WORLD EMPLOYMENT PROGRAMME
Population and Employment Project

Population and Employment
Working Paper No.6

THE EFFECT OF GROUP LEVEL VARIABLES ON
FERTILITY IN A RURAL INDIAN SAMPLE

by

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August, 1974.

Recently there has been considerable work on the socio-economic determinants of fertility, using models of rational household decision-making. Couples are envisaged as responding to a variety of individual circumstances facing them such as family income, education, and wife's earning opportunities. The assumption of that theory is that parents behave as if they balance the costs and benefits of children and have the number of children that maximises the family's well-being. In its most general form, then, this theory is able to take into consideration the influence of virtually every imaginable individual factor on fertility. Economic variables affect the relative economic cost of children versus other goods and the ability of the parents to afford "goods," be it children or otherwise; psychological factors affect the relative taste for children versus other goods. Family planning knowledge and availability of contraceptives affect the degree to which parents are able to achieve their family size desires.

A criticism of this theory is that too much emphasis is placed on conscious decision-making and freedom of individual choice¹, especially in LDC's where individual behaviour is greatly constrained by the groups to which the individual belongs, such as caste, village and tribe. Usually these groups help determine marriage partners, receptiveness to outside influences, job opportunities, and family size norms. This paper demonstrates that in a sample of rural Indian households two group variables (caste and development level of the village) have an effect on reproductive behaviour even after individual characteristics of the couples are taken into consideration.

¹ In addition, there is a misconception about what is implied by the assumption of rational decision-making. It does not mean that people calculate whether to have children with a "pencil and a pad". It only means that people behave in their own best interest - i.e. as if they had done the necessary calculations. Also, this theory does not necessarily imply that there is any thought about whether to have each birth. For this theory, it is only necessary that a decision is made about some birth by some of the couples. In most LDC's this often involves only the last birth as is demonstrated by the predominance of birth control methods which stop pregnancies rather than space them. In fact, in LDC's it is unlikely many people even consider whether or not to have the first couple of births.

Some of those who have developed the socio-economic theory of fertility, in particular Easterlin, have stressed the importance of group variables in determining the parents' taste functions (i.e., relative evaluation of children versus goods). Unfortunately, this has mainly engendered studies of fertility differentials within cultural groups - to the virtual exclusion of the fertility differences between cultural groups. In other words, marginal movements along preference curves have been given greater attention than shifts between those curves. There are a number of reasons for this bias. First, the socio-economic theory of fertility has been developed mainly by economists who tend to neglect institutional variables, since they are outside the traditional scope of an economist's expertise. Second, group level variables are basically prescribed and, therefore, theoretically cannot be altered. However, although prescribed group variables themselves cannot be changed, the influence the group has on its members can be changed.¹ Third, there has been a tendency to dismiss the residual effect on fertility which is associated with group variables on the assumption that if individuals choose their fertility any residual associations between fertility and group variables must be due to other as yet, unspecified, characteristics of the couple.

In conclusion, while the socio-economic theory of fertility provides a useful framework for analysis of fertility differentials (which are assumed to vary with the couple's individual characteristics), in LDC's where societal groups are highly cohesive, it is necessary to take into consideration more explicitly the influence which group norms have on the fertility behaviour of its members.

¹ For example, suppose that an influential woman from group A becomes sick after taking the pill, more than likely, members of group A (as well as others who are in close contact with group A) may be reluctant to use the pill in the future. Group A women are still in group A, but their attitude toward the pill would now have changed.

Data

For this study, sample survey data from rural Gujarat, India was used. These data provided an unusual opportunity for studying the effect two important group variables (caste and village) had on fertility. The sample was drawn from two caste groups (a high and an average caste) and eleven villages (with varying levels of economic development). These villages were selected at random from rural villages¹ in Baroda Taluka, Gujarat, India.² The effective sample size was 454, and there was evidence that the quality of the data was relatively good.³

The survey was very wide ranging in its content. There were attitudinal and factual questions on the economic costs and economic benefits of children; there was a complete KAP section; there was a detailed pregnancy history section; there were detailed sections on income and expenses by source; there were questions on basic information such as education, housing, marriage, size of household, and household type. All-in-all, this survey provided enough information to study the influence of group variables within the context of the socio-economic theory of fertility.⁴

¹ The sample consisted only of villages where at least 60 per cent of the male labour force was engaged in agricultural activities according to the 1961 Indian Census.

² A taluka is an administrative unit which is roughly equivalent to an American county.

³ There were four interviews per sample couple, thereby decreasing the natural fears of respondents toward outsiders. There were two interviews with each spouse, thereby enabling interviewers to ask the husband questions within his sphere of knowledge (e.g. income), and to ask the wife questions within her sphere of knowledge (e.g. pregnancy history). There was close supervision of the field work and extensive editing of questionnaires (especially of income).

⁴ There were two sampling peculiarities which affected fertility averages. Only women 25 years or above (on a preliminary census) who had at least one child were included in the sample.

The sample area contained an interesting mix of villages which were largely traditional in terms of employment and life style but situated in an area which was in close proximity to a major Indian city¹ (15 miles at most). While 79 per cent of the male respondents were mainly engaged in agricultural activities, 84 per cent of farm output was marketed. In short, the sample consisted of rural villages which were influenced by the nearby city and the economic development occurring in and around the city.

The eleven sample villages varied according to various measures of economic development in such a way that it was possible to divide them into three distinct groups.² Villages were considered to be least developed villages (LDV's), middle developed villages (MDV's), and highly developed villages (HDV's) (Table 1).

LDV's were relatively undeveloped, and villages in this group were more representative of typical Indian villages than the other sample villages.³ LDV's did not have domestic electricity; they had a dirt approach road; they did not have any college graduates; and, there were no water taps in or near the house.

MDV's had a dirt approach road just as did the LDV's. However, the MDV's had many aspects of development which were missing in the LDV's. There were college graduates in the MDV's; there was domestic electricity; and there were water taps just outside the houses.

¹ Of the 25 largest Indian cities, this city (Baroda) was the second fastest growing city during the 1961-1971 period. (Census of India, paper Number 1 of 1971 Supplement.)

² This was basically a prescribed variable, since the per cent of male respondents who were not born in the village where they currently resided was only 5.8 per cent and there was little difference by level of village development.

³ Even so, the least developed sample villages were somewhat developed for India. All of these villages used well water for drinking purposes; factories were in the vicinity; all of the villages had a primary school; and, three of the four sample LDV's had daily bus service to Baroda City.

TABLE 1: Characteristics of Sample Villages by Development Level

Characteristics	Least Developed Villages	Middle Developed Villages	Highly Developed Villages
Approach road to village	Dirt	Dirt	Paved
College graduates living in village	None	Some	Many
Domestic electricity in village	No	Yes (recently installed)	Yes (installed a while ago)
Water tap outside houses	No	Yes	Yes
Sample castes in village	Barias only	Barias and Patidars	Barias and Patidars
Number of villages in sample	4	4	3

The major difference between the HDV's and the MDV's was that each HDV had a paved approach road. This difference was very important because the HDV's were located on major highways; many buses stopped at these villages, and the villages were not isolated during the monsoon season. In addition, HDV's had more of the other aspects of development than did the MDV's. For example, there were more college graduates; and domestic electricity had been available for more years.

The two studied castes were expected to be greatly different in virtually all social and economic aspects. The high status Patidars were reported to be the economically dominant group in the sample area, highly motivated, and very well educated.

Next to the Brahmins and Barias, Patidars were the highest status caste in the village (in Baroda Taluka) and for generations had maintained effective political and social control.¹

¹ Thomas Poffenberger, in collaboration with others, Husband-Wife Communication in an Indian Village (Central Family Planning Institute Monograph Series No.10), p.18.

The (Patidars) were known for their mobility, a shrewd eye for business opportunity, excellent husbandry in agriculture, and above all a consuming ambition combined with the necessary will and drive to make money.¹

Barias, on the other hand, were more representative of the Indian village masses. They were reported to be of average status, and not well-off economically.

The Barias were for the most part tenant farmers (village in Baroda, Taluka). There was less change in the Baria and Bhil (tribal) groups which held more firmly to traditional values and farming roles.²

It would be difficult to find anywhere, even within Patidar villages, a Baria house made of brick or containing more than one room shared by humans and cattle - even in circumstances where Barias own their own land. One can usually tell a Baria field from a Patidar field on merely seeing it from a distance.³

The survey data confirmed the observations made by others (Table 2). Barias tended to live in small mud houses with galvanised metal roofs (approximately 85 per cent) whereas Patidars tended to live in relatively large, electrified, brick and concrete houses (approximately 90 per cent). Educational aspirations as well as educational attainment were also greatly different. While approximately 10 per cent of sample Baria women were literate, 65 per cent of Patidar women were literate. Differences in education aspirations were perhaps even more striking. Virtually every Patidar husband expected to send at least one child to high school or college, and most of these aspirations appeared to be solid plans, since most husbands were able to estimate the cost of sending a child to high school or college. Baria husbands, on the other hand, had much lower educational aspirations. In addition, much of these aspirations appeared to be hopes rather than solid plans since a majority of Baria husbands who aspired to send a child to high school or college was unable to even roughly estimate the costs involved.

¹ Kusum, Nair, Blossoms in the Dust (New York: Frederick A. Prager, Inc., 1961), p.171.

² Thomas Poffenberger and Shirley Poffenberger, "The Social Psychology of Fertility Behaviour in a Village in India" in J. Fawcett, ed.

³ Kusum Nair, Blossoms in the Dust, p.183

TABLE 2: Socio-Economic Characteristics by Caste

	Patidars (High)	Barias (Average)	Level of Significance of Caste Difference
<u>Housing</u>			
% Couples with pucca houses	91.7%	16.4%	.001
% Couples with electrified houses	90.4%	16.8%	.001
% Couples with one-room houses	5.8%	45.9%	.001
Mean number of rooms per house	3.5	1.7	.001
<u>Income</u>			
Income per year per adult	Rs. 2410	Rs. 618	.001
<u>Agriculture</u>			
% Cultivators using new seed varieties	70.6%	24.6%	.001
% Cultivators using chemical fertilisers	99.1%	60.7%	.05
<u>Education of Wife</u>			
% Literate	63.8%	10.4%	.001
% Primary graduates or above	31.2%	1.5%	.001
<u>Education of Husband</u>			
% Literate	98.6%	61.1%	.001
% Primary graduates or above	80.7%	25.5%	.001
<u>Educational Aspirations for Children</u>			.001
% Less than high school or college	0.7%	39.2%	
% H.S. or college and no estimate of cost	35.6	33.7	
% H.S. or college and estimate of cost	63.7	27.1	

As expected, there were also enormous differences in income and savings. Fifty-three per cent of Baria couples said they were unable to save whereas only 16 per cent of Patidar couples said they were unable to save. Income per adult showed similar differences. Patidar respondents had an average annual income per adult of Rs. 2410; Barias had an average of Rs. 618. In addition to having a higher income, Patidar respondents were much more likely to think their standard of living had improved in the past and would continue to improve in future.¹

Methodology and Measures of Fertility

For most of the analytical work in this paper, multiple classification analysis (MCA) - a form of dummy variable multiple regression - was used.² MCA is an additive model in which all independent variables are treated as nominal variables.³ "It assumes that the average score [on the dependent variable] for a set of individuals is predictable by adding together the 'effects' of several predictors"⁴

The following MCA statistics are used in this paper:

- (1) Adjusted deviations for each category
- (2) Beta coefficients for each independent variable
- (3) Adjusted R^2 and unadjusted R^2

¹ "How would you say you are living now, compared to how your family was living when you were growing up? Would you say that you are better off, about the same, or worse off than your father's family was when you were growing up?"

"And how about the next five years - how do you think your family's financial situation will compare with its present situation? Much better in five years, a little better in five years, a little worse in five years or much worse in five years?"

² For a complete description of MCA see Andrews et.al., Multiple Classification Analysis, (Ann Arbor Survey Research Center, 1967).

³ Each independent variable must be divided into categories (from two to six) before it can be used in MCA.

⁴ Andrews et.al., op. cit., p.25.

Adjusted deviations are equal to the difference between the mean of the dependent variable for the entire sample and the mean of the dependent variable for each category after the influence of other independent variables is accounted for. They are analogous to ordinary least squares (OLS) coefficients, since they measure the marginal effect of each category on the dependent variable. The beta statistic ranks the independent variables in order of importance. Adjusted R^2 is the percentage of the total variance of the dependent variable which is "explained" by the independent variables adjusted for the degrees of freedom.

The effect group variables have on fertility will be studied within the context of the socio-economic theory of fertility. For this purpose, four independent variables will represent the socio-economic determinants of fertility as implied by this theory. Parents' education will proxy for the parents' relative tastes for children versus other goods.¹ Income per adult will estimate the parents' ability to afford goods. The felt economic burden of children and the perceived economic benefit of children will measure the net economic cost of children.²

The economic costs and economic benefits of children are subjective measures of costs and benefits of children as perceived or felt by the parents. This non-monetised approach to the economic cost and economic benefit of children was borrowed from Eva Mueller and was used for two reasons.³

¹ Parents' education has other effects as well, since it influences contraceptive effectiveness and the opportunity cost of income foregone when the wife withdraws from the labour force.

² Including a measure of the economic benefits of children broadens the socio-economic theory of fertility beyond the narrow consumer durable approach introduced by Gary Becker. This is obviously a necessary addition in countries where children play such an important economic role by contributing to family income at a relatively young age and by providing support for their parents' retirement years.

³ Eva Mueller, "Economic Motives for Family Planning", Population Studies (Nov. 1972), p.383-403.

First, family size decisions are undoubtedly made on the basis of subjective expectations. Second, even if respondents knew all the monetary costs and benefits of children, a non-monetised approach may still be preferable because reasonably accurate estimates of the monetary costs and benefits of children are extraordinarily difficult to obtain within the time constraints of a sample survey questionnaire.¹

Three measures of fertility are used in this paper - ideal family size (IFS), family planning acceptance (FPA), and completed family size (CFS). Each fertility measure provides a different insight into reproductive desires and behaviour.

¹ The perceived economic benefit of children index is comprised of the following information:

- (1) Are children expected to help support parents in their old age?
- (2) Perceived financial usefulness of children today compared with the past.
- (3) Are sons expected to be of significant help on farm or in business in the future?
- (4) Expected age at which sons will be working full-time.

The felt economic burden of children index is comprised of the following information:

- (1) Are there plans to send children to high school or college?
- (2) Are children a reason for saving?
- (3) Would additional income be spent on children?
- (4) Are economic costs of children a reason why a family with few children is happier than a family with many children?
- (5) Would family go into debt to pay for an expensive wedding?

Ideal family size theoretically measures a couple's desired family size - that is the number of children a couple would have if it were able to perfectly control its fertility.¹ Family planning acceptance provides information about the demand for family planning services.² Such acceptance should indicate smaller family size ceteris paribus. Completed family size is the total number of births a woman has during her entire reproductive period. It is the fertility variable with the greatest effect on family size and population growth rates.

Each of these fertility variables has measurement difficulties. Ideal family size is based on a hypothetical question which is often difficult for respondents to understand.⁴ Family planning acceptance here excluded traditional methods of birth control. Completed family size is estimated (for most respondents), since the majority of sample women have not yet completed their fertility.⁵

¹ Women respondents (wives) were asked the following question:

If you were just getting married and could have just the number of children you want, how many would you like to have when you are through having children? About age 45.

² Family planning acceptance was defined as the acceptance of modern birth control methods such as sterilisation, loop and condom. Traditional methods of birth control, such as abstinence or abortion, were excluded from this definition.

³ See Anker, ibid, pp.115-116 and 145-147 for discussions of measurement accuracy for IFS and CFS respectively. Information on FPA was obtained after cross-checking FPA information supplied separately by the husband and the wife.

⁴ For example, see N.K. Nambodoori "Some Observations on the Economic Framework for Fertility Analysis," Population Studies (July 1972), pp.195-199 for a discussion of the problems involved in measuring ideal family size.

⁵ Rather than respondents estimating their own expected future fertility, future contraceptive plans and their timing were mainly used to estimate future fertility. The central feature of this method was that respondents who were fecund and had no plans to use contraceptives any time in the future were considered to have children as "God wills". (See Richard Anker, Socio-Economic Determinants of Reproductive Behaviour in Households of Rural Gujarat, India, unpublished Ph.D. Dissertation (University of Michigan, Economics, 1973) for an extended discussion of this rather complicated estimating procedure, pp.134-147).

Analysis

This section demonstrates statistically that group variables had a relatively strong relationship to reproductive behaviour whether or not individual characteristics of each couple were taken into consideration. Before discussing these results, however, it is useful to have an understanding of fertility levels in the sample. Ideal family size norms were very low - only 3.2 children on average.¹ Family planning knowledge was virtually universal (95 per cent of the male respondents knew one or more family planning methods), and family planning acceptance was widespread (47 per cent of sample couples) with male and female sterilisations by far the most widely adopted methods. Completed family size was more in keeping with general Indian levels; couples were expected to have 6.0 births on average.

The above averages, however, conceal some striking fertility differences between the sub-groups under consideration (Table 3).² Patidars had, on average, an IFS and a CFS which was approximately 25 per cent smaller than that reported by Barias. This amounted to a difference in CFS of almost 1.5 births. Differences in FPA were even larger with 81 per cent of Patidas couples already having accepted a contraceptive compared with 27 per cent of Baria couples. Similarly, large differences were found between the sample villages where development level of village and fertility were negatively related. For example, couples in LDV's were expected to have, on average, two more births by the end of their reproductive period than were couples residing in HDV's. Given the large differences in fertility between the sample sub-groups, it was not surprising that caste and development level of village, along with a minimum of demographic information, accounted for a reasonably high per cent of the variance in fertility (Col.1, Tables 4, 5 and 6).³

¹ Since sons were preferred over daughters by almost two-to-one (1.86), the implication was that completed family size would be considerably larger than the family size which was considered ideal. In addition, ideal family size appeared to include only the desired number of surviving children.

² Wife's age was approximately the same in all sub-groups.

³ Wife's age was used for CFS, because there was a generational movement towards lower CFS. Number of sons was used for FPA because of the strong son preference and the terminate nature of the methods used in the sample area.

TABLE 3: Fertility Differences by Caste and Development Level of Village.

	Ideal Family Size (IFS)	Family Planning Acceptance (FPA)	Completed Family Size (CPS)
<u>Caste</u>			
Baria (Average)	3.5	.27	6.5
Patidar (High)	2.8	.81	5.1
<u>Development Level of Village</u>			
Least Developed Villages (LDV)	3.7	.09	7.4
More Developed Villages (MDV)	3.2	.46	6.3
Highly Developed Villages (HDV)	3.1	.57	5.4

The adjusted R^2 s were .111 for IFS, .399 for FPA, and .213 for CFS, high levels of explanation for such aggregated explanatory variables.

The relationships found in Column 1 of Tables 4, 5 and 6, may have been caused by the individual characteristics of couples and the two group variables may simply have been proxying for these other variables. In order to investigate this possibility, a core list of socio-economic variables, along with necessary demographic variables, were used to represent the major individual circumstances viewed as important by the socio-economic theory of fertility (Col. 2 of Tables 4, 5 and 6). It is interesting to note that the two group variables explained as much or more of the variance in fertility than the core list of individual variables (adjusted R^2 in Col. 1 compared with Col. 2).

When caste and level of village development were added to the core list of socio-economic variables the adjusted R^2 s jumped for all three dependent variables (Col. 3 compared with Col. 2, Tables 4, 5 and 6). It rose from .100 to .131 for IFS, from .306 to .386 for FPA and from .182 to .261 for CFS. These were, indeed, substantial increases after so much of the situation facing each couple had already been taken into account and they were significant at the one per cent level. The data, then appear to support the contention that group variables have an important effect on reproductive behaviour, and some of this effect remains even after four important socio-economic characteristics of the couple are taken into consideration.¹

Perhaps as revealing as these partial R^2 s are the beta coefficients. Of the non-demographic variables, caste and development level of village have the two highest betas for FPA and CFS and the first and third highest betas for IFS (parents' education was second). According to the adjusted deviations, there were differences of .50 child in IFS, 1.08 births in CFS and 40 per cent in FPA due to caste. Development of village was associated ceteris paribus with similar differences in

¹ The data also appear to support the hypothesis that the individual characteristics of the couple had an independent effect on fertility even after the couple's cultural situation, as measured by caste and village, was taken into consideration. (Col. 3 compared with Col. 1, Tables 4, 5 and 6).

TABLE 4: Beta Coefficients, R^2 s and Adjusted R^2 s
for Ideal Family Size

Independent Variables	Beta Coefficients and R^2 s Derived from MCA Runs				
	(1)	(2)	(3)	(4)	(5)
Parents' Education	x	.25	.14	.20	.14
Income per Adult	x	.07	.06	.07	.07
Perceived Economic Benefit of Children Index	x	.10	.11	.09	.08
Felt Economic Burden of Children Index	x	.14	.12	.13	.13
Caste	.19	x	.18	x	.16
Development Level of Village	.11	x	.13	x	.13
Urban Contact Index	x	x	x	.17	.10
Ownership of Consumer Durables	x	x	.12	.12	.13
Perception of Economic Change Index	x	x	x	.03	.03
Number of Rooms per Adult	x	x	x	.09	.08
Husband's Occupation	x	x	x	.00	.03
Use of Abstinence	x	x	x	.03	.00
Unadjusted R^2	.104	.128	.165	.164	.188
Adjusted R^2	.098	.100	.132	.100	.119

TABLE 5: Beta Coefficients, R^2 s, and Adjusted R^2 s
for Family Planning Acceptance

Independent Variables	Beta Coefficients and R^2 s Derived from MCA Runs				
	(1)	(2)	(3)	(4)	(5)
Parents' Education	x	.30	.12	.22	.11
Income per Adult	x	.13	.06	.08	.06
Perceived Economic Benefit of Children Index	x	.04	.03	.06	.04
Felt Economic Burden of Children Index	x	.15	.10	.15	.10
Number of Sons	.32	.38	.33	.37	.33
Caste	.44	x	.39	x	.41
Development Level of Village	.18	x	.16	x	.15
Urban Contact Index	x	x	x	.14	.08
Ownership of Consumer Durables	x	x	x	.08	.04
Perception of Economic Change Index	x	x	x	.07	.07
Number of Rooms Per Adult	x	x	x	.03	.04
Husband's Occupation	x	x	x	.10	.05
Use of Abstinence	x	x	x	.09	.06
Unadjusted R^2	.409	.334	.453	.379	.453
Adjusted R^2	.399	.306	.401	.324	.401

TABLE 6: Beta Coefficients, R^2 s and Adjusted R^2 s
for Completed Family Size

Independent Variables	Beta Coefficients and R^2 s Derived from MCA Runs				
	(1)	(2)	(3)	(4)	(5)
Parents' Education	x	.18	.06	.06	.06
Income per Adult	x	.15	.08	.06	.04
Perceived Economic Benefit of Children Index	x	.15	.14	.16	.14
Felt Economic Burden of Children Index	x	.11	.09	.07	.07
Wife's Age	.27	.24	.27	.21	.23
Caste	.26	x	.22	x	.11
Development Level of Village	.24	x	.23	x	.24
Urban Contact Index	x	x	x	.18	.12
Ownership of Consumer Durables	x	x	x	.12	.10
Perception of Economic Change	x	x	x	.10	.11
Number of Rooms Per Adult	x	x	x	.09	.09
Husband's Occupation	x	x	x	.01	.04
Use of Abstinence	x	x	x	.09	.06
Unadjusted R^2	.224	.214	.295	.275	.330
Adjusted R^2	.213	.183	.261	.213	.267

adjusted deviations (Table 7).¹

At this point readers may feel some scepticism with regard to the above results, since more characteristics of the couple have not been taken into consideration, and other, as yet, unspecified variables may be associated with the two group variables. However, it will now be shown that a number of other, seemingly important, socio-economic characteristics of the couple reduce, but by no means eliminate, the residual association between the group variables and fertility.

The additional socio-economic variables included were:

1. Degree of urban contact²
2. Number of modern consumer durables owned by the household³
3. Number of adults per room
4. Perception of economic change⁴
5. Husband's occupation⁵
6. Use of abstinence

¹ These exact values should not be taken too literally because of the high collinearity between caste and parents' education (see Table 8).

² This index was constructed of data relating to contact with urban type influences:

1. Frequency of visits to the city by the husband
2. Frequency of visits to the city by the wife
3. Frequency of listening to the radio by the wife
4. Frequency of listening to the radio by the husband
5. Visits of relatives from the city
6. Frequency of visits to the cinema by the husband
7. Residence outside present village by the husband
8. Electricity in the household

³ Deborah Freedman showed that the ownership of consumer goods was associated with a pattern of behaviour that included lower fertility (Deborah Freedman, "The Relationship of Family Planning to Savings and Consumption in Taiwan," Demography (August 1973), p.499-506).

⁴ This index was compiled from subjective questions concerning the husband's perception of the family's present economic position compared with: (1) his neighbours; (2) his childhood; (3) five years ago, and (4) five years hence.

⁵ There were three categories: (1) landless agricultural labourers; (2) owner cultivator or businessman; and (3) other work not for family, usually in factories or government.

TABLE 8: The Relationship Between Independent Variables (Cramer's V)

Variable	VAR NO.	VARIABLE NUMBER													
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Caste	(1)	1.000													
Development Level of Village	(2)	.313	1.000												
Parents' Ed.	(3)	.664	.187	1.000											
Income per Adult	(4)	.479	.152	.294	1.000										
Econ. Benft. Child Index	(5)	.082	.130	.131	.113	1.000									
Econ. Burden of Child Index	(6)	.300	.110	.250	.159	.169	1.000								
Urban Contact Index	(7)	.654	.159	.414	.227	.129	.227	1.000							
Ownrshp. of Consumer Durables	(8)	.594	.164	.381	.191	.098	.191	.491	1.000						
Percep'n. of Econ. Change Index	(9)	.372	.107	.238	.169	.061	.169	.300	.276	1.000					
Rooms per Adult	(10)	.411	.143	.239	.121	.110	.121	.251	.207	.151	1.000				
Husband's Occup	(11)	.435	.089	.198	.208	.326	.208	.256	.368	.251	.223	1.000			
Use of Abstnce.	(12)	.070	.082	.049	.113	.079	.113	.091	.085	.074	.070	.103	1.000		
Wife's Age	(13)	.112	.077	.148	.070.	.189	.070	.103	.125	.115	.092	.117	.011	1.000	
No. of Sons	(14)	.171	.118	.105	.105	.164	.105	.130	.081	.107	.111	.112	.101	.263	1.000

Cramer's V is a statistic based on chi-square (χ^2) which is adjusted so that it lies between zero and one.

$$V = \sqrt{\frac{\chi^2/N}{\text{Min } [(Rows-1), (Cols.-1)]}}$$

All of the above variables were added to Col.2, thereby creating an expanded list of socio-economic and demographic variables (Col.4 in Tables 4, 5 and 6). Caste and development level of village were then added to this expanded list of socio-economic variables in order to see if these group variables continued to make a significant contribution to explaining fertility even after a good many additional socio-economic circumstances of the couples were held constant. For all three dependent variables the rise in the R^2 was significant at the one percent level (Col.4 compared to Col.5 in Tables 4, 5 and 6). The adjusted R^2 rose from .100 to .119 for IFS, from .324 to .401 for FPA, and from .213 to .267 for CFS. In addition, caste and development level of village continued to have relatively high beta coefficients although the association between urban contact and caste reduced caste's beta coefficient for IFS and CFS.

Conclusion

By and large, the socio-economic theory of fertility has attempted to explain fertility in terms of the peculiar situation facing each couple, and specific attention has not been directed toward the basically prescribed groups to which couples belong. This paper has argued, and demonstrated for a rural Indian sample, that this can be an important oversight, especially in LDC's where group affiliation greatly constrains as well as shapes the behaviour of individuals.

In the rural Indian sample used in this paper, caste and village (categorised by level of development) - two group level variables - were highly associated with three measures of fertility (ideal family size, family planning acceptance, and completed family size), and this association remained even after numerous socio-economic characteristics of couples were held constant.

These results have very important implications for family planning programmes as well as for researchers even though group variables are basically prescribed at birth. These findings imply that researchers have been overly concerned with marginal fertility changes within cultural groups and not concerned enough with fertility differences associated

with these groups or with the reasons for this group effect. For example, why did lower caste couples in the highly developed sample villages have relatively low fertility? It was not due to occupation, urban contact, or higher income, since these influences were taken into consideration. Possibly another group within the village was influencing the lower caste's behaviour. Other possible answers are: historical accident, or unique leaders. Also implied in this paper is that in the face of budgetary constraints, family planning programmes should consider concentrating their initial effort toward change agents within receptive population sub-groups.

The empirical results of this paper as well as some of their implications must remain tentative since the sample was representative only of a small area in India, and the sample size (454) was relatively small for research of this type. Nonetheless, the results imply very strongly that researchers who are studying the determinants of fertility and family planning administrators who are attempting to affect fertility rates should take due consideration of the influence group level variables have on the fertility of couples in LDC's.