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## **Land Reforms and Fertility Decline in Kerala<sup>1</sup>**

THE recent fertility decline in India's Kerala State is often linked to the redistributive policies of the post-Independence Government of Kerala. There is, however, little empirical data to prove or disprove such a link. The present paper attempts to fill this lacuna in a very limited way by providing an empirical analysis of the relation between fertility and redistribution of land through land reform. The paper begins with a short description of the land reforms in Kerala, proceeds to a conceptual explanation of how these land reforms could have affected fertility, and concludes with an empirical testing of some of the hypotheses underlying the conceptual framework.

### **Land Reforms in Kerala**

Land reform was one of the principal means adopted in Kerala to redistribute wealth and transfer land to the actual tillers. The first land reform legislation after Independence was adopted by the State Assembly in 1957. It sought to give permanent tenure to all tenants, to establish the right of tenants to purchase the land they tilled, and to put a ceiling on the total area of land a primary family unit could own. The issue aroused considerable opposition, and as a result of the ensuing agitation the government had fallen.

1. This paper is based on research carried out by the author in Kerala during 1980-82. The project was funded by the World Bank, the UNFPA, and the Government of Kerala. The views and interpretation in this paper are the author's and should not be attributed to the World Bank or to the Government of India.

The Land Reforms Act was finally passed in 1963, but its actual implementation was delayed several years more. By 1969 tenancy was completely eliminated, and rental income from land was virtually abolished throughout Kerala. The 1969 amendments to the Land Reforms Act of 1963 lowered the ceiling on land-holdings to 10 acres, removed some of the exemptions from the ceiling, and gave the "hutment dwellers"<sup>2</sup> the right to purchase about one-tenth of an acre (much less in urban areas) per household at a nominal price.

The impact of these land reforms on the distribution of wealth and income has not been fully evaluated. On the whole, the impact has not probably been great for a variety of reasons. Most of the households with excess land had distributed the excess among family members years before the enforcement of the land reforms. An estimate of the excess land available for redistribution under the Land Reforms Act was 114,800 acres or about 2.4 percent of the total area of Kerala State; the excess amounted to 0.7 percent of the total area in Alleppey District; 0.5 percent in Ernakulam District; and 3.3 percent in Palghat District. [Kerala State, Tables 12.4 (p. 127), 17.3 (p. 190), 17.5 (p. 194), 17.7 (p. 198)] These figures suggest that the net effect of the Land Reforms Act on redistribution of wealth was very small.

### **Influence of Land Reforms on Fertility Trends**

Researchers analyzing the determinants of fertility decline have made quite contradictory assessments of the role of income and wealth on fertility decline in Kerala. Ratcliffe (1978) maintains that "as education and income levels rose as a consequence of distributive policies. . . as the political economy was transformed from one founded on exploitation of the many by the few to one which began increasingly to assume welfare functions traditionally fulfilled by children, fertility declined" (p. 140). In his view it was improvements in the income and welfare of the poor that brought about the decline in Kerala's fertility. But Mencher (1980) maintains that ". . . the decline in fertility among the agricultural laborers need not be seen as an indication of any improvement in their quality of life. In the Kerala context, it can equally well be seen as a sign of greater poverty." (p. 1787).

Here, I take the view that the land reforms in Kerala affected fertility not principally through improvements in the income or wealth of the poor, but more through economic deprivation, through aggravation of housing problems, and above all through a change in the perception of the value of land as a source of income and economic security.

2. Hutment dwellers are low-income households living in huts they have constructed on land belonging to others. They do not pay any rent for the use of the land and are not eligible to use the land for farming.

It is assumed that decisions about family building—whether, when, and whom to marry; whether, when, and how many children to have—are strongly influenced by the perceived economic advantages and disadvantages to couples. Kerala's fertility has declined because children have become increasingly costly whereas the benefit from them, at least while they are young, has not kept pace with the cost. The long-term benefit has perhaps increased, but to reap this benefit a bigger financial investment has become necessary. Most families, especially large ones, do not have the income necessary for this initial investment.

In the changed socioeconomic circumstances under which land has become scarce (cultivable land per person in 1981 was only a fifth of an acre) and farming has become unprofitable to all but the agricultural laborers, human resource development has emerged as the principal means of economic advancement and social mobility. As a result, the desired length of schooling has increased and the desired level of health for children has risen. At the same time, because of declining mortality, the proportion of children surviving to school age has risen. Consequently, the proportion of family income spent on children's education and health has increased. Land reforms have accentuated these trends and in that way contributed to a reduction in desired family size.

Land reforms have also affected desired family size by changing the economic assets of landowning households. Among the people who probably experienced a decrease in income from land, three groups can be identified : first, the rich landlords from whom land in excess of the ceiling was taken away; second, households whose land, though not in excess of the ceiling, was cultivated by tenants lost their land when the tenants cultivating it became its owners; third, middle-class farmers who traditionally had their land cultivated almost entirely by hired agricultural laborers. For the last group, the share of wages in the total cost of farming rose so much that most of them found land more a liability than a source of income.

The most numerous of all land transfers resulting from the land reforms involved the house sites of the hutment dwellers. Landowners who had hutment dwellers on their property lost legal ownership of the house sites together with some land around the house (about one-tenth of an acre in rural areas but less in urban areas). It is doubtful whether any significant increase or decrease in income resulted from these legal transfers, because long before the Land Reforms Act came into existence the land was in effect in the possession of the hutment dwellers. After enactment of the land reforms, however, it became difficult for the older children of hutment dwellers to obtain new house sites of their own. It was only a matter of time before overcrowding became a serious problem in the hutments, resulting in postponement of marriage, reduction in desired family

size, and increased use of contraceptives.<sup>3</sup>

The land reforms and their consequences cannot be studied in isolation from other agrarian reforms. Of particular importance are the wage reforms. Wages in general and women's wages in particular are very high in Kerala, much higher than those in any other state of India. They were pushed up by militant trade unions and a sympathetic government without any reference to productivity increases. The effect of high agricultural wages on income from land and consequently on desired family size has already been cited. In addition, wages have had an impact on fertility levels through their effect on the benefit to be gained from children. High wages adversely affected employment in the state, reducing employment opportunities for children more than for adults. The unemployed children did not remain idle; they were sent to schools, as education was easily accessible and was recognized as a necessary step toward future economic security. The net result is that the cost of bringing up children has increased, while short-term economic benefit from them has decreased. Finally, the higher wages and better working conditions for women resulting from the agrarian reforms have increased their income potential, thereby raising the opportunity cost of children and increasing the desire to avoid pregnancy.

The possible impact of land reform and related agrarian reform on fertility decline is summarized schematically in Figure 1.

### **Empirical Evidence**

The recent World Bank Fertility Survey (1980)<sup>4</sup> has collected information on all land transfers carried out by the sample households during 1970-80. The following questions were asked :

- (1) Has the amount of land owned and/or cultivated by the household increased, decreased, or remained unchanged?
- (2) How much land was purchased by the household; how much was sold?
- (3) How much land was received as gifts; how much was given away as gifts?

3. Dr. N. Krishnaji (Centre for Studies in Social Sciences, Calcutta) in a personal communication pointed out that a more compelling reason for the postponement of marriage by the children of hutment dwellers is the difficulty in partitioning the jointly held properties for the creation of new households after marriage. In the face of rapidly rising land values (for house sites) it would be foolish for labor households to liquidate their land assets or to divide their property. This is equally true for small tenants who now have full property rights.

4. The survey was carried out by the Bureau of Economics and Statistics, Trivandrum, in 1980 in three districts of Kerala (Palghat, Ernakulam, and Alleppey) covering a sample of 3,000 households.

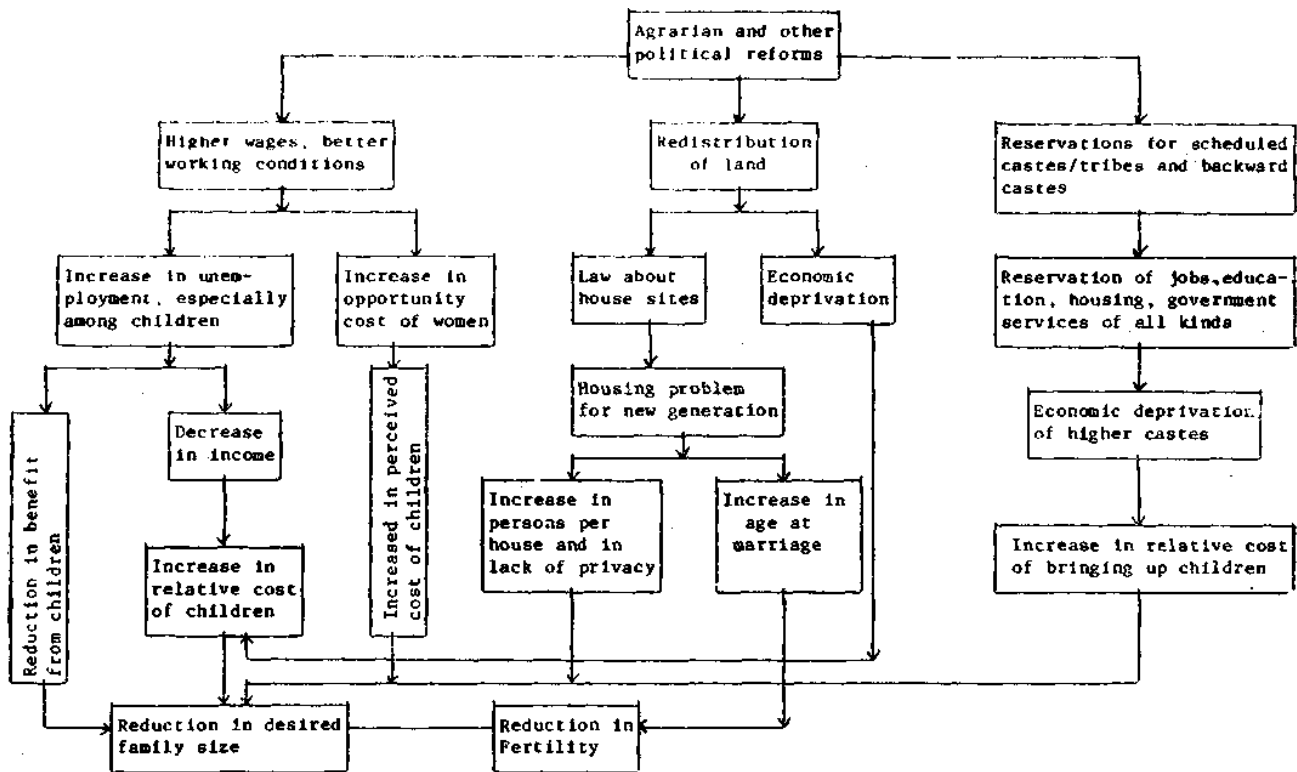


Fig. 1. Impact of land, agrarian, and other reforms on fertility trends in Kerala.

(4) How much land was gained or received through land reforms; how much land was lost or given away through land reforms?

Question (4) provides information about land transfers due to land reforms. Since the decade 1970-80 does not cover the entire land reform period, not all land transfers due to land reforms are included. Use of a longer period (say 1960-80) might have resulted, however, in a much larger recall lapse.

The survey data indicated that 285 households (only 221 of which included an ever-married woman 15-49 years old) had a net gain of land through land reforms, while 60 households (41 of which included an ever-married woman 15-49 years old) had a net loss. The average net gain was only 11 cents<sup>5</sup> while the average net loss was much higher, 184 cents. Of those households which gained land through land reforms, 89 percent acquired an additional 10 cents or less (Table 1). Thus, nearly 90 percent of the gains were in all likelihood transfers of land to the hutment dwellers.

TABLE 1—DISTRIBUTION OF LAND TRANSFERS DUE TO LAND REFORMS, 1970-80 (Households with Ever-Married Women)

<i>Land (cents)</i>	<i>Number of Households with Ever-Married Women</i>	
	<i>Gained Land</i>	<i>Lost Land</i>
0-5	79	4
6-10	118	7
11-49	15	14
50-99	8	6
100+	1	10
Total	221	41
Mean	11.3	164
Mean : All Households	11.1	184

#### *Fertility and Land Ownership*

An indirect indication of the impact of land transfers on fertility is obtained from studying the relation between fertility and landownership. For example,

5. 1 cent = 1/100 acre.

if fertility is not related to landownership, then a decrease or increase in the amount of land owned (due to land reforms) may not affect fertility. If land is a relevant factor, however, then its transfer from one household to another could have some consequences for the fertility of women in the households affected. Table 2, based on the available data, shows that in the past fertility and landownership were negatively related. Women in households with larger landholdings had a slightly lower fertility than women in households with smaller landholdings. But the association seems to have weakened in recent years. The differentials, if any, have become much narrower.

TABLE 2—FERTILITY MEASURES BY OWNERSHIP OF LAND

<i>Land Owned by the Household in Cents</i>	<i>Standardized Average Parity (1980)</i>	<i>General Fertility Rate</i>	
		<i>1965-69</i>	<i>1975-79</i>
0-5	3.53	299	147
6-10	3.65	285	157
11-49	3.50	272	148
50-99	3.29	279	140
100+	3.41	263	144

A regression analysis confirms the lack of any significant association between fertility and landholdings in recent years, but it contradicts the finding of a negative relation in the past. Table 3 shows that the partial regression coefficient

TABLE 3-STANDARDIZED REGRESSION COEFFICIENTS BETWEEN  
LANDOWNERSHIP AND FERTILITY MEASURES

<i>Fertility Measures</i>	<i>B-Coefficient</i>
Children ever-born	+ 0.0416 (2.8)*
Births 1965-74	+ 0.0582 (2.2)*
Births 1970-79	+ 0.0341 (1.5)
Births 1975-79	+ 0.0019 (0.0)
Births 1979	— 0.0123 (0.6)
Open birth interval	— 0.0171(1.1)

\*Significant; the figures in parentheses give the *t* values.

of landholdings and either children ever-born or births during 1965-74 is positive and statistically significant, but that fertility measures of more recent periods are not related to landownership.

*Fertility and Changes in Landholdings, 1970-80*

More relevant to this analysis is the relation between recent fertility and *changes* in landholdings. The number of households that experienced an increase or decrease in landholdings due to land reforms is not large. Therefore, the analysis covers not only land transfers due to land reforms but also those due to gift, purchase, sale, and so on.

The General Fertility Rates of all the appropriate groups of women in 1965-69 and 1975-79 are given in Table 4. In 1975-79 women in households, which gained land, had a higher fertility rate than those in households which did not change their landholding status. This was true regardless of whether the gain came as a result of land reform, purchase, or gift. Similarly, women in households, which lost land, had on the whole, a lower fertility rate than those in households which did not change their landholding status. The sample size of women in households, which lost land specifically through land reforms, is too small (41) to give a meaningful fertility rate, so no definite conclusion can be drawn regarding this group.

A higher fertility rate among women in households, which gained land through land reforms, is in accordance with our theoretical model. Whether the observed differences are statistically significant and whether they are due to factors other than land transfers are questions not addressed by Table 4. They are, however, at least partially answerable by use of multivariate regression analysis.

A regression analysis of births during 1975-79 on socioeconomic variables<sup>6</sup> and land transfer variables gives the following coefficients for land transfer variables:

<i>Land Transfer Variables</i>	<i>Standardized B-coefficient</i>
1. Land transfer due to land reform	+ 0.00699(0.39)
2. Land transfer due to purchase/sale	+ 0.00580(0.34)
3. Land transfer due to all causes	+ 0.02726(1.55)

*Note:* The figures in parentheses give the *t* values.

None of the coefficients are statistically significant. Therefore, the observed higher fertility of women in households which gained land (Table 4) is due more

6. The socioeconomic variables are:

TABLE 4—FERTILITY RATES OF WOMEN CLASSIFIED BY TYPE OF LAND TRANSFER DURING 1970-80

<i>Women in Household by Type of Land Transfer</i>		<i>General Fertility Rate</i>		
		<i>1965-69</i>	<i>1975-79</i>	<i>% Decline</i>
1.	All women (2, 655) <sup>1</sup>	276	147	47
2.	Land holdings increased, all causes (727)	296	161	46
	Land holdings unchanged (1,622)	269	142	47
	Land holdings decreased, all causes (306)	261	140	46
3.	Purchased land (net)	303	156	49
	No transaction	270	146	46
	Sold land (net)	281	145	48
4.	Received land through land reforms (221)	263	186	29
	No change	277	143	48
	Lost land through land reforms (41)	(258) <sup>2</sup>	(183) <sup>2</sup>	(29) <sup>2</sup>

<sup>1</sup>Number of women in the group.

<sup>2</sup>Sample size is too small (41) to give meaningful fertility rates.

to other socioeconomic variables than to the differences associated with land transfers, whatever their cause.

This lack of a significant association between fertility and either landownership or land transfers during 1970-80 can be explained by an intervening variable—the type of family planning services available to the people of Kerala. The principal method of birth control in Kerala is sterilization. In 1980, according to the World Bank Fertility Survey, 19 percent of all couples were using a conventional family planning method, which proved ineffective for about two-thirds of such users, while 29 percent were sterilized (husband or wife). The percentage of sterilized women was higher among households with small land-holdings. The partial regression between landholdings and sterilization status was negative and statistically significant. Thus, through higher acceptance of sterilization, the small landholding families were able to reduce their fertility faster than the large landholding families, with the result that by 1980 the fertility differentials between landholding classes had become very small.

*Land Transfers and Fertility Related (Intermediate) Variables*

As mentioned above, theoretically those most affected by land reforms are the hutment dwellers. The full effect of land reforms on the fertility of this group, acting through increased housing problems, consequent postponement of marriage, and increased birth control practice, is yet to be left. To test whether the data support this supposition, the regression coefficients between some of these variables and land transfers have been estimated. The results are shown in Table 5.

TABLE 5-STANDARDIZED REGRESSION COEFFICIENTS BETWEEN  
LAND TRANSFERS AND FERTILITY RELATED  
(INTERMEDIATE) VARIABLES

<i>Independent Variables<sup>1</sup></i>	<i>Dependent Variables</i>			
	<i>Desire for One More Birth</i>	<i>Desired Age at Marriage of Girls</i>	<i>Sterilization Status</i>	<i>Family Planning Practice of Non-Sterilized</i>
1. Land transfers due to land reform	+0.014 (0.6)	+0.047 (2.6)*	+0.064 (3.3)*	+0.028 (1.3)
2. Land transfers due to sale/purchase	+0.005 (0.2)	+0.016 (0.9)	+0.076 (4.0)*	+0.001 (0.1)
3. Land transfers due to all causes	-0.006 (0.2)	+0.026 (1.4)	+0.092 (4.8)*	+0.021 (1.0)

\*Statistically significant; the figures in parentheses give the *t* values.

<sup>1</sup>The independent variables are used in three separate regressions along with other socio economic variables not shown here.

*Note: a.* A positive coefficient for desired age at marriage means that those who gained land desire a *higher* age at marriage for girls.

*b.* A positive coefficient for sterilization means that those who gained land are more likely to be sterilized than those who did not gain land.

Desire for one more child is not related to any of the land transfer variables. Similarly, the use of a conventional family planning method is not correlated with the households land transfer status. Desired age at marriage, however, is positively correlated with gain of land through land reforms, as is the sterilization status of the woman (or her husband). In other words, women in households that gained land through land reforms (most of whom are hutment dwellers) give a desired age at marriage for girls that is significantly higher than

that given by women not affected by land reforms. Moreover, women (or their husbands) in households that gained land through land reforms are more likely to be sterilized than those in households not affected by land reforms. It is difficult to arrive at a conclusion about women in households, which have lost land as their number is too small for separate analysis.

Before any further conclusions are drawn from this analysis, it is important to test whether the statistical significance of land transfers and sterilization status, or of land transfers and desired age at marriage, is actually due to land transfer or to total land owned. It is worthwhile to remember that the amount of land owned is negatively related ( $t = 3.6$ ) to sterilization status. A regression analysis in which both landownership and land transfers during 1970-80 were included indicates that *land transfer has an independent effect on sterilization status and desired age at marriage*. The observed higher sterilization rate among those who gained land as a result of land reforms is *not* due to the small size of the total landholdings owned by those families. Nor is the higher desired age at marriage among those who gained land through land reforms caused by the size of landholdings. The relation between land transfers and sterilization, as well as between land transfers and desired age at marriage, holds even when controlled for the size of the parcel owned. In fact, the size of land-holding as a variable by itself bears no significant relation to desired age at marriage.

The greater incidence of sterilization and the higher desired age at marriage among women in households that have gained land through land reforms give some empirical support to the hypothesis that land reforms, by cutting off future house sites for the poor, have exacerbated the housing problem in Kerala and for that reason helped to spur a fertility decline.

## Conclusion

The present exercise started with the hypotheses that land reforms affected fertility through a decrease in income of the landed class, which lost land through land reforms; through a decrease in income of the middle-class farmers, who were accustomed to having their farming done almost entirely by hired labor; and through the increasing housing problems of the hutment dwellers, who found themselves unable to obtain new house sites for their grown-up children. It was, therefore, expected to show a faster decline in fertility among those who lost land than among those who gained land, as well as a tendency to postpone marriage and to control fertility within marriage among the hutment dwellers, who gained a small amount of land (less than one-tenth of an acre) through land reforms.

The data indicate a slightly higher fertility rate among those who gained land than among those who were not affected by land transfer. But a regression

analysis indicates that the observed differences cannot be attributed to land transfers during 1970-80. The partial regression between fertility in 1975-79 and land transfers in 1970-79 (due to land reforms, sale/purchase, or any other cause) is not statistically significant. As a matter of fact, the amount of land owned by a household has very little relevance to the fertility level of woman in that household. The lack of association between fertility and either landowner-ship or land transfers is explained by the nature of family planning services in Kerala, which are dominated by sterilization and economic incentives. Much of the fertility decline in Kerala could be related to the high sterilization rate, which is negatively (and significantly) associated with landownership, and to the fixed economic incentives, which are of more value to the poor than to the rich.

It is nevertheless premature to conclude that land reforms had no effect on the fertility decline in Kerala; much of the effect still lies in the future. Moreover, the sample was not large enough to test the impact of land reforms on the fertility of those who lost land. There is some indication, however, that the hutment dwellers (households with less than 10 cents of land) are modifying their family building habits. Faced with increasing difficulty in finding new house sites, they are likely to marry at older ages and to get sterilized more often than in the past. The land reforms have played a part in this change.

The major effect of land reforms on Kerala's fertility is likely to come about not through land transfers but through a change in the value system of the society. Land reforms and related redistributive policies of the post-Independence Government of Kerala have fundamentally altered the attitude of the population toward landed property as a source of economic security. In the past, land was the principal means of income for a household and its most important economic asset. A person's economic worth was measured in terms of how much land he or she owned. Land reform changed all that. Land, particularly agricultural land, lost much of its prime position in the economy of the Keralan society, to be replaced by personal attributes—education and health. This basic change in the value system has had much deeper and more lasting effects on the demand for fertility control than has the physical redistribution of land brought about by land reform.

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