Majority of the population in developing countries like India earn their livelihood in the rural sector. As such the interactions between agricultural development, its associated factors and demographic change are of obvious importance. The present study attempts to examine the impact of different dimensions of agricultural modernisation and its associated factors on the fertility behaviour of the rural population and gather information on agricultural, socio-economic and demographic variables with special reference to the benefits and costs of rearing children and family size preferences from rural households.

The importance of this work is that agricultural modernisation is now spreading in many developing countries, is rapidly raising food output and altering methods of production and economic inter-relations in the country side. The potential consequence of this agricultural modernisation for demographic developments particularly birth rates is of great importance. Sample surveys of individual farm households, providing agricultural and demographic
information for the same would add greatly to our knowledge. This is essential if we want a clearer understanding of the implications of agricultural modernisation for the population problems. Such information has great potentiality for policy formulation and programme development in the field of fertility control and is useful to countries that wish to accelerate fertility declines. So far only negligible attempts have been made in this direction in India. In this background, the present study was undertaken.

Conceptually, the study was based on the model of Mueller (1975). The model outlines that agricultural modernisation and the attendant improvement in the welfare of the rural population affects fertility via a number of possible linkages. As agricultural modernity increases, farm income, other socio-economic variables and community characteristics undergo great changes. This transformation of the farm households' economic environment is postulated to have an ultimate effect on fertility decisions.

The general objective of the study was to collect detailed, agricultural, demographic and socio-economic information from farm households with special reference to benefits and costs associated with raising a child and family size preferences. The specific objectives of the study were a) to examine the influence of agricultural
modernisation on fertility behaviour across social strata of rural population; b) to identify the factors through which agricultural modernisation affects socio-economic and demographic changes, c) to study related socio-economic and demographic variables and their relationship with fertility behaviour, d) to collect data on perceived costs and benefits of rearing children across the major social strata of the population and study their relationship with differential fertility, e) to examine how progressive advances in the standard of living and modernisation of farmers tend to lower fertility, f) to know how the changes that take place in agricultural modernisation influence a couple's attitude and behaviour towards aspirations for their children, and g) to analyse the attitude of the couples towards contraception and its relationship with fertility behaviour.

METHODOLOGY

The most suitable method for conducting a study of this type would be to take up longitudinal survey of the areas which have witnessed varying types and magnitudes of agricultural development in the past. This method however, is not operationable for the present doctoral programme, keeping in view the limited time at one's disposal. Therefore it was decided that as an alternative two sets
of villages, called the experimental and control villages may be studied on a comparative basis.

Villages which have witnessed significant agricultural development on introduction of irrigation at least 15 years back and has taken advantage of irrigation by changing the cropping pattern and by adopting mechanisation were considered as Experimental Villages. Control villages were those which did not (selected from the same district) have significant irrigation or development through other means. For the purpose of present study the experimental villages were labelled as agriculturally developed villages and control villages were labelled as agriculturally backward villages.

Control villages were so selected as to share the same regional features (i.e., type of population, type of land, distance from urban centres etc.) as well as basic socio-economic structure (i.e., caste composition, primarily an agrarian society etc.,) of the experimental villages but different from the latter in terms of irrigation availability and agricultural modernity. Selection of taking experimental and control villages from the same district will facilitate for comparison of agricultural modernisation levels, allowing for similar background conditions.
For selection of sample, Chittoor District of Andhra Pradesh was purposively selected as this district had characteristics more or less similar to other districts of Andhra Pradesh. Based on the information on agricultural and non-agricultural activities and socio-cultural aspects available in the latest periodical publications, two Mandalas namely 'Nagiri' from western part of the district (as agriculturally developed mandal) and Palamaner from the eastern part (as agriculturally backward mandal) were identified.

The sampling unit for the study was a household having eligible couple with one or more living children and wife in the reproductive age group of 15-44 years, depending mainly on agriculture and having irrigated lands. All families cultivating less than 1.00 acre of land were excluded from the sample. A stratified proportionate simple random sampling technique was used.

A list of eligible couples in the sample area, satisfying the sample criteria was prepared for each of the agriculturally developed and backward villages separately, based on the updated eligible couples registers available at the mandal offices. From these lists a total of 600 couples comprising of 300 couples from the backward villages and 300 from the developed villages were randomly
selected by applying the weights to give fair representation to each village, the weight being the ratio of living couples in a given village to the total number of couples in the universe.

The data was collected with the help of a schedule developed especially for this purpose. The data was analysed using computer facility. The analysis was carried out mainly to study the influence of agricultural modernisation and its associated variables on the fertility behaviour of the rural population. The collected data was posted in to various contingency tables. One-way, two-way and controlled cross tabulations were carried out. Analysis of variance was done to find the significance of relationship between dependent and independent variables. Further, a step-wise multiple regression analysis was carried out separately for the respondents of backward and developed villages to synthesize the data and substantiate the findings. The findings of the study have been illustrated in six chapters.

SOCIO-ECONOMIC CHARACTERISTICS AND FERTILITY BEHAVIOUR

The present study examined the influence of some socio-economic variables - caste, education and income on fertility behaviour. As the respondents mainly depending on agriculture only were studied, occupation has not been considered in the present study.
A large proportion of the respondents in both backward (77%) and developed villages (71%) belonged to forward caste group. The literacy level of the females was very low compared to males. An overwhelming proportion (77%) of the husbands were literate. However, most of them had very low levels of education (30%). On the other hand, majority of women (60%) were illiterate. The economic status was very low and a large proportion of the respondents were living below poverty line. Most of them (72%) had an income of Rs. 15,000/- or below per annum. Their socio-economic status was also low. Only a small proportion of them had high socio-economic status (16%) and the remaining had either middle (53%) or low (31%) socio-economic status.

Socio-economic characteristics were found to have differential influence on fertility behaviour of the respondents in the backward and developed villages. Caste, education and income had significant influence on fertility behaviour. Further, the cumulative effect of the socio-economic variables on fertility, was examined by developing socio-economic status index to facilitate wider generalisations.

In both the backward and developed villages, the respondents belonging to forward castes had lower number of children than the other two caste groups. In the backward
villages, the respondents belonging to forward castes had 0.29 and 0.53 mean live births less than the backward and scheduled castes respectively while the corresponding figures were 0.37 and 0.78 in the developed villages.

Considering the influence of educational status, it was found that both the education level of husbands and wives were inversely related to their fertility. The difference in fertility between illiterate husbands and those with primary and above education was 0.90 mean live births in the backward villages (Sig. at 0.01 level) and the corresponding figure was 0.87 mean live births for the developed villages (Sig. at 0.01 level). Educational status of the wives also revealed similar relationship with their fertility. However, men's education had relatively more depressing effect on fertility than women's education.

Analysis of economic status confirmed the hypothesis that the level of income was inversely related to fertility in both the backward and developed villages (Sig. at 0.05 level). The decrease in fertility due to increase in the economic status from the lowest to highest level was 0.82 mean live births in the backward villages where as it was 0.78 mean live births in the developed villages.

The socio-economic status of the respondents in general had a strong inverse relationship with fertility
behaviour of the respondents. In both backward and developed villages, the respondents with high socio-economic status had 2.96 and 2.21 mean live births respectively as against 3.11 and 3.01 mean live births for those who had low status. The influence of socio-economic status on fertility behaviour was considerably greater in the developed villages than in the backward villages.

IMPLICATIONS

Differences in socio-economic status was the main reason for differential fertility in backward and developed villages. The level of education, income and other social indicators were very low in backward villages compared to developed villages, leading to high fertility in the backward villages. Hence, appropriate efforts have to be taken to improve the socio-economic conditions of the people especially in the backward area. Women's education has to be given top priority and it has to be stimulated through the National Adult Education and other population education programmes. Further, incentives, scholarships, reservations for employment of the backward castes has to be increased and effectively implemented to improve their lot with regard to social and economic aspects. Since poverty is ruling the rural population, their economic status has to be raised through such measures like equal distribution of land holdings, poverty eradication
programmes, assistance to develop and manage economical activities such as diary farms, poultries, building up infrastructure in agricultural development, training on modern farm technology etc. These measures not only raise the income of the farmers, but also bring about desirable social changes.

DEMOGRAPHIC CHARACTERISTICS AND FERTILITY BEHAVIOUR

Demographic factors have been reported to have a strong negative impact on the determinants of family size in different cultures (Reddy, 1986; Mahadevan, 1979; Driver, 1963). The present study examined a few demographic variables namely: duration of marriage, women's age at marriage and their influence on fertility behaviour.

In the sample population, an early age at marriage was prevailing. An overwhelming proportion (85% in backward and 72% in developed villages) of the female population married below the legal age of 18 years. More than one-third of the respondents (37%) in the backward villages had 17 and above years of marital union, while nearly half of the respondents (45%) in the developed villages had 9-16 years of married life. It may be observed that the respondents in the backward villages preferred more number of additional children despite of already having higher fertility. Ideal family size for more than three-
fifths (61%) of the respondents was 2 or 3 children, which was lower than their actual family size.

The demographic characteristics were found to have decisive influence on fertility behaviour. Duration of marriage showed a positive association with fertility (Sig. at 0.01 level) in both backward and developed villages. The difference in mean live births between the respondents of those with 8 years and 17+ years of married life was 1.73 and 1.80 in the backward and developed villages respectively. Thus, fertility increased with increase in the duration of marital union.

The data confirmed the hypothesis that fertility declined with increase in age at marriage of the respondents in both backward and developed villages. Women who married at the age of 18 years and above had 0.43 mean live births less than those married at the age of 15 years or below in the backward villages and the corresponding figure was 0.74 in the developed villages.

With regard to the additional and ideal family size, the respondents in the developed villages preferred less number of children than those in the backward villages. In the backward villages, the couples with one living child wanted 0.41 more live births than the couples in the developed villages. The corresponding difference for
the couples with 4+ living children was 0.33 more live births. In the backward villages, the respondents with one to two living children, stated 2.22 as their family size relative to 1.60 by those in developed villages. The respondents with 4+ children in the backward villages stated 2.91 as ideal family size compared to 2.40 in the developed villages.

IMPLICATIONS

Duration of effective marriage was found to be an important determinant of fertility. In order to reduce the duration of effective marriage, it becomes necessary to raise the age at marriage of females. This may be possible by the effective implementation of compulsory and free education with some incentives, reservations for girls in the educational institutions etc. The legislated marriage age of 21 years for boys and 18 years for girls should be effectively implemented and disincentives and punishments may be made severe for those who evade it. Further, age at marriage may be effectively increased if compulsory and free education for females and vocational training leading to employment and self-employment are effectively implemented thus keeping women busy upto 18 years or above. Training programmes may educate women about the significance of late marriages, small families and adoption of family planning methods also. This would
not only help reduce effective duration of marriage, but also would increase women's awareness of the various issues related to children's needs, growth and development and also raise their aspirations and hopes for quality children. The respondents in the backward villages not only had a higher fertility but also desired more additional children compared to respondents in the developed villages. Hence, appropriate educational programmes are to be planned to promote modern values and create awareness about the advantages of a few high quality children who will be in a better position to take care of the parents rather than a large number of poorly placed children.

MODERNISATION AND FERTILITY BEHAVIOUR

Ownership of modern objects, parent's educational aspirations for their children, openness to change, fatalism, status of women were the important dimensions of general modernity that were studied.

Majority of the respondents in the developed villages owned modern objects. More than three-fifth (44%) of the respondents in the developed villages were in the higher status group on the index on ownership of modern objects compared to a small proportion (8%) in the backward villages. The education aspired for children was invariably low in the backward villages. A comparatively more proportion of the respondents secured 'high' (47%) and 'medium'
score (43%) on the educational aspiration index in the developed villages as against only 20 percent and 35 percent respectively in the backward villages. More than three-fourths (78%) of the respondents in backward villages and more than half (57%) of the respondents in developed villages were less open to change. In the backward villages, the respondents were more fatalistic than those in the developed villages. In the developed villages, a large percentage of the respondents had scored 'medium' (41%) and 'low' (26%) levels on the fatality index while a large percentage of the respondents in the backward villages had scored either 'high' (43%) or 'moderately high' (36%) on the fatality index. Woman enjoyed a better status in the developed villages than the backward villages. Nearly half of the (47%) respondents in the developed villages were on the threshold of large scale modernity while most of the (69%) respondents in the backward villages were traditional.

A marked difference in the level of fertility was observed between the respondents of backward and developed villages in relation to ownership of modern objects. The difference in mean live births between those respondents with 'low' and 'high' score on the index on ownership of modern objects was 0.59 mean live births in the developed villages (Sig. at 0.05 level) compared to 0.30 mean live births in the backward villages.
Parents' aspiration for higher education of children was found to be one of the most important of modernity dimensions which lead to low birth rates. The respondents in the developed villages had higher level of aspiration to educate their children, than those in the backward villages. The respondents with high score indicating higher level of educational aspirations had 0.79 mean live births less than those with low score in the backward villages (Sig. at 0.05 level). The corresponding figure in the developed villages was 0.86 less mean live births (Sig. at 0.01 level).

The respondents in the backward and developed villages differed significantly in both the dimensions of value orientation, viz., fatalism and openness to change. The proportion of the respondents who scored 'low' on fatality index and 'high' on openness to change index were considerably greater in the developed villages as compared to backward villages.

In the developed villages the respondents who believed in hard work and faith in one's own efforts scored 'low' on fatality index and had 1.01 live births less than those who believed in fate and scored 'high' on this index (Sig. at 0.01 level). The corresponding figure was 0.77 less mean live births in the backward villages (Sig. at 0.05 level).
Similar trend was also observed with regard to openness to change. The respondents with 'high' score on openness to change had 0.80 mean live births fewer than those with low score in the developed villages (Sig. at 0.01 level), while this difference was only 0.50 live births in the backward villages.

The data confirmed the hypothesis that the 'status of women' had a very strong inverse relationship with fertility in both the backward and developed villages. In backward villages the respondents with lower status had 0.52 more mean live births than those with higher status and the corresponding figure was 0.82 more mean live births in the developed villages (Sig. at 0.05 level).

Significant differences in general modernity were noticed between the respondents of backward and developed villages. The difference in the level of fertility in relation to their modernisation between the less modern and more modern respondents was 0.48 more mean live births in the backward villages. The corresponding figure was 0.75 more live births (Sig. at 0.01 level) in the developed villages.

IMPLICATIONS

The findings showed that the respondents in the developed villages scored 'high' on all the dimensions
of general modernity and had lower fertility as compared to respondents in the backward villages.

The raising aspirations for ownership of modern objects lead farm families to become more conscious of having large families. Further, the availability of modern durables like radio, TV raises the knowledge and changes the outlook of the farmers in the rural areas and ultimately has depressing effect on fertility. Hence it is necessary to increase the asset building capacity of the rural people with regard to land, implements and modern durables. To enable the farmers to purchase more assets, provisions of loans and subsidies on easier terms, and provision for the purchase of modern durables on instalment basis must be provided.

Since, the parental aspirations for education of their children was having profound influence on fertility, necessary efforts have to be taken to convince the parents particularly in the backward villages, through adult education and other programmes about the advantages and importance of education for high quality children. Further, provision of increased access to education should be accompanied by some special strategies like mid-day meal programmes, supply of free books and clothes, scholarships, reservations in education and employment, and above all, these programmes must be effectively implemented.
The respondents in the backward villages are more fatalistic, have strong belief in destiny, and are resistant to change which are the traditional values associated with high fertility. There is urgent need to change this fatalistic attitudes and promote rational thinking among them. This may be possible by counteracting superstitions, prejudices, fate etc., through presentation of scientific facts and also drawing illustrations from the lives of successful persons who were once similar to them. They also should be made to understand that hard work is the best way to come up in life.

Since most of the women were having very low status, there is immediate need to raise their status in the society. The Mahila Mandalas or the women associations at the village level may be treated as important agencies of change among rural women since they have direct and personal contact with the people. It is necessary, to encourage the formation of the Mahila Mandalas in the villages and use them as change agents. Family Planning programmes, child care programmes, health and hygiene programmes may be integrated with other programmes of the Mahila Mandalas. Fresh awareness among women about their equal rights with men to achieve a higher quality of life may be created. Equal opportunity should also be given with regard to decision making on matters relating to economic independence, sharing of property etc. Further in addition to
formal education, the vocational training programmes such as nursing, teacher training, tailoring, knitting, embroidery, weaving wire bags, decorative works etc., are to be undertaken both by voluntary and government agencies to raise the economic status of women.

CONTRACEPTION AND FERTILITY BEHAVIOUR

Any discussion on fertility in India will remain fragmented and unfruitful if the knowledge and attitude of people towards contraception is not taken into account. In this context, the study of attitudinal and communication variables assumes great importance especially as our National Population Policy aims to promote family planning (on a voluntary basis) as a people's movement.

Nearly half of the sample population approved of family planning practices. Those who approved of family planning practices had lower fertility relative to those who did not approve. Similar trend may be observed in both backward and developed villages. About 77 percent of the respondents had inter-spouse communication about family planning and had 2.72 mean live births as against those who did not have any such communication (3.28 mean live births). Couples who had planned the timing of births had 2.25 mean live births relative to the higher fertility (2.93 mean live births) of those who did not plan the timing of births. 61 percent of the respondents had adopted
terminal methods of contraception of which 59 percent had undergone tubectomy. A very negligible percent (12%) had adopted non-terminal methods of contraception of which condom was very popular. There was the prevalence of unnecessary fears and mis-conception about family planning, followed by those who felt that family planning adversely affected health.

The hypothesis that greater the husband-wife communication about contraception, lower will be the fertility was confirmed. The difference in mean live births between the respondents of those who communicated with each other and those who were not involved in inter-spouse communication about contraception was 0.51 in the backward villages and 0.61 in the developed villages.

The findings supported the hypothesis that the respondents who approved of birth control practices had less fertility than those who disapproved. It was true in both the backward and developed villages. Significant difference was also noticed in 'planning the timing of births' and adoption of contraceptives between the respondents of backward and developed villages. The couples who had planned the timing of births had 0.32 and 0.67 mean live births less than those who had not planned in the backward and developed villages respectively. Similarly, the adopters of terminal or non-terminal methods had less number of
children than the non-adopters in both backward and developed villages.

IMPLICATIONS

Since interspouse communication was found to be less in the backward villages, it may be suggested that all the eligible couples should be well educated on the advantages of holding joint discussions on family planning matters. Screening of educational and motivational films to males and females together on themes such as pregnancy and child birth, small family norm, contraceptive use etc., has to be intensified which will promote inter-spouse communication and stimulate favourable attitude towards contraception.

Further, most of the respondents conceived children without any planning were thinking that family planning meant only 'sterilisation' and were unaware of other contraceptive methods. Therefore, it is necessary to organise intensive family life educational programmes about the importance of non-terminal methods. Steps should also be taken to remove unnecessary fears and misunderstandings about family planning methods. Further, innovations in agriculture should be widely and effectively diffused to reach the rural population especially in the backward villages as farmers who adopted innovations in agriculture may be more receptive to family planning innovations also.
VALUE OF CHILDREN AND FERTILITY BEHAVIOUR

The chapter value of children and fertility behaviour describes, discusses and analyses the costs and benefits of children as perceived by the parents in backward and developed villages. The study covers two broad categories of costs and benefits of children - economic and non-economic. An attempt is made to assess the extent to which these perceived costs and benefits of children are related to family size decisions and consequently to fertility.

As it is difficult to measure and interpret perceived costs and benefits of rearing children which are purely qualitative, Likert type of attitude scale has been adopted (vide Chapter II) to enhance the explanatory power of attitudinal variables. Further an index combining all specific and related attitudinal statements has been adopted. This was considered a better methodological approach as measure- / is bound to be improved when answers to several related questions are taken into account.

Among the different perceived economic costs 'raising children is a heavy financial burden' and 'too many children means too many divisions of property' was cited by majority of the respondents (above 80%) in both backward and developed villages. 'Clothing of children is a financial worry' and 'having many and frequent pregnancies
mean increased financial burden' were cited as next important. Further it may be observed that the percentage of respondents who were unaware of the various costs and stated 'uncertain' were also high in the backward villages. In general, fertility of the respondents in both sets of villages who felt that large number of children meant higher economic costs of rearing children had lower fertility than those whose perception of economic costs of rearing children was low. Thus, the findings indicate that perceptions on various dimensions of cost of rearing children may influence the family size decisions.

Of all the dimensions of perceived non-economic costs of rearing children, 'Many children mean extra work' ranked highest followed by 'many children is a weary and tedious job' in both types of villages. The remaining costs except the costs like 'having many children causes problems and disagreement', and 'loss of affection between the couple' were also cited as important by more than half of the respondents in the developed villages, whereas the percentage of the respondents who felt so was relatively less in the backward villages. In general, the respondents who perceived the above costs as important had significantly lower fertility than those who did not feel so.
Of all the economic benefits of rearing children, the most important of them cited by a large proportion of the respondents in both types of villages were children provide facilities for physical comfort and care in old age, children's role in helping parents during old age, leisure and help provided to the parents in maintaining wealth. The other economic advantages mentioned as important were significantly higher in the backward villages than in the developed villages. The respondents in the developed villages, who expected few economic benefits had less number of children relative to those who had similar views in the backward villages.

The non-economic benefits of 'give and take of love and affection', and 'enlarge kinship relations' were highly salient in the sample area. Further 'family lineage' was also cited as important advantage and 'perform rituals' in the family ranked fourth in importance. Lower proportion of the respondents mentioned such advantages as 'increase of social prestige through childrens status', 'the pride one can take in childrens accomplishments' and 'extension in social relations.' The respondents perception of non-economic benefits of rearing children was strongly and positively related to their fertility behaviour. The fertility of the respondents in backward villages was significantly higher on all the dimensions of non-economic
benefits of rearing children than the respondents in the developed villages.

The respondents in the backward and developed villages differed significantly in relation to their perception on all the aspects of costs and benefits of rearing children. It was found that the respondents in the developed villages scored 'high' on the indices of economic and non-economic costs, and low on the indices of economic and non-economic benefits, and had low fertility than those in the backward villages. This may be the result of higher levels of agricultural modernisation in the developed villages which changed the socio-economic environment of the people in such a way that their attitude towards the various costs and benefits of rearing children altered and lead them to have small number of high quality children.

IMPLICATIONS

The findings reveal that the perceived costs of rearing children was low and perceived benefits from children was high in the backward villages compared to developed villages. The population policies therefore, should aim to increase the costs of children, and reduce the benefits of children. Majority of the respondents especially in the backward villages cited economic values of children as very important. One of the most explicit policies that
would reduce the economic benefits from children in universal schooling. Allout efforts should be made to fulfil this constitutional directive and the non-formal education programme started for dropouts and non-starters in the age group 6-14 in 1977 marks an important policy measure. However, the success of the goal of universal schooling depends to a considerable extent on how parents value children's education. Since parents education is inversely related with child labour, the Adult Education Programmes may go a long way in enhancing the occupational and educational aspirations of the parents for children.

Further, the findings showed that even among the agriculturally more modern, dowry and wealth brought by children was cited as important. Social workers can educate them on the evils of dowry and the dangers of sub-division of property and wealth in the case of numerous progeny. Policy makers should be aware of the various costs and benefits of rearing children in particular communities. It should also aim to increase the awareness and salience of various perceived costs associated with higher parities. These facts, have to be given attention in the related educational programmes. Promotion of small family norm among both literates and illiterates requires changes in their values about children. Particular attention must be given to disseminate information to the rural couples
about population growth as an impediment to improving the quality of life, advantages of having few well-placed children and emerging alternatives to children as a source of income and security accompanied by some element of persuasion. Raising income and standard of living of the farmers through agricultural modernisation may also help increase their aspirations for more consumer durables and farm implements and make them more cost conscious about rearing children. Further, by providing certain gainful off-farm employment to women, by developing allied industries, through self-employment schemes and small scale and cottage industries, it is possible to increase the awareness and importance of cost and value of time of women folk in general and as such it may indirectly affect fertility decisions.

VALUE OF SON(S) AND FERTILITY BEHAVIOUR

Son preference continues to play a major role in the determinants of fertility. However, a rural study conducted by Khuda (1978) in Bangladesh, revealed that with increasing agricultural modernisation, girls are valued, if not more than boys, at least better than in the past. Hence, in the present study, an attempt has been made to study the value of son(s) and its relation to fertility behaviour of the respondents.
The preference for son(s) was much stronger in the backward villages than in the developed villages. More than three-fourths (76%) of the respondents in the backward villages stressed that it was very important to have at least one son, whereas 61 percent stated so in the developed villages. The persistence to have son(s) was further confirmed in the backward villages as more than half (52%) of them as against a quarter (26%) in the developed villages stated that they would continue having daughters until a son was born. In both types of villages, the respondents who placed high value on son(s) had higher fertility relative to those who gave least value for son(s). The respondents in the backward and developed villages differed significantly in their expectation of dependence on son(s) during old age. About three-fifths (58%) of the respondents in the backward villages expected to depend on their son(s) for old age security compared to 35 percent in the developed villages. Further, the respondents who desired more than three sons for assured old age security was greater in the backward villages (20%) relative to only 6 percent in the developed villages. The respondents perception on old age security was negatively and significantly related to their fertility.

The respondents in the backward and developed villages differed significantly in relation to their perception
on value of son(s). The hypothesis that the respondents who give 'less' or 'least importance' to son will have less number of children than those who perceive son as 'very important' was fully supported by the results. The respondents who stated having son as 'not important' had 0.68 and 0.80 lesser mean live births than those who felt having son as 'very important' in the backward and developed villages respectively. The strong son preference was further confirmed by the fact that the proportion of respondents who were intending to wait till a son was born was significantly higher in the backward villages than in the developed villages. They had 0.86 mean live births higher than those who stated that they would wait up to 2 daughters in the backward villages and the corresponding figure in the developed villages was 1.06 mean live births (Sig. at 0.01 level).

Significant differentials in the expectation of oldage security on son(s) were also observed between the respondents of backward and developed villages. The difference in mean live births between the respondents stating 'high dependence' and 'no dependence' on their children was 1.10 in the developed villages (Sig. at 0.01 level) as against 0.81 in the backward villages (Sig. at 0.01 level).
The respondents who felt that only one son was enough to guarantee support during old age, had 0.95 live births lesser than those who desired to have more than three sons in the backward villages (Sig. at 0.01 level). This trend was even more significant in developed villages and the corresponding figure was 1.25 mean live births (Sig. at 0.01 level).

IMPLICATIONS

The findings reveal that son preference still continues to play a major role especially in the backward villages in determining the fertility mainly due to traditional differentiation of sex roles. The farmers feel that sons are more useful to work in the fields rather than daughters. The only remedy is to reduce dependence on manual labour through mechanisation and modernisation of agriculture. Further, the vicious circle between value for son(s) and high fertility is to be broken by promoting equal value for son and daughter changing inheritance laws and practices and discouraging dependence on sons for economic support during old age. Government should also provide certain privileges to the old people in terms of economic, social, and health aspects, by maintaining oldage homes and clinics, in the rural areas.
Old age security was cited by respondents in backward and developed villages as most important. A son was desired by all of the respondents. The findings underlie the need for the provision of old age pensions, widowhood, security and other rural insurance schemes such as crop insurance, live stock insurance etc. Government may set up associations for the elderly which will not only safeguard their interests but would also conduct recreational, religious and other economically useful activities.

Since son preference evidently contributes to high fertility, measures that reduce sex preference should forms an integral part of population policy. The most useful policy approach in this area may be to improve the status of women. An increase in the status of women may reduce inequalities between the sexes, and weaken the preference for sons. Higher status of women means higher investment per child. With a given income, higher levels of child investments is possible only with fewer children.

Employment guarantee schemes such as self employment, one job for one family and the like may help raise the occupational and educational aspirations for children resulting in the increase of perceived opportunity cost of children which affects fertility. The best example of this kind is Maharashtra's (India) Employment Guarantee Scheme.
AGRICULTURAL MODERNISATION AND FERTILITY BEHAVIOUR

Agricultural modernisation has attracted considerable attention among social scientists in recent days, because an overwhelming size of the rural population derives its livelihood from agricultural production. Agricultural modernisation increased the area under mechanisation, mechanised irrigation, higher adoption of high yielding varieties, increased use of chemicals, fertilizers, plant protection measures, the output and thereby improved the living standards of the rural people. The increase in the living standards of the people leads to higher levels of schooling, increased age at marriage, more access to health facilities, lower level of infant and child mortality, and higher use of contraception. Increase in income may also lead to rise in educational aspirations, urban contacts, new tastes for modern consumer goods and services – which rise the costs of rearing children, finally resulting in reduction of fertility.

Agriculture in the developed villages was more modernised compared to that of the backward villages in terms of inputs, gross cropped area, value of the produce, mechanisation, farm labour, farm assets, live stock and finally farm income. The savings of the respondents in developed villages was high as compared to backward villages (Vide
Appendix II). Further, it is also confirmed that agriculturally more modern respondents perceived high costs and expected lower benefits from rearing children and their desired family size was lower as compared to agriculturally less modern respondents.

The hypothesis that the increase in agricultural modernisation leads to decline in fertility level was confirmed in the present study. Size of the ownership holding, net sown area, high yielding variety, plant protection measures, were the major agricultural variables which have shown significant association with fertility behaviour. Further, the combined influence of all the agricultural modernity variables on the fertility behaviour was examined by developing agricultural modernisation index (vide Chapter IX). In general it was found that all the agricultural modernisation variables have profound influence on fertility behaviour in both backward and developed villages.

The data evidently confirmed the hypothesis that both the size of land holding and net sown area were inversely related to fertility behaviour. A steady decrease in the fertility with increase in size of the ownership holding was confirmed. The decrease in fertility for the respondents with less than or equal to 2 acres and 5+
acres of land was 0.83 mean live births (Sig. at 0.01 level) for backward villages and 0.24 mean live births for the developed villages. Similar trend was observed with regard to net sown area also and it was significant (at 0.05 level) in both the backward and developed villages.

The respondents who used high yielding varieties in greater proportion of their land had lesser number of live births, compared to those who did not use high yielding varieties or those who used them in a limited area in both backward and developed villages. The difference in fertility between the respondents who used the traditional varieties of crops, and those who adopted high yielding varieties in more than 50 percent of their land was 0.62 mean live births in backward villages and 0.57 in developed villages (Sig. at 0.05 level). Thus, the hypothesis that greater the area under high yielding variety, lower will be the family size was confirmed.

Significant differences in the mean number of live births was also noticed between the respondents who practiced regular plant protection measures and those who did not use any pesticides to protect their crops. In both backward and developed villages, the respondents who did not use plant protection measures, had on an average 0.49 live births higher than those who practiced them (Sig. at 0.05 level).
The overall trend of the analysis strongly confirmed the hypothesis that various aspects of the agricultural modernisation together affect family size decisions. The difference in fertility between the agriculturally more modern and less modern respondents was 0.49 live birth in the backward villages (Sig. at 0.05 level) and 0.75 live births in developed villages (Sig. at 0.01 level).

Data on different dimensions of agricultural modernisation, suggests that all these variables independently and combinely affect the fertility behaviour significantly among the rural population.

IMPLICATIONS

It is found that large land owners were agriculturally more modernised and were getting higher income from agriculture and had lower fertility than the small land owners. This may be because majority of the small farmers had limited access to improved technology and credit, and opted for traditional safe pattern of cultivation, thereby getting less income from agriculture. It is necessary to reduce the gap between different land size classes through effective and strict implementation of land ceiling act which is already in existence. Further improvement of the available extension services, implementation of agricultural education and training programmes about modern
farm technology especially to the small farmers will enable them to increase their income. Provision of crop loans to invest more in large amounts on manure, fertilisers and pesticides on easier terms and at subsidised rates of interest will help these sections to utilise higher quantity of inputs. In order to reduce the gap between land ownership and net sown area of land, steps have to be taken to improve the existing irrigation facilities by digging wells and bore wells, by supplying pumps sets on subsidised and easy instalments basis, by helping to adopt modern methods of irrigation like fountain irrigation systems etc.

In the study area, majority of the farmers were not adopting high yielding varieties and plant protection measures especially in the backward villages. Eventhough high yielding varieties of crops were raised, they were not adopting scientific methods of cultivation required for the crops. Hence, farmers are to be educated to cultivate high yielding variety and adopt plant protection measures to increase production. Further, necessary steps have to be taken to distribute high yielding variety seeds, sprayers and other farm inputs at cheaper prices in appropriate time. The farmers also have to be educated on how to use different plant protection measure techniques, and the necessary infrastructure has to be provided to
facilitate the farmers to use pesticides and fertilizers in time. All these measures will raise agricultural production, income and thereby standard of living of the farmers which will have profound influence on family size decisions.

MULTIPLE REGRESSION ANALYSIS OF FERTILITY BEHAVIOUR

The total variance in fertility behaviour explained by seven of the thirty-eight variables considered for the regression analysis was 58 percent for the respondents in the developed villages as against 56 percent for the respondents in the backward villages. About 44 percent of the variance in fertility of the respondents in both developed (agricultural modernisation index, educational aspiration index, gross income and net sown area of land) and backward villages (perceived number of sons to support in old age, fatality index, persistence for sons and net sown area of land) was explained by only four variables.

The variables predicting significant proportion of fertility variance for the respondents in the developed villages by their order of rank were: Agricultural modernisation index (22%), educational aspiration index (8%), gross income (8%), net sown area of land (6%), socio-economic status index (6%), wives age at marriage (5%) and perceived number of sons to support in old age (3%). On the other hand, perceived number of sons to support in
oldage (15%), fatality index (13%), persistence for son(s) (8%), net sown area of land (8%), socio-economic status index (5%), agricultural modernisation index (4%), and expectation of dependence on sons (3%) were the significant predictors of fertility variance for the respondents in the backward villages.

The agricultural related variables (agricultural modernisation index, net sown area of land, educational aspiration index and gross income) were the predominant determinants of the fertility behaviour in developed villages, while oldage security variables (perceived number of son(s) to support in oldage, persistence for son(s), expectation of dependent on son(s)) and fatality index emerged as the significant predictors of fertility behaviour of the respondents in developed villages.

GENERAL IMPLICATIONS

1) Knowing more about the impact of agricultural modernisation on demographic variables would help to answer the questions on how to shape developmental policies and how to mix specific programmes to achieve desired demographic outcomes.

2) In general, it is considered that agricultural modernisation will have negative influence on population
growth. However, there will be lags in the response of familial norms and values to economic changes. Not enough is known about the strength of these countervailing influences and the time lags to which they are subject in order to predict the exact impact. The findings of studies such as the present will help to fill this gap.

3) Studies exploring the links between the acceptance of agricultural innovations and acceptance of family planning are limited and these issues can not be studied without some attitudinal information as attitudes and motives intervene between the economic stimulus (a consequence of agricultural modernisation) and demographic response. Availability of data on such issues would provide insights into reasons for observed relationships.

4) Perceived costs and benefits of rearing children are central to the concept of the influence of agricultural modernisation on fertility behaviour. However very little research has been done on this issue. Data on perceived costs and benefits of children will help to gain insights into motivations of the couples and design incentive and disincentive programmes that may affect the perceived balance of benefits and costs of rearing children.
5) Economic demographic relations may differ between different economic settings and cultures. Research studies collecting comparable data on villages with different levels of agricultural modernity would help to identify the economic and cultural factors influencing the fertility behaviour of the different population groups.

6) Field studies combining agricultural and demographic variables are very hard to find anywhere in the developing world, particularly at the micro level. Such studies would enable one to explore the attitudes and motivations which intervene between the economic stimulus and demographic response. Village level studies would be of particular value to understand the observed relationships and linkages between agricultural modernisation and fertility if data on areal characteristics - such as the agricultural characteristics of the village as a whole, its modernity, social and institutional structure, as well as the economic characteristics of individual farm households - is available.

7) The findings of the present investigation suggest that stratification of the rural population into different groups would be the best approach for studying rural fertility rather than analysing the backward
and developed villages together, since the factors affecting their fertility behaviour are diverse and also the nature and extent of their influence differs. Identification of differential factors influencing the fertility behaviour of different groups of population would be more valuable for policy formulation.

SUGGESTIONS FOR FURTHER RESEARCH

1) As the study has shown clearcut differences in the fertility levels of the backward and developed villages, it may be worthwhile to conduct an indepth study with a larger sample but controlling agricultural modernity throughout.

2) The findings suggests that children are viewed as an important source of economic and oldage security. In the backward areas children may be predominantly valued for this reason which has a bearing on fertility. This is an important area necessitating further research.

3) Value of children is central component to the study of agricultural modernisation and fertility behaviour. Further indepth research is needed in this area.

4) Surveys may be undertaken to study the relationship between agricultural modernisation and fertility
behaviour, taking sample belonging to different economic settings and cultures.

5) Longitudinal studies would be more appropriate than the present approach. But it was beyond the scope of the present research due to constraints imposed by time and resources.