<td>%</td>
<td>14.0</td>
</tr>
<tr>
<td>Literacy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>%</td>
<td>21.7</td>
</tr>
<tr>
<td>Male</td>
<td>%</td>
<td>31.5</td>
</tr>
<tr>
<td>Female</td>
<td>%</td>
<td>10.5</td>
</tr>
<tr>
<td>Rural</td>
<td>%</td>
<td>18.1</td>
</tr>
<tr>
<td>Urban</td>
<td>%</td>
<td>43.6</td>
</tr>
<tr>
<td>Mean age at marriage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>Years</td>
<td>19.4</td>
</tr>
<tr>
<td>Female</td>
<td>Years</td>
<td>15.6</td>
</tr>
</tbody>
</table>

\(^a\)A profile, 1978.
and several tehsils form a district. There are 56 districts in the state of Uttar Pradesh.

The district magistrate is the administrative head of each district and his office serves as the district headquarters. Government officers serving at various levels ranging from additional district magistrate, community development block officers to village level workers who are in daily contact with villagers form the core of the administrative staff. Village level workers (VLW) serve as the government field representatives.

Each cluster of villages has a male or female village level worker (VLW). Because of strong sex-role differentiation and social separation of the sexes, the male workers predominantly serve as extension agents helping farmers, while female workers spend most of their time with village women. The work of a female VLW involves running a preschool program, organizing women's groups, and implementing various government programs for women. The program ranges from distributing seed for vegetable gardens and cupboards for food storage to making sewing machines available to women. As everywhere the effectiveness of the VLW varies from being very influential to having no impact.

The government has instituted several programs to raise the development level of villages. Such programs include introduction of new inputs into agriculture (e.g., fertilizer, hybrid seeds, construction of minor irrigation works, health care centers and family planning clinics). However, such government projects are not equally evident in the villages. Hence the development levels of villages vary.
Description of the Villages

Three villages, Basta, Salegram and Sevanagar, in Kakori block, Lucknow district, were selected opportunistically relative to the investigators established rapport with government officials and facility with the dialect. All three villages are within a radius of 20 kilometers of Lucknow. A round trip from Lucknow to one of these villages takes approximately four hours.

The developmental level of the three villages is approximately equal. This was measured in terms of presence of college graduates, degree of electrification and access to drinking water supply (Table 3). Presence of a preschool program within a community, location of a school and health services nearby also were determined.

Under the government's minor irrigation works scheme, each village had tube wells and masonry wells. Acceptance of new input into agriculture like fertilizer, membership in cooperatives were also evident in all three villages (Table 3). Only five to eight houses in each of the villages were electrified. These were not included in the study. Sevanagar was the only village which did not have a junior basic school. However, it had a very active preschool program and a junior school about a kilometer away to which the children could be seen walking every morning. Each of the three villages had a female VLW who had been working in that village for three to four years.

1Basta, Salegram and Sevanagar are pseudonyms.
Table 3. Comparison of development level of the villages

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of college graduates</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Number of electrified houses</td>
<td>5</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Drinking water wells</td>
<td>10</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Preschool</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Junior basic school</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Fertilizer distribution in metric tons</td>
<td>20</td>
<td>26</td>
<td>20</td>
</tr>
<tr>
<td>Members of cooperatives</td>
<td>20</td>
<td>35</td>
<td>23</td>
</tr>
</tbody>
</table>

Subjects

All the women who qualified (n=120) from intact families in which the man and woman were currently living together were selected from three villages: Basta, Salegram and Sevanagar. The sample included 60 women from each of the two occupational groups of farmers and nonagricultural workers. Twenty-six women from Basta, 45 from Sevanagar and 49 from Sevagram were selected on the basis of the following criteria:
1. **Mother's age** - Mother's age was restricted to a range of 19 to 35 years. The age was restricted to the middle years of the fertility cycle because of the small sample size. Thus women just beginning families and those nearing the end of their fertility cycle tended to be eliminated.

2. **Number of children** - A minimum of one child currently living at home was required in order for a family to qualify for participation in the study.

3. **Husband's occupation** - Only families in which the husband was either a landed farmer or a nonagricultural worker residing in the village were included (Tables 4 and 5).

The group of nonagricultural workers (husbands) from all villages were engaged in a variety of predominantly salaries jobs (Table 5). The group included railway workers, construction workers, factory workers, teachers, clerks, drivers, cashiers and shopkeepers. Shopkeepers were included in the sample because it was felt that unlike many other family trades (e.g., ironsmiths, washermen, craftsmen) the shops of families in these villages were away from the home and were always seen attended by adult men. These shops did not sell any snacks or drinks which involved cooking, an activity often delegated to children. Hence, it appeared that, like the salaried income group, children in the shopkeepers group in this particular sample did not play a very economically productive role. This seemed to justify their inclusion in the salaried nonagricultural group. In addition, none of the fathers in this group were engaged in agriculture.
Table 4. Distribution of farmers in the three villages

<table>
<thead>
<tr>
<th>Size of land holdings</th>
<th>Basta</th>
<th>Sevanagar</th>
<th>Salegram</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small (0.4-1.2 hectares)</td>
<td>10</td>
<td>7</td>
<td>31</td>
</tr>
<tr>
<td>Medium (1.2-2.0 hectares)</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Large (2-7.2 hectares)</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL n =</td>
<td>13</td>
<td>9</td>
<td>38</td>
</tr>
</tbody>
</table>

Table 5. Occupational distribution of nonfarmers by village

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Basta</th>
<th>Sevanagar</th>
<th>Salegram</th>
</tr>
</thead>
<tbody>
<tr>
<td>Railway worker</td>
<td>-</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>Construction/factory worker</td>
<td>6</td>
<td>17</td>
<td>4</td>
</tr>
<tr>
<td>Office peon</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Shopkeeper</td>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Barber</td>
<td>0</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Clerk</td>
<td>1</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Folk medicine practitioner</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Rickshaw puller</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tonga puller (horse drawn cart)</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Cashier</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Driver</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Teacher</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL n =</td>
<td>13</td>
<td>36</td>
<td>11</td>
</tr>
</tbody>
</table>
4. **Occupational continuity** - Continuity in the same occupation since the birth of the first child for older parents or occupational continuity over the past ten years if the first child was about five years of age was required. This criterion excluded respondents whose husbands had recently changed their occupational affiliation.

5. **Religion** - Only Hindus were included in the sample to eliminate variation due to religious background.

6. **Caste** - Since caste is a factor pervading every aspect of life in India, only respondents from the scheduled caste or Harijans were included. Within the scheduled caste subjects belonged to several subcastes.

**Description of the Instrument**

The interview schedule used in the present study is based on items from the Value of Children six-culture project coordinated by the East-West Population Institute (1975, 1978).

The core VOC questionnaire was developed in 1972 by a team of researchers based on concepts and variables derived from theoretical papers and available research (Arnold et al., 1975). These items were then pretested in each of six countries and selected items were used in the final questionnaire. The countries were Korea, Taiwan, Japan, U.S. (Hawaii), Philippines and Thailand. The core questionnaire also was standardized across these cultures. However, items were added in
each country to measure dimensions unique to that culture.

A detailed coding scheme including content analysis of open-ended questions was developed (Arnold et al., 1975). Several attitude measures were then combined into multi-item scales through factor analysis and items that were statistically redundant were excluded. The construction of indices made the data more manageable. Indices based on multiple measures have greater stability than single attitude measures and can be interpreted more confidently (Arnold et al., 1975).

The VOC interview schedule has several distinctive features. The format of questions is varied, ranging from open-ended items to simple yes-no items. The open-ended items about advantages and disadvantages of children are followed by more structured items. This sequencing allows interviewees an opportunity to verbalize values salient to them before answers can be suggested by the structured items. The use of several methods for assessing similar concepts also provides evidence of internal validity (Arnold et al., 1975).

For the present study items were selected from the Phase 2 VOC interview schedule (unpublished) on the basis of relevance to the hypotheses of the present study (Appendix B). Items included in the interview schedule relate to ideal family size, desired family size, advantages and disadvantages of having children, economic utility and cost of children, reasons for wanting more or fewer children, girls or boys, contraceptive use and attitudes toward contraception.

Since the focus of the present study is narrower than the VOC
project and was conducted in a country not included in the VOC project, one nonoverlapping item of economic utility was added to the interview schedule. A review of literature on the economic utility of children in India (Poffenberger, 1968; Mysore Population Study, 1961) showed the importance of children to parents as old age security. Hence an item "do you expect to live with your children" was added to the structured items relating to expected economic help from children (Appendix B). The coding scheme for structured and unstructured items (Appendix C and Appendix D) was adopted from the VOC project (Arnold et al., 1975).

The interview schedule was translated into Hindi, the language spoken in Uttar Pradesh by a native Hindi speaker. The back translation was independently done by another native Hindi speaker. Discrepancies were resolved by the investigator in consultation with the translators.

Indices of perceived economic benefit and cost of children

Arnold et al. (1975) in their six-culture project studied both the economic and noneconomic value of children to parents. The economic value or benefit of children to parents was measured through the addition of scores assigned to several open-ended and structured items. Mueller (1972) in her Taiwan study developed indices for perceived economic utility and costs of children to parents. She too assigned points to various responses and then summed the scores across all the items. These indices reflected the frequency and kinds of references in various parts of the interview, first to the economic benefits to be obtained from children, and secondly to the cost of bringing them up.
Indices, similar to the six-culture project (Arnold et al., 1975) were constructed in the present study to make the data more manageable (Appendix C). Based on the six-culture project a perceived economic benefit index and an index of perceived economic cost were constructed utilizing responses to various open-ended questions and structured items relating to these concepts. The scoring scheme utilized gives all items equal weightage (Appendix B and Appendix C). The scores related to items on the index were summed to yield a single score. This takes into account both the number of times a particular item was mentioned by the respondent, which reflects the salience of that utility to the respondent, and the variety of items mentioned. Unlike the six-culture project, scores of economic benefit and economic costs were calculated separately for girls and boys because of the strong sex-role differentiation in rural India and a reported preference for boys (Poffenberger, 1975; Minturn and Hitchcock, 1966).

Similarly indices measuring actual, desired and ideal family size, contraceptive use, attitudes toward contraception, and preference for boys were also constructed utilizing items from the interview schedule relating to these concepts (Appendix C).
Procedure

The data were collected in ten weeks during the months of June, July and August of 1978. Contact was made with the administrator, the district magistrate of Lucknow district. Through the offices of the additional district magistrate contacts were established with various levels of field workers.

The interviews were conducted by the author and a field assistant who was a female Indian sociologist with previous field experience. The field assistant was trained for a week by the investigator. Several practice interviews also were conducted in the field by the assistant in the presence of the investigator. This was done to assure comparability of data. On the spot checks were made every day throughout the period of data collection. The investigator and the field assistant lived in Lucknow and commuted daily to the villages.

In any field investigation it is important to establish rapport with the respondents in order to get reliable data. However, when personal questions are to be asked after a brief period of contact, establishing an atmosphere of trust assumes even greater importance. Hence, it was deemed essential to work through someone the villagers already trusted. Each village had a female village level worker who had been working with the villagers for three to four years. Since the villagers knew and trusted the VLW, the investigators approached respondents through the VLW.
The first week in each village was spent in getting acquainted with the community. The investigators went house to house with the VLW getting introduced and explaining the purpose of their visit. A census (Appendix E) was also carried out during this period to obtain demographic information and to determine eligibility of the respondents for inclusion in the study.

The VOC interview was usually conducted after several initial visits. All the interviews were done in the local language, Hindi, spoken fluently by both investigators. All but two interviews were done when the interviewee was alone, usually in the home of the interviewee. In Sevanagar several interviews were carried out in the schoolhouse. Women in this community had to pass the schoolhouse on the way to the fields. When they saw a group of women sitting and talking they usually stopped to chat. This eventually led to an interview. The length of the interviews ranged from 40 to 90 minutes.

The VLW usually accompanied the investigators. Her presence not only helped in establishing rapport but also helped distract the crowd which usually gathered when the investigators went door to door. So while the VLW talked to the gathering of women and children outside the house, explaining to them the purpose of our visits, the investigators were able to complete the interviews in privacy.
Statistical Analysis

The data were categorized and scored by the investigator. To test for reliability of coding, 20 interviews were independently coded by a second coder. The coder was a graduate student in the social sciences. Three training sessions were held to familiarize the coder with the instrument and coding scheme. Agreement between coders was high ranging from 95% to 100% agreement.

Frequencies and means were computed for the background demographic information. One-way analyses of variance were done to study the difference between the two occupational groups, farming and nonfarming on all the measures. Scores on all the items that comprised the indices of perceived economic benefit and costs of girls and boys, contraceptive use and attitudes toward contraception and preference for boys were standardized around a mean of zero to take into account the variance of scores comprising the index. This process gave equal weight to all items in the index. Pooled-within correlations were computed to study the relationships among the variables family size measures, economic indices, contraceptive indices and preference of boys index. Sex differences in perceived economic benefit and costs of boys and girls in the total sample and within occupational groups were tested by t-tests using unstandardized scores.
RESULTS

The major concerns of the study were the relationships among father's occupation and family size, perceived economic benefit and cost of girls and boys, use of contraception and attitude toward contraception, and preference for boys. Also of major interest were the relationships among perceived economic benefit and cost of girls and boys, attitudes toward contraception, use of contraception and family size indices. Differences between perceived economic benefit and cost of girls and boys and within occupational groups also were investigated.

Background demographic information as well as the relationship of husband's education and wife's education to all the above variables also were examined.

Major Findings

Occupation

One-way analyses of variance were computed to examine the relationship of occupation to family size, contraceptive use and attitude toward contraception, economic indices and preference for boys. Significant differences were found in actual family size ($F_{1,118} = 6.25$, $p > .01$), desired family size ($F_{1,118} = 13.33$, $p > .001$) and ideal family size ($F_{1,118} = 12.70$, $p > .001$) between the farming and nonfarming groups with the farming group having higher means on all three measures (Table 6). The null hypotheses (la,lb,lc) stating no relationship between
father's occupation and family size measures, actual, desired and ideal family size are rejected.

Table 6. F ratio, mean and standard deviation for family size measures by occupation

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual family size</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farm</td>
<td>60</td>
<td>3.63</td>
<td>1.60</td>
<td>6.25**</td>
</tr>
<tr>
<td>Nonfarm</td>
<td>60</td>
<td>2.97</td>
<td>1.28</td>
<td></td>
</tr>
<tr>
<td>Desired family size</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farm</td>
<td>60</td>
<td>6.03</td>
<td>2.70</td>
<td>13.33***</td>
</tr>
<tr>
<td>Nonfarm</td>
<td>60</td>
<td>4.37</td>
<td>2.24</td>
<td></td>
</tr>
<tr>
<td>Ideal family size</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farm</td>
<td>60</td>
<td>5.16</td>
<td>2.29</td>
<td>12.70***</td>
</tr>
<tr>
<td>Nonfarm</td>
<td>60</td>
<td>3.93</td>
<td>1.35</td>
<td></td>
</tr>
</tbody>
</table>

** p > .01.
*** p > .001.

There were significant differences in perceived economic benefit of boys ($F_{1,118} = 15.58$, p > .001) and perceived economic cost of boys ($F_{1,118} = 4.281$, p > .05) between farming and nonfarming groups (Table 7). The farming group perceived greater benefit from
Table 7. *F* ratio, means and standard deviations for PEB, PEC and preference for boys by occupation\textsuperscript{a,b}

<table>
<thead>
<tr>
<th>Comparison</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PEB index, boys</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farm</td>
<td>60</td>
<td>4.64</td>
<td>11.93</td>
<td>15.58***</td>
</tr>
<tr>
<td>Nonfarm</td>
<td>60</td>
<td>-4.64</td>
<td>13.54</td>
<td></td>
</tr>
<tr>
<td><strong>PEB index, girls</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farm</td>
<td>60</td>
<td>0.35</td>
<td>8.80</td>
<td>0.16</td>
</tr>
<tr>
<td>Nonfarm</td>
<td>60</td>
<td>-0.35</td>
<td>10.16</td>
<td></td>
</tr>
<tr>
<td><strong>PEC index, boys</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farm</td>
<td>60</td>
<td>-0.82</td>
<td>2.50</td>
<td>4.28*</td>
</tr>
<tr>
<td>Nonfarm</td>
<td>60</td>
<td>0.82</td>
<td>5.54</td>
<td></td>
</tr>
<tr>
<td><strong>PEC index, girls</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farm</td>
<td>60</td>
<td>-0.44</td>
<td>4.40</td>
<td>0.59</td>
</tr>
<tr>
<td>Nonfarm</td>
<td>60</td>
<td>0.44</td>
<td>7.20</td>
<td></td>
</tr>
<tr>
<td><strong>Preference for boys</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farm</td>
<td>60</td>
<td>0.21</td>
<td>1.69</td>
<td>2.57</td>
</tr>
<tr>
<td>Nonfarm</td>
<td>60</td>
<td>-0.21</td>
<td>1.09</td>
<td></td>
</tr>
</tbody>
</table>

* \(p > .05\).

*** \(p > .001\).

\textsuperscript{a} PEB = Perceived economic benefits.

\textsuperscript{b} PEC = Perceived economic costs.
having boys than the nonfarming group, while the nonfarming group perceived greater economic cost of having boys than the farming group. The null hypotheses (2a,2b) stating no relation between father's occupation and perceived economic benefit of boys and perceived economic cost of boys are rejected.

No significant differences were found between farming and nonfarming groups in perceived economic benefit and perceived economic cost of girls (Table 7). The null hypothesis stating no relationship between father's occupation and perceived economic benefit and cost of girls (3a,3b) fails to be rejected. No significant differences existed in preference for boys between the two occupational groups (Table 7). Hence the null hypothesis (4) of no differences in preference for boys between occupational groups fails to be rejected.

There also were no significant differences between the farming and nonfarming groups in attitudes toward contraception and contraceptive use. Thus the null hypothesis (5) stating no difference between occupational groups in attitudes towards contraception and contraceptive use fails to be rejected (items, scoring scheme and frequency distributions are reported in Appendix C).

Sex differences

Sex differences in the means of: a) perceived economic benefits of boys and girls and b) perceived economic costs of boys and girls within each of the two occupational groups were examined by t-tests. There were significant differences in the means of perceived economic benefit of boys and girls within the farming group ($t_{57} = 24.59, p > .001$) and
within the nonfarming group ($t_{58} = 19.98, p > .001$) (Table 8). The means for boys were higher than the means for girls in both the occupational groups. The null hypothesis (6) stating no differences exist in perceived economic benefits of girls and boys within occupational groups is rejected. No significant differences were found in the means of perceived economic costs of boys and girls within each of the two occupational groups. The null hypothesis (7) of no difference in perceived economic cost of boys and girls within occupational groups fails to be rejected.

Table 8. *t* test, mean, and standard deviation for sex differences in perceived economic benefit index within occupations

<table>
<thead>
<tr>
<th>Perceived Economic Benefit Index</th>
<th>M</th>
<th>SD</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Farm n = 58</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>42.59</td>
<td>5.06</td>
<td>24.59***</td>
</tr>
<tr>
<td>Girls</td>
<td>19.53</td>
<td>5.37</td>
<td></td>
</tr>
<tr>
<td><strong>Nonfarm n = 59</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>38.12</td>
<td>6.52</td>
<td>19.98***</td>
</tr>
<tr>
<td>Girls</td>
<td>18.15</td>
<td>4.48</td>
<td></td>
</tr>
</tbody>
</table>

*** $p > .001$.  

---

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Correlations among variables

Pooled-within correlations were computed to study the relation between family size, economic indices and contraceptive indices. Correlations among measures of family size were also examined. There was a significant positive correlation between desired family size and perceived economic benefit from boys \( r_{117} = 0.17, p > .05 \) and between ideal family size and perceived economic benefit of girls \( r_{117} = 0.18, p > .05 \) (Table 9a). No other significant correlations were found between the perceived economic indices of girls and boys and family size measures, actual, desired and ideal family size. The null hypothesis stating no relationship between family size measure, desired family size \( (8b) \) and perceived economic benefit from boys \( (8d) \) is rejected. The null hypotheses stating no relationship between family size measures of actual or ideal family size \( (8a, 8c) \) and perceived economic benefit or cost of boys \( (8d, 8e) \) fail to be rejected. The null hypotheses stating no relationship between family size measures \( (9a, 9b) \) and perceived economic benefit \( (9d) \) or perceived economic cost of girls \( (9c) \) also fail to be rejected. The null hypothesis of no relationship between ideal family size \( (9c) \) perceived economic benefits of girls \( (9d) \) is rejected. The null hypothesis of no relationship between ideal family size \( (9c) \) and perceived economic costs of girls \( (9e) \) fails to be rejected. Significant negative correlations were found between contraceptive use and a) desired family size \( (r_{117} = -0.17, p > .05) \), and b) ideal family sizes \( (r_{117} = -0.22, p > .01) \). Also, significant were correlations between attitudes toward contraception and desired family size \( (r_{117} = \)
Table 9a. Correlations among family indices, PEB and PEC indices\(^{a,b}\)

<table>
<thead>
<tr>
<th>Variable</th>
<th>N=120</th>
<th>Actual Size</th>
<th>Desired Size</th>
<th>Ideal Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEB, boys</td>
<td>-0.05</td>
<td>0.17*</td>
<td>0.12</td>
<td></td>
</tr>
<tr>
<td>PEB, girls</td>
<td>-0.03</td>
<td>0.13</td>
<td>0.18*</td>
<td></td>
</tr>
<tr>
<td>PEC, boys</td>
<td>0.02</td>
<td>-0.07</td>
<td>-0.05</td>
<td></td>
</tr>
<tr>
<td>PEC, girls</td>
<td>0.08</td>
<td>-0.08</td>
<td>-0.14</td>
<td></td>
</tr>
</tbody>
</table>

\(^{a}\) PEB = Perceived economic benefits.

\(^{b}\) PEC = Perceived economic costs.

\(^{*}\) \(p > .05\).

-0.30, \(p > .001\) (Table 9b). There were no other significant correlations between contraceptive use or attitudes and actual or ideal family size (Table 9a). The null hypotheses stating no relationship between family size measure of desired family size (10b), attitude towards contraception

Table 9b. Correlations among family size and contraceptive indices

<table>
<thead>
<tr>
<th>Variable</th>
<th>N=120</th>
<th>Actual Size</th>
<th>Desired Size</th>
<th>Ideal Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contraceptive use</td>
<td>0.13</td>
<td>-0.17*</td>
<td>-0.22**</td>
<td></td>
</tr>
<tr>
<td>Contraceptive attitudes</td>
<td>0.05</td>
<td>-0.30***</td>
<td>-0.14</td>
<td></td>
</tr>
<tr>
<td>Actual size</td>
<td>-</td>
<td>0.15</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>Desired size</td>
<td>0.15</td>
<td>-</td>
<td>0.71***</td>
<td></td>
</tr>
</tbody>
</table>

\(^{*}\) \(p > .05\).

\(^{**}\) \(p > .01\).

\(^{***}\) \(p > .001\).
(10d) and contraceptive use (10e) are rejected. The null hypotheses of no relation between actual family size (10a) and attitudes toward contraception or contraceptive use (10d, 10e) fail to be rejected. The null hypothesis of no relation between ideal family size (10c) and contraceptive use (10e) is rejected while the null hypothesis of no relation between ideal family size (10c) and attitudes toward contraception (10d) fails to be rejected. There were no significant correlations between contraceptive use and attitudes toward contraception and the economic indices. Thus the null hypotheses (11, 12) stating no relationship between perceived economic benefit and cost of girls and boys and attitudes towards contraception and contraceptive use fail to be rejected.

There were no significant correlations between actual family size and desired family size of ideal family size (Table 9b). There was a significant positive correlation between desired and ideal family size \(r_{117} = 0.71, p > .001\) (Table 9b).

Ancillary Findings

Demographic variables

The mean age of the men in the sample was 33.5 years, ranging from 20.0 to 45.0 years. The mean age of women in the sample was 28 years ranging from 19 to 35 years. There were no significant differences in the mean age of men and the mean age of women between the farming and nonfarming groups (Table 10).

Men in the sample had more formal education \( (M = 4.2\) years) than the women \( (M = 0.6\) years) (Table 10). Both men and women in the nonfarming
group had in general more education than men and women in the farming
group (Table 10). Men in the nonfarming group had significantly more
education than men in the farming group ($t_{119} = 2.18, p > .05$). There
were no significant differences in the educational level of women from
the two occupational groups.

The trend of greater education of males was reflected in the
number of years of schooling of children who had completed formal edu-
cation (Table 10). Boys on the average had 1.8 years more education
than girls in the sample.

The correlations of husband's education and wife's education with
the dependent variables were examined. There was a negative correla-
tion approaching significance between husband's education and desired
family size ($r_{117} = -0.13, p > .08$) i.e., husbands with higher levels
of education tended to desire smaller families. There was no sig-
nificant correlation between husband's education and perceived
economic cost of boys (Table 11). There was a significant, positive
correlation between husband's education and perceived economic cost
of girls ($r_{117} = .26, p > .01$) (Table 11). Thus the higher the level
of husband's education, the greater were the perceived costs of having
girls (Table 11).

A significant negative correlation emerged between wife's education
and perceived economic benefit of boys ($r_{117} = -.24, p > .01$) i.e., the
higher the level of wife's education the lower were the perceived benefit
of boys (Table 11). There was a significant positive correlation be-
tween wife's education and perceived cost of girls ($r_{117} = .27, p > .01$),
Table 10. Demographic information by occupational groups

<table>
<thead>
<tr>
<th>Demographic Information</th>
<th>Total M years</th>
<th>Farm M years</th>
<th>Nonfarm M years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Husband's age</td>
<td>33.5</td>
<td>34.0</td>
<td>33.0</td>
</tr>
<tr>
<td>Wife's age</td>
<td>28.0</td>
<td>29.0</td>
<td>27.0</td>
</tr>
<tr>
<td>Husband's education</td>
<td>4.2</td>
<td>3.3</td>
<td>5.1</td>
</tr>
<tr>
<td>Wife's education</td>
<td>.6</td>
<td>.5</td>
<td>.7</td>
</tr>
<tr>
<td>Education of boys(^a)</td>
<td>2.8</td>
<td>2.3</td>
<td>3.3</td>
</tr>
<tr>
<td>Education of girls(^a)</td>
<td>1.0</td>
<td>.5</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Table 11. Correlation of husband's and wife's education to PEB and PEC of boys and girls\(^a,b\)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Husband's Education</th>
<th>Wife's Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEB, boys</td>
<td>.03</td>
<td>-.24**</td>
</tr>
<tr>
<td>PEC, boys</td>
<td>.13</td>
<td>.10</td>
</tr>
<tr>
<td>PEB, girls</td>
<td>-.15</td>
<td>-.01</td>
</tr>
<tr>
<td>PEC, girls</td>
<td>.26**</td>
<td>.27**</td>
</tr>
</tbody>
</table>

\(^a\) PEB = Perceived economic benefits.

\(^b\) PEC = Perceived economic costs.

\(^*\) Significance level .01.

i.e., the higher the level of wife's education the greater were the perceived cost of girls.
DISCUSSION

The purpose of the present investigation was to examine the relationship of father's occupation to family size, perceived economic benefit and children, perceived economic cost of children, attitudes toward contraception, contraceptive use and preference for boys. Sex differences in perceived economic benefit of boys and girls also were investigated as well as the relationship among the variables of family size, economic benefit and cost of children, contraceptive use and attitudes. The relationships of the socioeconomic variables of educational level of husbands and wives to all the above variables also were studied. The above relationships are examined in light of the findings. In addition, limitations of the study and implications for further research are noted.

Major Findings

Occupation

Significant relationships were found between father's occupation and desired, ideal and actual family size. The farming group had higher means than the nonfarming group on all three family-size measures. The finding of larger desired, ideal and actual family size among farming groups compared with nonfarming groups has wide support in the literature (Mueller, 1972; Anker, 1977; Narayan, 1978).

The farming group also perceived significantly greater economic
benefits from boys and significantly fewer costs of raising boys than
the nonfarming group. There were no significant differences between
farming and nonfarming groups in perceived economic benefits and costs
of girls although the trend was the same as that for boys.

Nag (1972) surveying the economic utility of children in 64
countries with differing degrees of industrialization found 23.9% of boys
and 10.2% of girls aged 10 to 14 years economically active in agricultural
societies. In contrast, these percentages dropped to 13.2 for boys and
0.0 for girls in semi-industrial societies and to 4.1 for boys and 2.4
for girls in industrial societies. Within any society, children of farm
families seem to become economically active at an earlier age than
children of nonfarm families. United States census data on employment
status of farm and nonfarm children in 1950 showed that 60.4% of farm
children not enrolled in school were included in the labor force while
only 11.8% of nonfarm children were so included (U.S. Census of Popula­
tion: 1950, 1953). Kasarda (1971), using data available from the
United Nations and the Yearbook of Labor Statistics for 49 nations
during the 1960 to 1969 period found significant positive correlations
between the percentage of "economically active" population under 15
years of age and two fertility measures. Arnold et al. (1975) in their
six-culture study, reported that parents in rural areas emphasized the
economic utility of children and had larger families.

Nag (1972: 62) concluded that the economic contribution of children
in agricultural societies is higher than in industrial societies because:
1) households are the main units of production and hence need and facilitate the unpaid contribution of children, 2) seasonal variations in the demand for labor makes it necessary for children to join the labor force at an early age, 3) prolonged training necessary for effective participation in industrial production keeps children out of the labor force in industrial societies (Narayan, 1978, pp. 342-343).

Nag's (1972) analyses applies well to the two different occupational groups within a rural agricultural Indian society. Within the farming group children were seen as becoming economically productive at an early age and were gradually absorbed in the father's occupation of farming. This would appear to be especially true for male children. Families in the nonfarming group on the other hand either had no land or had less than .2 acres. Children could not participate in the father's usually salaried occupation which often required special training and was carried on away from the house. Several fathers commuted to the city of Lucknow for their work.

However, all the families and the fathers in the nonfarming group resided in villages of farmers in an agricultural setting. All the nonfarming fathers were first generation nonfarmers. Although fathers in the nonfarming group in general had more contact with the urban areas than the farming group, this was not true for their spouses. Approximately 50% of the women in the total sample had never been to Lucknow while an additional 45% averaged one visit per year to Lucknow.

There were no significant differences between the farming and non-
farming groups in attitudes towards contraception and contraceptive use. Thus the two occupational groups could be differentiated on three measures of family size: actual, desired and ideal family size; and the indices of perceived economic benefit and cost of boys.

**Sex differences**

Although there was no significant difference in preference for boys between the two occupational groups, there were significant sex differences in perceived economic benefit of boys and girls within the occupational groups. Within both the farming and nonfarming groups boys were perceived as significantly more economically beneficial than girls. There were no significant differences within the occupational groups in perceived economic costs of boys and girls.

In rural India differential sex role socialization begins early (Minturn and Hitchcock, 1966; Poffenberger, 1975). Often by six years of age both girls and boys are seen carrying out household tasks. By 10 years of age, boys generally are spending more time out of doors in the company of men, while girls are increasingly taking on the role of substitute mothers. Girls are generally married by 14 to 16 years of age, while boys are usually two to four years older at marriage.

Girls are commonly viewed as 'another's property', as a 'guest in the house till marriage', to be given away at puberty. Thus in a patrilineal, patrilocal traditional Indian society investment in girls is generally not considered wise as girls are eventually lost to the family of origin. Girls are not expected to work for a salary outside the home.
Hence there is little emphasis on education of girls which cuts down the cost of girls but which also decreases their later earning capacity. Boys on the other hand stay with the parents or in close association with parents all their lives. In addition, they bring in a wife, who becomes an additional worker in the house under the command of the mother-in-law. Although parents draw comfort from a married daughter's brief returns home, her first acknowledged duty after marriage lies with her husband and his family.

Having at least one child of each sex is considered essential by parents. Boys are seen as carrying on the family name, being a source of income and security and are seen as essential for the protection of women. Girls on the other hand are considered essential to complete one's 'dharma' or duty in life which is performed through the action of giving her away in marriage. Girls also play an essential role during the celebration of several festivals. In addition, they are valued for the household work they do and the companionship they provide to the mothers. Both male and female children are in addition valued for other sociopsychological reasons.

Correlations among variables

The correlations between measures of family size, economic indices and contraceptive indices revealed an interesting picture. There were no significant correlations between: actual family size and a) desired family size or b) ideal family size. There was a significant positive correlation between desired and ideal family size.
Desired family size and ideal family size had some relationships with the economic and contraceptive indices. A significant positive correlation was found between perceived economic benefit of boys and desired family size. Significant negative correlations were found between desired family size and contraceptive use and contraceptive attitudes. A significant positive correlation was found between ideal family size and perceived economic benefit of girls. Ideal family also was significantly and negatively correlated to contraceptive use. There were no other significant correlations among any other economic, family size or contraceptive indices.

The lack of correlation between some measures of family size was not surprising, as each of the variables is influenced by different factors. Thus the measure of actual family size is influenced by age of parents, age of marriage and duration of marriage. No attempt was made to control for any of these factors in the present study. However an attempt was made during sample selection to limit the age of mothers to those in the middle of their fertility cycle. In spite of this attempt the ages of mothers in the sample ranged from 19 to 35 years. Because of the small sample size and the large number of variables under investigation, no attempt was made to delineate the effect of age of parents.

The fertility measure, ideal family size, has come under attack by several investigators. Namboodri (1972) has argued that ideal family size which asks respondents to imagine a hypothetical ideal family within the constraints of the respondent's particular circumstances is not suitable for the study of differentials in family size preferences. The
wording of the question leads to a reduction in variation of the responses. Arnold et al. (1975) found the number of additional children desired as the best indicator of current fertility motivations and dimensions of sociopsychological value of children. Both measures, ideal and desired family size take into account although in different ways, the current number of children and age of the couple. However, actual family size measures only current parity. Hence the lack of significant correlation of actual family size to the other two family size measures, ideal and desired family size, which are in themselves highly correlated. Desired family size and ideal family size bear out some of the relationships predicted by Arnold et al. (1975) conceptual model.

Ancillary Findings

Demographic variables

Among demographic variables related to fertility, educational level of parents has been consistently found to be strongly related to fertility (Mueller, 1972; Bogue, 1969; Simon, 1974). In the present study, a negative correlation approaching significance was found between husband's education and desired family size. There was a significant difference in educational level of husbands between the occupational groups with the nonfarming groups having greater number of years of schooling. There was no significant correlation between the wife's educational level and desired family size. There also was no significant difference between the educational level of women in the two
occupational groups.

The finding of a weak relation between husband's education and desired family size, points out to the need of examining the relationship between occupation and desired family size, controlling for education. However, this was not done in the present study because of the small sample size and the number of variables already investigated making the probability of spurious results high.

A significant positive correlation also existed between husband's education and perceived economic costs of girls. Thus husbands with higher educational levels perceived the costs involved in raising girls as relatively higher which may have resulted in directly or indirectly reducing the desired family size.

There also was a significant positive correlation between wife's education and perceived economic cost of girls. Since educational aspirations for girls was a major component of the perceived economic costs index, it may be that women with higher levels of education have higher educational aspirations for their daughters. In addition, they may begin to see economic investment in girls more on par with that of boys than women with lower levels of education, hence increasing the perceived economic costs of raising girls.

In addition, a significant negative correlation was found to exist between wife's educational level and perceived economic benefit from boys. It is possible that as the education of wives increase, they become more economically independent and do not expect to depend completely on their sons for economic support.
Limitations of the Study

The limitations of the present study are numerous. The small sample size in a study depending on survey data is a serious shortcoming. The study of fertility and its determinants is extremely complex with a number of variables, known and unknown interwoven. Hence, the nature of the study dictates a large sample size to delineate the relationship between variables. However this was not satisfactorily achieved in the present study.

A more sophisticated statistical analysis, such as regression analysis was not performed because of the small sample size and large number of variables of interest. Ideally a study related to fertility would include a sample of male and female respondents. However this was again not accomplished because of time constraints.

Although the present study treats male and female children as separate groups, it does not differentiate between age groups within the sexes. It is obvious that the economic productivity of a five-year-old is different from that of a 15-year-old. However, these differences were not identified in the present study. In addition the focus was on the perceived economic cost and productivity of a certain "quantity of children" without taking into account the "quality of children".

Results of the study, in addition have limited generalizability. They may be generalized only to predominantly rural groups comprising of low caste Hindus living in villages with some urban contact and receiving some developmental assistance from the government.

The instrument used in the study was adopted from Arnold et al. (1975)
and Phase 2 of the cross-cultural studies. Although in their numerous reports and publications it is mentioned that the first interview schedule was the result of several pretestings and item analyses, objective measures of reliability and validity are not easily available. The instrument was developed to have cross cultural applicability, however, Arnold et al. (1975) did not administer it in India.

Implications for Future Research

Despite the several shortcomings of the present study, the results if validated by further research have important implications for family planning policies in India. The results seem to bear out the economic rationality of having large numbers of children in rural farming groups in India.

Although several large scale studies have been done prior to the present study, most of these studies, investigated the value of children as a group rather than differentiating between the sexes. In cultures in which a strong sex role differentiation exists, not differentiating between the value of girls and boys may lead to misleading results. It is apparent that in the present study a wide disparity exists in the perceived economic productivity of sons and daughters. Had the two groups been combined, the relationships that emerged between variables would have presented a misleading pattern.

Measuring economic productivity of children engaged in nonsalaried jobs is a difficult task. Having multiple measures may be one method of increasing the validity of information gathered. Thus a study that employs data collection through interviews, combined with observational time-
budget and/or conversion of these data into monetary terms may be valuable. Further research is needed to suggest directions for policies aimed at reducing population growth at a time when existing policies and programs have proved to be relatively ineffective.
SUMMARY

The purpose of the present study was to investigate the relationship between father's occupation, family size, perceived economic benefit of children, perceived economic cost of children, use of contraceptives, attitudes toward contraception and preference for boys. Also of major interest were the relationships between perceived economic benefit and cost of girls and boys, attitudes toward contraception, use of contraception and family size measures. Differences between perceived economic benefit and cost of girls and boys within the occupational groups also were investigated. Background demographic information as well as the relationship of husband's and wife's education to all the above variables were examined.

Data were collected from three villages in the state of Uttar Pradesh, India. Subjects for the study were 120 rural, Hindu, low caste women, 60 from each of the two occupational groups, farming and nonfarming. The ages of the women ranged from 19 to 35 years of age.

A census was conducted to obtain background information prior to the administration of selected sections from Phase 2, Value of Children interview schedule. Indices for several measures were constructed by combining related items on the interview schedule. Scores on all the items comprising the indices were standardized around a mean of zero to give equal weightage to all the items on the indices.

One-way analysis of variance tests were computed to analyze the relationship of father's occupation to family size, perceived economic
benefit and cost of girls and boys, contraceptive use, attitudes toward contraception and preference for boys. Sex differences in the perceived economic benefit and cost of girls and boys were examined by performing t-tests on nonstandardized scores of items comprising the indices.

Pooled-within correlations were computed to study the relationship between family size measures, contraceptive indices, and perceived economic indices. Correlations among the three measures of family size (actual, desired and ideal) also were studied.

Means, standard deviations and t-tests were computed to compare mother's age and education, father's age and education and the educational level of sons and daughters between the two occupational groups. Correlations were computed to examine the relationship of husband's and wife's education to all the primary variables.

Results of the study indicated significant differences in actual desired and ideal family size between the two occupational groups, with the farming group having higher means.

Farming and nonfarming groups differed significantly in perceived economic benefit and cost of boys with the farming group perceiving significantly greater benefit and significantly fewer costs of having boys than the nonfarming group. There were no significant differences between occupational groups in perceived economic cost and benefit of girls, contraceptive use, attitudes toward contraception and preference for boys.

Within each occupational group boys were perceived as significantly
more economically beneficial than girls. There were no differences in the perceived economic cost of girls and boys. Actual family size was not significantly correlated to either desired or ideal family size. However, there was a significant positive correlation between desired and ideal family size. Desired family size was found to be significantly and positively correlated to perceived economic benefit of boys and significantly and negatively correlated to contraceptive use, and attitudes toward contraception. There also was a significant positive correlation between ideal family size and perceived economic benefit of girls and a significant negative correlation between ideal family size and contraceptive use. There were no other significant correlations among the variables actual, desired, ideal family size, perceived economic benefit and cost of girls and boys, contraceptive use and attitudes toward contraception.

A significant difference was found between the educational level of husbands in the farming and nonfarming groups, with the nonfarming husbands having higher levels of education. There was no difference in the educational level of wives in the two occupational groups. In general, men had more education than women.

Husband's education was significantly correlated to perceived economic cost of girls. There also was a significant positive correlation between wife's education and perceived economic cost of girls and a significant negative correlation between wife's education and perceived economic benefit of boys.

Thus the results of the present study indicated that farming groups
in comparison with nonfarming groups had larger families and perceived
greater economic benefit of boys and lower cost of boys than the non-
farming groups. Desired family size bears out a relationship to occu-
pation, perceived economic benefit of boys and contraceptive use and
attitude towards contraception. Ideal family size demonstrates a re-
lationship to occupation, perceived economic benefit of girls and
contraceptive use. All these relationships are in the direction pre-
dicted by Arnold et al. (1975) conceptual model.

Results were discussed and limitations of the study and implica-
tions for future research noted.
REFERENCE NOTES


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to my husband, Ron, without whose faith in me I could never have done it. Thank you Ron for all your support and help.

Thanks are also due to Sunanda Prasad, Additional District Magistrate, Lucknow district for her time and invaluable contacts, and her officers for their willing help throughout the period of data collection. A very special thanks to the people of the villages, Basta, Salegram and Sevanagar without whose cooperation there would have been no study.

I gratefully acknowledge financial support extended to the study by the Home Economic Research Institute and the World Food Institute, Iowa State University.
APPENDIX A: VALUE OF CHILDREN DIMENSIONS

(Arnold et al., 1975)

Positive General Values:

1. Emotional benefits - happiness, love companionship, fun; also viewed in reverse as relief from strain and avoidance of boredom or loneliness.

2. Economic benefits and security - benefit from children's help in the house, business or farm, from care of siblings, and from sharing of income; old-age security for the parents, including economic support, physical care and psychological security.

3. Self-enrichment and development - learning from the experience of childrearing; becoming more responsible and mature; incentive and goals in life; being viewed as an adult, a grown man or women; self-fulfillment; feeling of competence as a parent.


5. Family cohesiveness and continuity - children as a bond between husband and wife; fulfillment of marriage; completeness of family life; continuity of family name and traditions; producing heirs; having future grandchildren.

Negative General Values:

1. Emotional costs - general emotional strain; concern about discipline and moral behavior of children; worry over health; noise and disorder in household; children as nuisances.

2. Economic costs - expenses of childrearing; educational costs.

3. Restriction or opportunity costs - lack of flexibility and freedom; restrictions on social life, recreation, travel; lack of privacy; restrictions on career or occupational mobility; no time for personal needs or desires.

4. Physical demands - extra housework, caring for children; loss of sleep; general weariness.
5. Family costs - less time with spouse; disagreements over rearing of children; loss of spouse's affection.

Large-Family Values:

1. Sibling relationships - desire for another child to provide companionship for existing children; enriching the lives of children; avoiding an only child.

2. Sex preferences - specific desire for a son or daughter; desire for a certain combination of sexes among children.

3. Child survival - concern that existing children may die; need for more children to have enough survive to adulthood.

Small-Family Values:

1. Maternal health - concern that too many pregnancies, or pregnancy when the mother is beyond a certain age, is bad for the mother's health.

2. Societal costs - concern about overpopulation, belief that another child would be a burden to society.
APPENDIX B: VALUE OF CHILDREN INTERVIEW SCHEDULE,
SCORING SCHEME AND RECORDING FORM

1. I want to ask you about the advantages and the disadvantages of having children. First – what would you say are some of the advantages or good things about having children, compared with not having children at all? (PROBE FOR THREE, girls/boys).

3. And what are some of the disadvantages or bad things about having children, compared with not having children? (PROBE FOR THREE, girls/boys).

3. (Are you/Is your wife) pregnant now?
   - Yes------------------2
   - No------------------1
   - Don't know/Uncertain --8

4. Would you like to have any more children (after this baby)?
   - Yes -- 2
   - Depends on -- 7
   - Don't know -- 8
   - No -- 1

   SKIP TO 9
   ON PAGE 79

5. How many more children would you like to have (not counting this pregnancy)? ______________ MORE CHILDREN

   A. (PROBE, IF NECESSARY): Many people feel as you do, but still they have some idea of what they would prefer (God/fate/chance to send them). What about you? How many more children would you prefer? ______________ MORE CHILDREN

   B. (IF R GIVES A RANGE): If you had to choose a single number between _______ and ______ more children, which would you choose? ______________ MORE CHILDREN

6. Let's see if I have this right:

   You now have _______ children (and you are expecting another).
   You would like to have _______ more.
   So you would have a total of _______ children.

   Is this right? (REVISE FIGURES, IF NECESSARY)
7. Can you tell me some of the reasons why you would prefer not to have more than _____ children? (girls/boys)

8. And what are some of the reasons why you would prefer not to have fewer than _____ children? (girls/boys)

IF NO ADDITIONAL CHILDREN ARE DESIRED:

9. Is the number of children you now have (IF PREGNANT: including the one you are expecting) satisfactory to you or would you have preferred fewer?
   
   Satisfactory - - 1  Fewer - - 2

   A. How many in all would you have preferred?__________

   B. Can you tell me some of the reasons why you would prefer not to have more than _____ children?
      (FROM A)

   C. And what would be some of the reasons why you would prefer not to have fewer than _____ children?
      (FROM A)

10. Can you tell me some of the reasons why you would prefer not to have more than _____ children?

11. And what would be some of the reasons why you would prefer not to have fewer than_____ children?

12. If you were starting your family all over again, things being pretty much as they were, how many children would you most want to have?

   A. (PROBE IF NECESSARY): Of course it may depend on a number of things, but if it were up to you alone how many children would you like to have?

13. Is this more or less than the number you wanted when you got married?

   More - - 3  Less - - 1  Same - - 2  SKIP TO 16

   A. Why do you prefer more children now?  B. Why do you prefer fewer children now?
14. Of those you want now, how many would you want to be boys and how many girls? BOYS_________ GIRLS_________

A. (IF R WANTS AT LEAST ONE BOY): For you, what are the most important reasons for wanting a son? (PROBE FOR TWO)

B. (IF WANTS AT LEAST ONE GIRL): For you what are the most important reasons for wanting a daughter? (PROBE FOR TWO)

15. If you were to have exactly three children altogether, how many would you want to be boys and how many girls?

3 GIRLS--1  1 BOY --2  2 BOYS--3  3 BOYS--4
2 GIRLS   1 GIRL

16. We have been talking about reasons why you want more children and don't want more children. I have here a list of reasons people give for wanting more children. In general, that is, why they find it satisfying to have children. Please tell me how important each one is to you, as a reason for having children.

<table>
<thead>
<tr>
<th>SATISFACTION</th>
<th>VERY IMPORTANT</th>
<th>SOMEWHAT IMPORTANT</th>
<th>NOT IMPORTANT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. So that you will not be lonely</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2. Because children are needed to complete the family</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>How important is this for having children</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3. Because children are fun</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4. To have a child to help around the house (girl/boy)?</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>5. Because of your religion?</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>6. To have someone help on the family farm or business (girl/boy)?</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>7. Because it would be odd not to have a child?</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
8. To be sure that in your old age you will have someone to look after and take care of you (girl/boy)?

   SATISFACTION
   VERY IMPORTANT  SOMewhat IMPORTANT  NOT IMPORTANT
   3  2  1

9. So that you will be remembered after you are gone?

   SATISFACTION
   VERY IMPORTANT  SOMewhat IMPORTANT  NOT IMPORTANT
   3  2  1

10. So that there will be more people to help the family financially (girl/boy)?

   SATISFACTION
   VERY IMPORTANT  SOMewhat IMPORTANT  NOT IMPORTANT
   3  2  1

17. I would like to know what kind of economic or practical help you would expect from children, either while they are growing up or after they are adults.

(If you had sons) would you expect your sons to:

<table>
<thead>
<tr>
<th>TYPE OF HELP</th>
<th>EXPECT FROM SONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Give part of their salary to you when they begin working</td>
<td>Yes  No Depends on</td>
</tr>
<tr>
<td>(2) Help support their younger brothers and sisters through school</td>
<td></td>
</tr>
<tr>
<td>(3) Contribute money in family emergencies</td>
<td></td>
</tr>
<tr>
<td>(4) Have you live with them</td>
<td></td>
</tr>
<tr>
<td>(5) Support you financially when you grow old</td>
<td></td>
</tr>
</tbody>
</table>

A. (IF YES TO (5)): Would you expect to rely on your sons a great deal for financial support when you grow old, or would you rely on them only a little? A great deal -- 3

A little -- 2
18. Some couples feel, that the more boys they have, the better off the family will be economically. Others feel that having a lot of boys will make their family less well off. How do you personally feel about this?

Better off -- 2
No difference -- 2
Worse -- 1

19. (If you had daughters) would you expect your daughters to:

<table>
<thead>
<tr>
<th>TYPE OF HELP</th>
<th>EXPECT FROM DAUGHTERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Give part of their salary to you when they begin working</td>
<td>3 1</td>
</tr>
<tr>
<td>(2) Help support their younger brothers and sisters through school</td>
<td>3 1</td>
</tr>
<tr>
<td>(3) Contribute money in family emergencies</td>
<td>3 1</td>
</tr>
<tr>
<td>(4) Help around the house</td>
<td>3 1</td>
</tr>
<tr>
<td>(5) Have you live with them</td>
<td>3 1</td>
</tr>
<tr>
<td>(6) Support you financially when you grow old</td>
<td>3 1</td>
</tr>
</tbody>
</table>

A. (IF YES TO (5)): Would you expect to rely on your daughters a great deal for financial support when you grow old, or would you rely on them only a little?

A great deal -- 3
A little -- 2

20. Some couples feel that the more girls they have, the better off the family will be economically. Others feel that having a lot of girls will make their family less well off. How do you personally feel about this?

Better off -- 3
No difference -- 2
Worse -- 1
21. Some people practice birth control or family planning, either to delay or pregnancy or to stop having children. Have you heard of birth control or family planning?

   Yes -- 2
   No -- 1

22. What is your opinion generally about married couples doing something to prevent pregnancy, that is, using some method of birth control? Do you approve strongly, approve slightly, disapprove strongly or disapprove slightly:

   Approve strongly -- 5
   Approve slightly -- 4
   Don't know/Neutral -- 3
   Disapprove slightly -- 2
   Disapprove strongly -- 1

23. Even if people hold certain opinions about birth control generally, they sometimes feel differently about birth control in certain circumstances. Do you approve or disapprove of birth control in order to:

<table>
<thead>
<tr>
<th>APPROVE</th>
<th>DISAPPROVE</th>
<th>UNCERTAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Postpone having the first child</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>(2) Control the spacing or timing of births after the first child</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>(3) Prevent further pregnancies after having all the children one wants</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>
R OR SPOUSE IS:

___ PREGNANT ___ NOT PREGNANT

24. At the present time, are you or your (husband/wife) doing anything to prevent having children?

Yes -- 2
No -- 1

25. Do you think you or your (husband/wife) might want to do anything to prevent having children in the future?

Yes -- 3    Uncertain -- 2    No -- 1

A. When might that be? Might it be after the birth of a certain child, or when?

AFTER _________CHILD

OTHER _________

B. Then do you plan to continue having children until you can't have any more?

Yes -- 2
No -- 1

C. As far as you know, are you and your (husband/wife) physically able to have another child?

Yes -- 2
No -- 1
Don't know -- 8

26. Have your or your (husband/wife) ever done anything to prevent having children?

Yes -- 2
No -- 1

27. We'd like to know how much schooling you expect your children to have. Consider the children you already have and also any children you might have in the future. First, let's talk about sons. What is the highest level of school which you would expect any of your sons to attend?

28. How certain are you that any of your sons will get that much education? Would you say (read choices):

1. Certain  
2. Fairly certain  
3. Just a chance
29. And how about any daughters you might have? What is the highest level of school you would expect any of them to attend?

30. How certain are you that any of your daughters will get that much education? Would you say (read choices):

1. Certain____
2. Fairly certain____
3. Just a chance____

Value of Children Recording Form

1. Place
2. Desired family size
3. Yes 2 No 1 Uncertain
4. Yes 2 No 1 Uncertain
5. _____more kids
   _____ to _____ more kids
6. Total kids_____
7. Advantages
8. Disadvantages
9. Satisfactory 1 Fewer 2
   a. Number preferred____
   b. Why
   c. Why
10. Why no more kids
11. Why no fewer kids?
Ideal Family Size

12. Number of kids

13. More 3 Less 1 Same 2
   a. Why more now?
   b. Why less now?

14. boys girls
    a. Reasons
    b. Reasons

15. 3 girls 1 boy -- 2 2 boys 3 3 boys -- 4
    2 girls 1 girl

16. (1) 3 2 1
    (2) 3 2 1
    (3) 3 2 1
    (4) 3 2 1
    (5) 3 2 1
    (6) 3 2 1
    (7) 3 2 1
    (8) 3 2 1
    (9) 3 2 1
    (10) 3 2 1

17. (1) 3 yes 1 no
    (2) 3 yes 1 no
    (3) 3 yes 1 no
    (4) 3 yes 1 no
    (5) 3 yes 1 no
    (6) 3 yes 1 no
    a. great -- 3  little -- 2

18. boys - better worse same
19. (1) 3 yes 1 no  
(2) 3 yes 1 no  
(3) 3 yes 1 no  
(4) 3 yes 1 no  
(5) 3 yes 1 no  
(6) 3 yes 1 no  

a. great -- 3 little -- 2  

20. girls better worse same  

21. yes 2 no 1  

22. Approve much -- 5  
    Approve little -- 4  
    Neutral -- 3  
    Disapprove little -- 2  
    Disapprove much -- 1  

23. Approve 3 Disapprove 1 Uncertain 2  
    3 1 2  
    3 1 2  

24. yes 2 no 1  

25. Future yes - 3 uncertain - 2 no - 1  

    a. When? After___child  
    b. Continue yes - 2 no - 1  
    c. Physically able - yes - 2 no - 1  

26. Past yes - 2 no - 1  

27. School boys yrs.  

28. Certain - 1 little - 2 chance - 3  

29. School-girls yrs.  

30. Certain - 1 little - 2 chance - 3
APPENDIX C: ITEMS, FREQUENCY DISTRIBUTIONS, AND SCORING
SCHEME FOR INDICES

1. Perceived Economic Benefit of Boys Index
2. Perceived Economic Benefit of Girls Index
3. Perceived Economic Costs of Boys Index
4. Perceived Economic Costs of Girls Index
5. Family Size Indices
6. Contraceptive Indices
7. Preference for Boys Index

Items, Scoring Scheme and Frequency Distribution of Farming and Nonfarming Groups for Perceived Economic Benefit of Boys Index

1. (Q.1) I want to ask you about the advantages and the disadvantages of having children. First - what would you say are some of the advantages or good things about having children, compared with not having children at all?
   Score: 2 points/reason

2. (Q.8&11) And what would some of the reasons why you would prefer not to have fewer than ____ children?
   Score: 2 points/reason

3. (14A) (If R wants at least one boy) For you, what are the most important reasons for wanting a son?
   Score: 2 points/reason

---

1Economic reasons or advantages mentioned of having boys were coded according to the coding scheme developed by Arnold et al. (1975), Appendix E).
4. (Q.16) We have been talking about reasons why you want more children and don't want more children. I have here a list of reasons people give for wanting to have children. In general, that is, why they find it satisfying to have children. Please tell me how important each one is to you, as a reason for having children.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Very Important</th>
<th>Somewhat Important</th>
<th>Not Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. To have a child, (boy) to help around the house?</td>
<td>44</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>b. To have someone help on the family farm or family business (boy)</td>
<td>59</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>c. To be sure that in your old age you will have someone to look after and take care of you (boy)</td>
<td>59</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>d. So that there will be more people to help the family financially (boy)</td>
<td>59</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

5. (Q.17) I would like to know what kind of economic or practical help you would expect from children, either while they are growing up or after they are adults.

<table>
<thead>
<tr>
<th>Type of Help</th>
<th>Expect from Sons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Give part of their salary to you when they begin working</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>F</td>
</tr>
<tr>
<td>2. Help support their younger brothers and sisters through school</td>
<td>59</td>
</tr>
<tr>
<td>3. Contribute money in family emergencies</td>
<td>58</td>
</tr>
<tr>
<td>4. Have you live with them</td>
<td>56</td>
</tr>
<tr>
<td>5. Support you financially when you grow old</td>
<td>59</td>
</tr>
</tbody>
</table>

1\text{F} = \text{Farming.}

2\text{NF} = \text{Nonfarming.}
6. (Q.17A) (If yes to (6)): Would you expect to rely on your sons a great deal for financial support when you grow old, or would you rely on them only a little?

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>NF</th>
</tr>
</thead>
<tbody>
<tr>
<td>A great deal</td>
<td>26</td>
<td>24</td>
</tr>
<tr>
<td>A little</td>
<td>34</td>
<td>34</td>
</tr>
</tbody>
</table>

7. (Q.18) Some couples feel that the more boys they have, the better off the family will be. Others feel that having a lot of boys will make their family less well off. How do you personally feel about this?

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>NF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better off</td>
<td>40</td>
<td>25</td>
</tr>
<tr>
<td>No difference</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Worse</td>
<td>16</td>
<td>24</td>
</tr>
</tbody>
</table>

Items, Scoring Scheme, and Frequency Distribution of Farming and Nonfarming Group for Perceived Economic Benefit of Girls Index

1. (Q.1) I want to ask you about the advantages and the disadvantages of having children. First - what would you say are some of the advantages or good things about having children, compared with not having children at all?

Score: 2 points/reason

2. (Q.8&11) And what would some of the reasons why you would prefer not to have fewer than____ children?

Score: 2 points/reason

3. (14A) (If R wants at least one girl) For you, what are the most important reasons for wanting a daughter?

Score: 2 points/reason

______________________________

1Economic reasons or advantages mentioned of having girls were rated according to the coding scheme developed by Arnold et al. (1975), Appendix D.
4. (Q16) We have been talking about reasons why you want more children and don't want more children. I have here a list of reasons people give for wanting to have children. Please tell me how important each one is to you, as a reason for having children.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Very Important</th>
<th>Somewhat Important</th>
<th>Not Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. To have a child, (girl) to help around the house?</td>
<td>F 29</td>
<td>F 28</td>
<td>F 8 9</td>
</tr>
<tr>
<td>b. To have someone help on the family farm or family business (girl)</td>
<td>F 8</td>
<td>F 3</td>
<td>F 17 19 35</td>
</tr>
<tr>
<td>c. To be sure that in your old age you will have someone to look after and take care of you (girl)</td>
<td>F 8</td>
<td>F 5</td>
<td>F 16 17 36</td>
</tr>
<tr>
<td>d. So that there will be more people to help the family financially (girl)</td>
<td>F 5</td>
<td>F 1</td>
<td>F 4 8 51 51</td>
</tr>
</tbody>
</table>

5. (Q19) I would like to know what kind of economic or practical help you would expect from children, either while they are growing up or after they are adults: If you had daughters would you expect your daughters to:

<table>
<thead>
<tr>
<th>Type of Help</th>
<th>Expect from Daughters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Give part of their salary to you when they begin working</td>
<td>F 11 7 2 5 47 48</td>
</tr>
<tr>
<td>2. Help support their younger brothers and sisters through school</td>
<td>F 26 27 3 2 31 31</td>
</tr>
<tr>
<td>3. Contribute money in family emergencies</td>
<td>F 45 45 - 1 15 14</td>
</tr>
<tr>
<td>4. Have you live with them</td>
<td>F 11 5 6 6 43 49</td>
</tr>
<tr>
<td>5. Support you financially when you grow old</td>
<td>F 14 7 4 3 42 50</td>
</tr>
</tbody>
</table>
6. (Q19A) (If yes to (6)): Would you expect to rely on your daughters a great deal for financial support when you grow old, or would you rely on them only a little?

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>NF</th>
</tr>
</thead>
<tbody>
<tr>
<td>A great deal</td>
<td>42</td>
<td>50</td>
</tr>
<tr>
<td>A little</td>
<td>17</td>
<td>9</td>
</tr>
</tbody>
</table>

7. (Q20) Some couples feel that the more girls they have, the better off the family will be. Others feel that having a lot of girls will make their family less well off. How do you personally feel about this?

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>NF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better off</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>No difference</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Worse</td>
<td>48</td>
<td>52</td>
</tr>
</tbody>
</table>

Items, Scoring Scheme, and Frequency Distribution of Farming and Nonfarming Groups for Perceived Economic Costs of Boys Index

1. (Q2) And what are some of the disadvantages or bad things about having children compared with not having children?

Score: 2 points/reason

2. (Q7&10) Can you tell me some of the reasons why you would prefer not to have more than ____ children?

Score: 2 points/reason

3. (Q27) We'd like to know how much schooling you expect your children to have. Consider the children you already have and also any children you might have in the future. First let's talk about sons. What is the highest level of school which you would expect any of your sons to attend?

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>NF</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-8 years</td>
<td>17</td>
<td>10</td>
</tr>
<tr>
<td>9-16 years</td>
<td>43</td>
<td>50</td>
</tr>
</tbody>
</table>

1 Economic disadvantages or economic costs of boys mentioned were scored according to the coding scheme, Appendix D.
4. (Q28) How certain are you that any of your sons will get that much education:

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>NF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certain</td>
<td>23</td>
<td>18</td>
</tr>
<tr>
<td>Little</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>No chance</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

Items, Scoring Scheme and Frequency Distribution of Farming and Nonfarming Groups for Perceived Economic Costs of Girls Index

1. (Q2) And what are some of the disadvantages or bad things about having children compared with not having children?

Score: 2 points/reason

2. (Q7&10) Can you tell me some of the reasons why you would prefer not to have more than______children?

Score: 2 points/reason

3. (Q29) We'd like to know how much schooling you expect your children to have. Consider the children you already have and also any children you might have in the future. First let's talk about daughters. What is the highest level of school which you would expect any of your daughters to attend?

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>NF</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-8 years</td>
<td>46</td>
<td>41</td>
</tr>
<tr>
<td>9-16 years</td>
<td>14</td>
<td>19</td>
</tr>
</tbody>
</table>

4. (Q30) How certain are you that any of your daughters will get that much education?

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>NF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certain</td>
<td>22</td>
<td>19</td>
</tr>
<tr>
<td>Little</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>No chance</td>
<td>31</td>
<td>32</td>
</tr>
</tbody>
</table>

Items and Scoring Scheme for Family Size Indices

Actual Family Size:

1. (Q6 census) I would like to know the names and ages of all your children who are alive?

1Economic disadvantages or economic costs of girls mentioned were coded according to the coding scheme, Appendix D.
Ideal Family Size:

1. Q(12) If you were starting your family all over again, things being pretty much as they were, how many children would you most want to have?

Desired Family Size:

1. Total number of desired children = Actual number of children (Q6 census) + number of additional children desired (Q6 or Q9).

Items and Frequency Distribution of Farming and Nonfarming Groups for Contraceptive Indices

Contraceptive Attitudes:

1. (Q21) Some people practice birth control or family planning, either to delay a pregnancy or to stop having children. Have you heard of birth control or family planning?

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>NF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>60</td>
<td>59</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. (Q22) What is your opinion generally about married couples doing something to prevent pregnancy, that is, using some method of birth control? Do you approve strongly, approve slightly, disapprove strongly or disapprove slightly?

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>NF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approve strongly</td>
<td>38</td>
<td>36</td>
</tr>
<tr>
<td>Approve slightly</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Don't know/neutral</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Disapprove slightly</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Disapprove strongly</td>
<td>8</td>
<td>14</td>
</tr>
</tbody>
</table>
3. (Q23) Even if sometimes people hold certain opinions about birth control generally, they sometimes feel differently about birth control in certain circumstances. Do you approve or disapprove of birth control in order to:

<table>
<thead>
<tr>
<th>Circumstance</th>
<th>Approve</th>
<th>Disapprove</th>
<th>Uncertain</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Postpone having the first child</td>
<td>F 42</td>
<td>NF 44</td>
<td>P -</td>
</tr>
<tr>
<td>2. Control the spacing or timing of births after the birth of the first child</td>
<td>F 51</td>
<td>NF 49</td>
<td>P 1</td>
</tr>
<tr>
<td>3. Prevent further pregnancies after having all the children one wants</td>
<td>F 51</td>
<td>NF 48</td>
<td>P 1</td>
</tr>
</tbody>
</table>

Contraceptive Use:

1. (Q24) At the present time, are you or your husband doing anything to prevent having children?

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>NF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>No</td>
<td>43</td>
<td>44</td>
</tr>
</tbody>
</table>

2. (Q25) Do you think that you or your husband might want to do anything to prevent having children in the future?

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>NF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>31</td>
<td>36</td>
</tr>
<tr>
<td>Uncertain</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>No</td>
<td>25</td>
<td>15</td>
</tr>
</tbody>
</table>

3. (Q26) Have you or your husband ever done anything to prevent having children?

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>NF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>No</td>
<td>44</td>
<td>42</td>
</tr>
</tbody>
</table>
Items, Scoring Scheme and Frequency Distribution of Farming and Nonfarming Groups for Preference for Boys Index

1. **Ideal number of boys (Q14) - Ideal number of girls (Q14)**
   Total ideal family size (Q12)

2. (Q15) If you were to have exactly three children altogether, how many would you want to be boys and how many girls?

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>NF</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 girls</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1 boy, 2 girls</td>
<td>20</td>
<td>19</td>
</tr>
<tr>
<td>2 boys, 1 girl</td>
<td>38</td>
<td>40</td>
</tr>
<tr>
<td>3 boys</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX D: CODE CATEGORIES OF ECONOMIC BENEFITS AND COSTS OF CHILDREN

Economic Benefits:

1. Economic help in old age
   Examples: "They look after me financially when I'm old"
   "Financial, economic help in old age"

2. Companionship, comfort, care in old age
   Examples: "Help old parents when they get sick"
   "Companionship, reassurance, knowing there is someone who will care for you when you get old"

3. Unspecified help in old age
   Examples: "Help in old age"
   "For old age"
   (Other general responses similar to the above)

4. Economic help (old age not mentioned)
   Examples: "To contribute to family finances"
   "For tax deduction"

5. Comfort, care (old age not mentioned)
   Examples: "Protect parents"
   "Help in life, help in family affairs"
   "Care for parents when they get sick"

6. Help in housework, family chores; practical help
   Examples: "Somebody to run errands"
   "To wash the car, mow the lawn, help with dishes"
   "Somebody to send to the store"

7. Sharing financial responsibility; insurance, security
   Examples: "Someone else to share family responsibility"
   "Help from children in case you need it"

8. Help in family business, farm
   Examples: "Someone to take my place when I retire"
   "Work in the business, on the farm"

9. Help in taking care of other children
   Example: "Look after the younger children"
10. Unspecified help (old age not mentioned)
   Examples: "Provide help to parents"
   "Children are useful"
   "Children bring luck"

Economic Costs:

1. Educational costs
   Example: "Hard to provide education for children"

2. Marriage costs
   Example: "Have to save money for their marriages"

3. Physical needs costs
   Examples: "Food is expensive"
   "Have to clothe them properly"
   "Have to buy them cosmetics"

4. General financial costs
   Examples: "Cost of living is high"
   "Children are expensive"
   "Hard to raise children when one is jobless and has no money"
   "Financial problems during pregnancy"
   "Medical costs are high"
   "Can't buy children the things they need"
APPENDIX E: CENSUS INTERVIEW SCHEDULE AND
RECORDING FORM

Introduction:

I am a university student. I am interested in children and am here to learn from you about your feelings about children. This is part of my college practicum which I need to do to get my degree. Today I am just walking around getting to know people. I will be staying here for two months and then I will go back to the university. I will be back another day to talk to you. (The census will be done on a following visit.)

I am here to do a census today. All the information you give will only be used for my practicum and will be kept confidential. None of this information will be given to the government.

1. I would like to know your name and age?
2. What is your husband's name and age?
3. How long have you been married, or how old were you when you got married?
4. How many years of schooling have you had?
5. How many years of schooling has your husband had?
6. I would like to know the names and ages of all your children who are alive?
7. How many years of schooling have they had?
8. How long have you lived here? Where did you live before that?
9. Are there any other people living with you? What are their names, ages and relation to your husband?

10. How many people in your house work outside the home?

11. What are their occupations and how are they related to your husband?

12. How much do they earn?

13. How much land do you or your husband own in this community?

14. How much land do you or your husband own outside this community?

15. Have you or your husband rented any land? How much?

16. Do you have electricity in your house?

17. Have you/your wife ever worked outside the house for a salary?

18. What was the nature of your/her work?

19. How many years did she do this work?

20. What was her salary?

21. How old was she when she was working?

22. How often do you/your wife visit Lucknow?
Census Recording Form
<table>
<thead>
<tr>
<th>Census Form</th>
<th>Village</th>
<th>Date</th>
<th>HH#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Rel. Age</td>
<td>Years Edu.</td>
<td>Duration stay here</td>
</tr>
</tbody>
</table>

No. of people who work outside house?  Occup.  Income  Rel. to HHH:

Amount of land owned in the community:
- owned outside the comm.:
- rented:
  Satisfactory?

Work of wife

No. of visits to Lucknow per year