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PERSPECTIVES ON FAMILY AND FERTILITY IN DEVELOPING COUNTRIES

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Abstract

This paper considers two aspects of the family in relation to fertility in developing countries: sex stratification within the family and extended family networks. As both these dimensions are central to J. C. Caldwell's theory of fertility transition, the paper is structured as a critique of his position. Drawing on examples and data from Asia, it is argued that the causal significance of sex stratification for fertility lies more in the economic risks it imposes on women, owing to their dependence on men, than, as Caldwell suggests, in the disproportionate gain that men derive from their dominant position within families. While Caldwell and others associate strong extended family networks of mutual obligation and support with persistent high fertility, it is argued here that such systems should, instead, facilitate fertility decline. Close-knit and strong kin networks can be viewed as alternatives to children as sources of insurance and may facilitate fertility decline by preventing children from becoming the focal point of parental security concerns.

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While most would agree that the family is of central importance to social and economic organization in the developing countries, it is difficult to find statements in the literature that specify what it is about the family per se in these settings, or changes in the family, that is of causal significance for fertility. More often, the family is depicted as an intermediate institution that is acted upon in the course of development; whose transformation accompanies rather than initiates change in reproductive behavior. A major exception to this view is the work of J. C. Caldwell. Although his work is most closely associated with "wealth flows theory" of fertility — the notion that fertility is determined by the net direction of parent-child transfers in wealth, income, and labor — his conceptualization of the process of fertility transition has more to do with transformation of the family than with the economic costs and benefits of children to parents.

The purpose of this paper is to consider two aspects of the family that are of potential theoretical importance for fertility in developing countries, and that have been neglected in the literature and subjected to some misinterpretation: sex stratification within the family and extended family networks. Both these dimensions are also central to Caldwell's theory of fertility transition. The interpretation of their significance for fertility presented here differs in important respects from that offered by Caldwell,

and it is useful, for the purpose of exposition, to organize the discussion around a critique of Caldwell's position.

In the first section of the paper I outline Caldwell's arguments on fertility transition in contemporary developing societies. A consistently important theme is that social transformation of the family is a precondition for fertility decline, the cause of which is to be found in the reorientation of emotional ties within the family, away from extended kin and toward the nuclear family, and in the erosion of traditional lines of authority that typically conferred decision-making power within the family on males and the elderly. In essence, the process of transformation entails the acquisition of new values through modern, formal schooling and various other agents of "Westernization."

The primacy that Caldwell attributes to social transformation of the family and the acquisition of new values as determinants of fertility decline, does not permit the possibility that significant downward shifts in fertility may be caused by change in the economics of fertility alone. Caldwell's analysis, including his interpretation of the significance of sex stratification and extended family ties, is based on the premise that natural (and even biological maximum) fertility levels are economically rational for families in the vast majority of developing countries (at the very least in the populations of Sub-Saharan Africa, and in the "belt" of high fertility extending from Morocco to Bangladesh). In the second section of the paper I examine the empirical basis for this assertion, and, drawing on evidence from Asia, suggest that Caldwell has overstated the magnitude of the economic benefits provided by children and underestimated the variability in their economic value within the region that he considers. An important, yet neglected,

source of variation, it is argued, is the value of children as an insurance against risk. A distinction is made between relatively affluent societies in the developing world and societies that are very poor. In the former, the economic costs of children may be easily absorbed and the benefits that they provide are in no sense essential to the welfare of families, and thus the value shift that Caldwell identifies may, indeed, be the primary determinant of fertility transition. In the latter group, however, the economic considerations may well have pride of place, and fertility decline be induced by changes in purely economic factors.

The final two sections deal with the significance of sex stratification -- in Caldwell's terminology, the "situational advantage" of elderly males -- and extended family networks for fertility. For Caldwell, both contribute to the persistence of high fertility: the former because of the disproportionate gain men experience from high fertility, through their control of women's and children's labor and the variety of perquisites that they thereby enjoy; the latter because in extended families, control of reproduction often rests with an older generation rather than the conjugal couple, and because the individual's orientation is toward the larger kin group more than toward the immediate nuclear family. Several points are raised concerning Caldwell's assertions and interpretation. First is the question of empirical accuracy. It is suggested that the nuclear co-residential family is considerably more independent economically, in at least part of the region that he considers, than he leads us to believe. It is suggested that Caldwell has underestimated the variation in both the economic "extensiveness" of families and the strength of patriarchal authority within the region. Secondly, it is argued that Caldwell has overstressed the importance of inequality within the family

and the special gains that males achieve from high fertility. In doing so, he overlooks the causal importance of other factors that link reproductive behavior to the common interests of the family as a whole. Thirdly, given the existence of systems of sex stratification, their significance for fertility may lie more in the risks that are associated with women's economic dependence in such systems, than in the disproportionate gains of men. Thus, while it is agreed that sex stratification may encourage high fertility, the suggested causal mechanism is quite different. Finally, with respect to extended family networks of mutual obligation and support, it is argued that strong networks, rather than perpetuating high fertility, may, instead, facilitate fertility decline. Where bonds of mutual obligation between extended kin are weak and kin networks function poorly as insurance co-operatives, the value of children as sources of security is likely to be enhanced. Close-knit and strong kin networks can be viewed as a source of insurance alternative to children, and may facilitate fertility decline by preventing children from becoming the focal point of parental concerns for security.

Outline of Caldwell's Argument

Caldwell has elaborated his thesis in two major articles.¹ While his position has shifted in some ways in the process of elaboration, the centrality of the family has remained, as is illustrated by the following quotations:

... it will be posited that the movement from a society characterized by economically unrestricted fertility to a society characterized by economically restricted fertility is essentially the product of

social, rather than economic, change, although with economic implications...The social revolution — one of familial relationships and particularly of the direction of intrafamilial flows of wealth dictated by familial obligations — need not by its nature accompany economic modernization. (1976: p. 322)

... the conditions of stable high fertility, and of subsequent destabilization, lie largely in the nature of economic relations within the family. The family that determines economic advantage encompasses those groups of close relatives who share economic activities and obligations. Within this larger and demographically more significant entity, the locus of economic and fertility decision-making is of prime importance... (1978: pp. 553-554)

Fertility in the developing world will decline as the decision-makers no longer secure decisive material advantage from high fertility -- changes both in the identity and authority of those gaining material advantage ... (1978 p. 571)

The two articles develop distinct but related themes. The first is the importance of "family nucleation" — both economic and emotional — as a necessary condition for the initiation of rapid fertility decline. In Caldwell's formulation, it is emotional nucleation that is the immediate cause of economic nucleation in the family, but both are necessary for a reversal of intergenerational wealth flows to occur.

The analysis in the 1976 paper is focused on the Yoruba of Nigeria. Caldwell identifies three societal types — primitive, traditional, and transitional — and locates examples of all three among the Yoruba. Among primitive and traditional segments high fertility is rational because children provide labor and support for old age and contribute to group security. Children cost very little and begin to work at an early age. Most importantly, the individual's orientation is outward, toward the larger kin group, rather than the immediate nuclear family. The emotional bond between spouses and between parents and children is relatively weak. The flow of wealth is from child to parent, although because of the existence of extended families

much of the flow is indirect, via the political power that children provide for a parent.

It is in transitional society "where rapid change in way of life towards that followed by people in lands with a 'modern' economy" is occurring, that "the supports for unlimited fertility finally crumble" (pp. 322-323). The example of transitional society in Nigeria is the urban middle class of its second largest city, Ibadan. According to Caldwell, high fertility remains a rational proposition for the great majority in Ibadan. The situation there is described as one in which rapid upward mobility through education and jobs in the modern sector is possible, and where mobility, far from being inconsistent with high fertility, is enhanced by it. The returns to parents from children's education are high, and both the maintenance of a system of mutual obligations among kin and high fertility increase the probability of higher returns (p. 349). What are the conditions under which parents would forgo these apparent benefits and limit their fertility? From an examination of the characteristics of innovators who practice birth control, Caldwell concludes that they are parents who have received more modern education, who work in non-manual occupations, and whose own parents worked in white collar "modern" occupations. Significantly, the demographic innovators also stood apart because of their attitudes toward family and children: "They have emotionally nucleated their families; they are less concerned with ancestors and extended family relatives than they are with their children, their children's future, and even the future of their children's children" (p. 352). Finally, Caldwell attributes emotional nucleation to Westernization: the transmission of the ideal and values of the Western nuclear family through formal schooling and mass media.

In the second article (1978) he asks what it is about the family that ensures high fertility in pre-transition settings. The scope is broadened considerably: while the 1976 article was focused on Yoruba society in Nigeria, this article encompasses the "high-fertility belt extending from Morocco to Bangladesh" (p. 554). For these societies, the key to high fertility lies primarily in the situational advantages that accrue to the old and to males. Production in these areas is family-based and Caldwell identifies the dominant system of production as the "familial mode of production" — characterized by "relations of production between kin that give the more powerful or the decision-makers material advantage" (p.554). Control of the family economy is vested in older males and family economic relationships are exploitative. In these settings high fertility may be beneficial to the family as a whole, but it will persist, Caldwell asserts, even when the collective good of the family is no longer served by high fertility. Fertility will remain high as long as patriarchal control of family labor is maintained and, thus, as long as the elderly and males maintain their situational advantage. Of what does this advantage consist?

[It] include[s] consumption: the kind and amount of food eaten, precedence in feeding, the clothing customarily worn, use of house space and facilities, and access to transport. [It] include[s] power and access to services: who can tell whom to do what; the right to be pampered...; the guarantee of support in argument, danger, or a bid for social or political power; and the right to make unchallenged decisions. [It]include[s] labor: the amount of work done, the kind of work done, the right to control one's own working time, and access to leisure or to activities (such as bargaining) that give real pleasure. (p. 560)

In this paper, Caldwell gives greater explicit weight to economic transformation — specifically the transition from familial to non-familial (i.e.

capitalist) production — as an underlying cause of fertility decline. The key element in the economic transformation is the shift to a system in which the vast majority routinely sell their labor in the market to strangers:

It is not factories and steel mills that count in the reduction of fertility; it is the replacement of a system in which material advantage accruing from production and reproduction flows to people who can control and influence reproduction by a system in which those with economic power either gain no advantage from reproduction or cannot control it. (p.568)

He suggests finally, however, that the situational advantage of patri-archs can be undermined even without complete transformation to a market economy through the effects of imported social change:

... it is social and ideological change that is likely to have the greatest impact ... Existing differentials in advantage by age and sex are under attack from the same forces that brought change in nineteenth-century Europe: education of children, relative rise in the position of females, and the lure of household consumption goods. (p. 571)

This attack is stronger because of the European example and the force of its transmission through the media and educational systems.

Variation in the Economic Value of Children

An important premise of Caldwell's theory is that there can be only two economically optimal fertility regimes: "... there is not a whole range of economically rational levels of fertility in different societies, but instead only two situations, the first where the economically rational response is an

indefinitely large number of children and the second where it is to be childless" (1976: p. 322). He reiterates this view in slightly different language in the later article: "Two types of society can be distinguished: one of stable high fertility, where there would be no net economic gain accruing to the family (or to those dominant within it) from lower fertility levels, and the other in which economic rationality alone would dictate zero reproduction" (1978: p. 553). Caldwell goes on to place the societies in the high-fertility belt from Morocco to Bangladesh in the first category. One's first reaction to this is that a good deal of the problem may have been assumed away.

Why should there be only two economically rational fertility regimes? It is possible that Caldwell's contention stems in part from his long experience with the Yoruba of Nigeria. Yoruba society appears to represent a case in which, for all segments of society, both traditional and modern, high fertility is economically beneficial to parents. Moreover, it seems that the only group in the society whose members practice birth control is a tiny segment of the urban middle class and their reason is not economic necessity but acquisition of Western middle-class values.

There is, however, something almost capricious about the process of fertility transition among the Yoruba. A notable aspect of the transitional society of Ibadan is that its members have the luxury of choice. While high fertility apparently can yield a net return to parents in this setting, the return is clearly not "essential" to their economic welfare. If it were, it is unlikely that one would find any demographic innovators at all, and if one could find them, one would also expect to find that they had experienced substantial declines in economic welfare as a consequence. It is important to

note that members of the middle class of Ibadan have the freedom to choose between small and large families (as opposed to being compelled or constrained to have one or the other) because, presumably, of their affluence. But, of course, the great majority of the populations of the developing world are poor — much poorer than the middle class of Ibadan. As such, the marginal utility of their income will be higher, the costs of children's consumption will represent a higher proportion of the family budget, and their behavior is more likely to reflect constraints rather than choice.

It was once a common assumption that high fertility in the developing world was nowhere economically beneficial to parents. Caldwell's work has done much to disabuse us of that notion. But it would be rash to assume that the opposite is true: that high fertility is everywhere economically beneficial to parents. To do so would deny the extraordinary novelty of the situation created by the dramatic, global decline in mortality that followed World War II, and the diversity of settings in which this decline took place. Before this revolution in mortality, fertility was high everywhere, but so was mortality. Whatever institutional arrangements had evolved before the decline, including those of family and kinship, had evolved in a regime of both high fertility and high mortality, not in the current regime of high fertility and low mortality. Whether or not the sudden proliferation of surviving children following the decline in mortality was an unqualified boon to all parents in all societies seems to me to be a very open question. Yoruba society might, therefore, represent only one extreme among developing societies. In others, economic considerations may dictate fertility levels lower than those that are congenial to families in Yoruba society, and economically optimal fertility strategies may vary within other societies.

In order to appreciate the diversity of conditions in developing countries at the time of declining mortality, and the potential for parallel diversity in the economics of fertility, it is useful to review the major components of the value of children.² Although Caldwell recognizes the need for considering such components separately, he is loath to do so because such disaggregation entails distortion: "The society is made of a seamless cloth: children fit into an unintrospective society where they behave as their parents behaved and where their role is to work when young and to care for the old" (1976: p. 343). On the benefit side he, like most, emphasizes the labor contributions of children (both as children and adults) and the care they provide for elderly parents. To this list should be added the value of children as an insurance against risk -- a benefit that has received scant attention.

Old Age Support. Parental concern for support in old age would appear to be an insufficient motive for unconstrained reproductive behavior. In almost all rural areas of the developing world that one can think of, it would represent a good economic reason for having some children, but not an indefinitely large number. There might be a preference (or a need) for a son to perform this function, and because infant and child mortality remain high in many areas, parents might want two sons in order to be on the safe side. But after a certain parity children would become redundant for this purpose.

Child Labor. Does child labor represent an argument for limitless high fertility in rural areas of developing countries? The answer would seem to be "no." The slowly accumulating evidence on child labor suggests that at least

as long as children are under the direct control of their parents (the period during which they are actually members of their parents' household), the product of their labor does not compensate for the cost of their cumulative consumption.

A few years ago, in reporting on the economic activities of children in a village in Bangladesh, I presented a calculation that estimated the net productivity of male children.³ The estimate was based on average hours of productive work by age, and assumptions concerning productivity per unit time and food consumption by age. Adult male productivity was assumed to be twice the value of what an adult male consumed. By expressing consumption and production in terms of calories, estimates of net productivity and cumulative production net of consumption by age were calculated. This calculation suggested that boys become net producers by about the age of 12, and compensate for their cumulative consumption by the age of 15. While this record of productivity seems impressive, two additional factors have to be considered. First, because of the division of labor by sex, girls are much less productive than boys. Secondly, the calculation assumes zero interest. Any positive rate of time discount would push the break-even point to a higher age: the higher the discount rate the more advanced the break-even point.⁴ When these two considerations are taken into account, it is no longer as clear that the labor of children in rural Bangladesh compensates for their consumption over the period that children typically remain members of their parents' household (for sons, the early twenties). It is thus unlikely that the returns to child labor alone would argue for unlimited high fertility in this setting.

It is apparently even less likely in other rural areas of South and

Southeast Asia. In Figure 1 the cumulative product of male children net of consumption by age is plotted for five Asian countries. For Nepal, Java, the Philippines, and Sri Lanka, estimates of average hours of productive work by age are drawn from village studies in each country.⁵ With the exception of estimates of hours worked, all other assumptions used in the calculations are the same as for Bangladesh (including zero interest). With this procedure, the break-even age for Nepal is about 16, for Java 21, for the Philippines 25, and for Sri Lanka 28. While these precise ages should not be taken too seriously, they support the limited conclusion that the value of child labor alone is most unlikely to justify unlimited fertility in these settings.

This does not mean that, according to this criterion, fertility should be zero; only that it could easily be lower than the levels associated with natural, unconstrained fertility. Children have an important place in the household's division of labor in these societies. Despite the high break-even ages implied in Figure 1 (which are based on average hours worked within age groups), children up to a certain parity may well "pay for themselves" through their labor, both directly in productive work, and indirectly by completing the household division of labor and facilitating the overall operation of the household as a production unit. Beyond a certain point, however, as in the case of support in old age, additional children of either sex would become economically burdensome.

Caldwell's preoccupation with the situational advantage of patriarchs in typical families in developing countries obscures the corollary that it is also the patriarch who absorbs the cost. If the services and privileges that older males enjoy as a result of their control over women and children are excessively costly, then why should they not be motivated to limit their fertility?

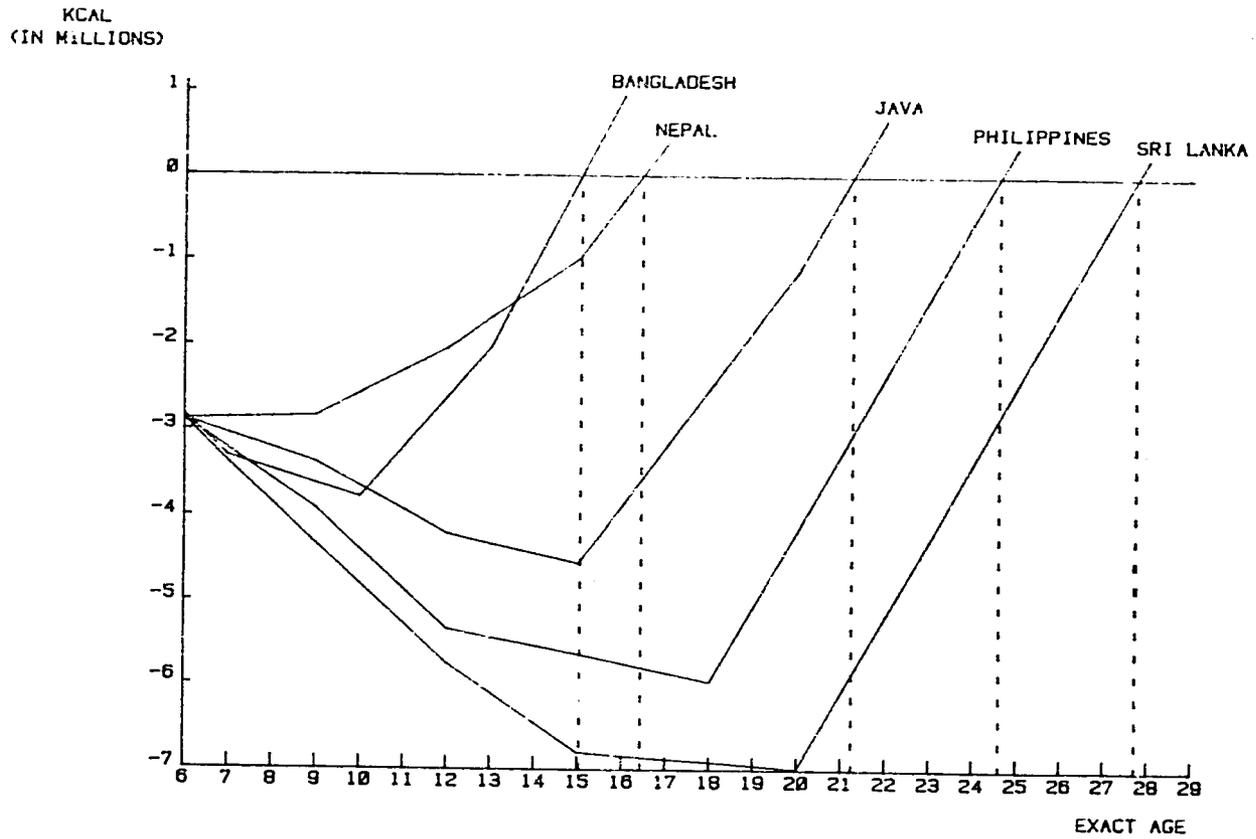


Figure 1. Cumulative product of male children net of consumption (in calories) by age.

It should also be noted that in all the rural societies mentioned in Figure 1 there are fairly well-developed labor markets. It is not as if (as is sometimes implied by Caldwell and others) there were no alternatives to family and child labor. Certainly, in rural Bangladesh, labor for practically any service or activity can be purchased. Tapping the labor market may entail relatively high transaction costs, but you can get what you need at a pinch. A child aged 10, for example, can be hired as a "permanent servant" at a wage equivalent to the cost of its food, clothing and medicine. Adult labor costs more, but given a spot labor market, and seasonally variable demand for labor, it may only be necessary to pay an adult wage for a short period in a given year, whereas children must be fed all the time.

Children as Insurance Against Risk. One way of approaching the economic benefits of children is to consider the ways in which they create opportunities for families and patriarchs. From this perspective, children and reproductive behavior are instrumental to family strategies of gain. Another way of looking at the utility of children is to consider the ways in which they are essential in preventing loss. From this perspective children and reproductive behavior are instrumental to family strategies, not of gain, but of survival. Children may be instrumental in both ways in a given setting, and perhaps the difference between the two orientations is one of shading and emphasis. The distinction is, however, analytically important, and, in my view, not made often enough.

While Caldwell does not ignore the role of children in providing insurance, particularly physical security,⁶ he has focused much more on the opportunities created by children. For example, Yoruba children

...increase the number of close allies in the political contest in the traditional political system in which success is due to the ability to tap more or better communal resources; they increase the number of relatives who can attend family ceremonies and hence magnify one's social importance and sheer consumption pleasure. In rural Yoruba society it is still taken as one of the immutable facts of existence that family numbers, political strength, and affluence are not only interrelated but are one and the same things. Furthermore, such a base still forms an excellent springboard to success for young aspirants in the modern sector of the economy. (1976: p. 340)

Children are thus the way to wealth and power. Viewed from this perspective the consequence of low fertility (due to sub-fecundity, for example) is that the parent will not succeed as well as another with high fertility. But this says nothing about whether or not the infertile couple also risk loss of what they already have (property, for example, or their lives). In Yoruba society, where communal ownership of property is apparently still common, this may not be a relevant question; but it is in Asia, where private property rights are a long-standing institution and poverty is extreme. For the Yoruba it might be most appropriate to query: what do parents stand to gain with many children? In many other societies, however, it would seem more useful to ask: what do parents stand to lose with too few children?

The value of children as a form of insurance against risk in a particular setting will depend on the nature of the risk, the effectiveness of children in averting risk, and alternative forms of insurance. In poor areas of the developing world, where most people are preoccupied with consumption, it is useful to conceive of risk as the probability distribution of an event that poses a threat to an individual's or a family's consumption stream. A variety of events can threaten consumption, and sources and levels of risk

can vary greatly from setting to setting. To the physical threats that Caldwell deals with, may be added natural disasters, unemployment, and illness. The forms of insurance that may exist must also be considered. Credit markets can perform this function, as can public relief. The presence of children can also help to smooth consumption streams in times of distress, and, perhaps, avert the need to sell land for consumption purposes, through their labor or through income transfers. Mature children offer opportunities for spreading risk: depth of labor reserves in the form of mature sons provides opportunities for diversified earnings, the temporary migration of one or more in search of job opportunities elsewhere, and back-ups if the principal earner is incapacitated. Parents typically have a clear claim on the resources and labor of their children (sons more often than daughters) whether or not they reside in the same household.

The value of children as a source of insurance will be highest in poor settings with a harsh environment of risk, where more effective forms of insurance do not exist. If the possible consequences of inadequate insurance in such settings include loss of all assets or death from starvation, children may indeed be "priceless." If, however, the environment of risk is more benign, the need for insurance in any form will be smaller; and if reliable alternative sources of insurance exist, the security value of children is also likely to be lower.

Societies in the currently developing world vary widely both in environments of risk and in sources of insurance. For example, different levels of political and administrative development are associated with different levels of lawlessness and threats to property. Political and administrative development typically reduces physical insecurity by providing the "insurance" of

police, courts, and law. Also, the frequency of weather extremes and natural disasters clearly varies from place to place. Unlike child labor and old age security, it is possible to see how the insurance value of children could economically justify large numbers of children (within the limits of natural fertility, that is) in high-risk settings: the combination of uncertain child survival, diverse sources of risk, a premium on sons, and the probability of great loss in their absence could argue for such a reproductive strategy.

A comparative analysis of a village in Bangladesh and several villages in Maharashtra and Andhra Pradesh States of India will serve as an illustration.⁷ Both regions are agricultural and comparably poor. There is no difference in the dependence of the elderly on their children for support in the two areas. The opportunities for the productive employment of children do seem to be greater in the Bangladeshi village, but even there the productivity of children does not appear sufficient to warrant unlimited fertility. Yet, while there is practically no birth control in the Bangladesh setting, many couples in the Indian villages have acted to limit their fertility. There is, moreover, evidence of the beginnings of a fertility decline in both Maharashtra and Andhra Pradesh. I argued that the difference in reproductive strategies in the two settings could be understood by comparing environments of risk and sources of insurance. While both areas face the threat of natural disasters — drought in India and flood in Bangladesh — the environment of risk is harsher in Bangladesh because of a higher frequency of natural disasters and the presence of such other sources of risk as depredation and lawlessness. In addition, relatively efficient means of insurance (credit markets and a highly responsive public employment program) are available in

the Indian setting that protect families and individuals from various risks. In the Bangladeshi village, on the other hand, comparable mechanisms of adjustment to risk have not evolved, and children retain their importance as a source of insurance.

Whatever the merits of this particular analysis, it is necessary, in my view, to "clear away" the economics of reproduction in a given setting before proceeding to the role of such factors as Westernization. (Much as the biology of reproduction must be "cleared away" before embarking on an analysis of the social or economic determinants of fertility.) In conditions of extreme poverty, change that results in a diminution of the economic value of children (or that raises their cost to parents), as I argue has happened in an area of rural India, is likely to lead to an adjustment in reproductive behavior (perhaps with some time lag) regardless of whether the population is exposed to the forces of Westernization or not. This change, moreover, need not be as profound as that involved in a transformation of modes of production in order to produce an adjustment in fertility. Indeed, under certain circumstances, a fall in mortality could be sufficient by itself to warrant a downward adjustment in fertility. Similarly, if children continue to serve a crucial economic need and if fewer children would mean greater vulnerability for a family, then high fertility will persist, also regardless of whether the population is exposed to Westernization.

Sex Stratification and Fertility

A central theme in Caldwell's theoretical development is the significance of situational advantage within families. A major reason for the persistence of high fertility in the area extending from Morocco to Bangladesh is the advantages and perquisites accruing to those in positions of power and control, as distinct from the material benefits of high fertility to the family as a whole. In this region, where family structure is described as "patrilineal, patrilocal, and patriarchal" (1978: p. 559), older males are normally in positions of power and control.

Caldwell is at some pains to distance himself from the more common view of the family as a harmonious unit.⁸ When he looks at the family, he sees hierarchical relationships, conflict, exploitation, and inequality between generations and the sexes. The more conventional perception of the family in agrarian settings has been one of co-operation, sharing, affection — everyone pulling together. An extreme example of this is the position of micro-economists of the Chicago School, one of whose central assumptions is a common household utility function. In their models, the following kind of statement is not unusual: "Formally, let there be a single person household."⁹ Analytically, I agree with Caldwell that much is lost if inequality, conflict and hierarchical relationships within the family are glossed over. On the other hand, one can go too far in stressing these aspects of the family, and to do so can be as detrimental to sound analysis as ignoring them entirely.

Despite hierarchical family structures, members of the same family share many common interests and concerns. In emphasizing the special material be-

nefits that patriarchs reap from high fertility, Caldwell gives the impression that other family members do not benefit in any substantial way, or at least not in a way that would justify high fertility. But obviously, if production is organized in such a way that a large number of children is essential to the success and smooth functioning of the family as a producer cooperative, it is not only the patriarch who will suffer if the requisite number of children is absent, but everyone in the family. Similarly if a crop fails or the patriarch falls ill, and land is sold for want of a mature son, the whole family suffers. This commonality of interests is not necessarily inconsistent with systems of male dominance or gerontocracy.¹⁰ If too much weight is given to the internal structure and dynamics of the family and the special perquisites of patriarchs, one risks underestimating the causal significance of factors that are exogenous to the family and that affect it as a whole.

Caldwell outlines the mechanisms by which patriarchs maintain power and control over women and children: monopoly on ownership of land; patrilocal residence; physical strength; arranged marriages; substantial age differences between spouses; and socialization.¹¹ The combination of both sex and age hierarchies within the family also constitutes an important element of control: older women dominate younger women, so older women become allied with patriarchal interests. On these points, I would not disagree with Caldwell, at least for the societies in South Asia with which I am familiar.

Caldwell, however, neglects an additional element of patriarchal control, and overlooks its significance as a determinant of fertility. This is the economic dependence of women on men that is created through the sexual division of labor, restrictions on women's physical mobility, and labor mar-

ket segmentation. Two points should be considered. The first is that where their independent earning opportunities are few, women may themselves have a strong incentive to reproduce. Economic dependence on men can entail special risks for women (risks that are independent of other sources, such as natural disasters). Widowhood, divorce, separation, or incapacitating illness of the husband represent threatening events in situations where women are excluded from mainstream sources of income and are thus prevented from providing for themselves through their own labor and enterprise. An important source of insurance against the risk of losing the economic support of a husband is sons. Where their economic dependence is extreme, women may in fact be more interested in maintaining high fertility levels than men, despite the situational advantage of the latter.¹² The second point is that the degree of women's economic dependence on men varies greatly from society to society, even within the Islamic world. As a consequence, the fertility incentive associated with dependence also varies from society to society and may help to explain fertility differences between societies.

An example will help to illustrate the potential significance of different degrees of women's dependence. In the analysis of villages in Bangladesh, Maharashtra, and Andhra Pradesh that was referred to earlier,¹³ a major difference in the environments of risk in the two settings centered on women. Whether because of the dominant Islamic religion, or a more complex combination of factors, the economic freedom and opportunities of women in rural Bangladesh are much more severely restricted than those of women in the three Indian villages. There is a pronounced division of labor by sex in both areas; however, the division that has evolved in rural Bangladesh effectively excludes women from all the most important sources of wage employment, and

from activities that would permit them to cultivate or supervise the cultivation of their own land. Women are not permitted to seek employment in any of the field operations for the main crops of paddy and jute, which provide the bulk of wage employment opportunities in rural Bangladesh.

The situation of women in the three Indian villages is quite different. In contrast to rural Bangladesh, women in the Indian villages are not excluded from participating in field operations and there is a high demand and active wage labor market for tasks that women specialize in. Women on their own in the Indian villages can provide for themselves, either by selling their labor or by cultivating their own land. It may not be easy, and the resulting standard of living may be lower than if the woman had a man as her partner, but it is possible.

What is the fate of women in these two settings who have lost their husbands and have no other mature males on whom they can depend? In a sample of 114 households from the Bangladesh village, of 14 women widowed in unfavorable circumstances, ten were left with some land at the time of their husbands' death and four were landless. Of the ten who had land at one time, all subsequently sold or otherwise lost at least some of their land, and four lost all of it. Of the four who were initially landless, one became a beggar and all are destitute. In a sample of 119 households in the three Indian villages, of 12 women widowed under similar circumstances, three were landless at the time of their husbands' death and nine were left with some land. In contrast to the widows in Bangladesh, of these nine, only one subsequently lost or sold land, and the three landless widows manage to subsist on their own, one through agricultural wages and two through small-scale trading.

The ability of women in the Indian villages to provide for their own

subsistence is not the only reason why these widows were able to hold on to their land and maintain a relatively stable life after their husbands died, but it is undoubtedly an important factor. While the presence of mature sons would have made life more comfortable, their absence did not precipitate the sharp declines in welfare experienced by widows in the Bangladesh village. In the Bangladeshi setting, there is a much greater incentive for women to produce sons, because they have much more to lose if they do not.

For Caldwell, the significance of sex stratification for fertility is the material advantage that men enjoy as a result of their control of women's and children's labor. It is the disproportionate gain of men from high fertility that causes its perpetuation. I would suggest, as an alternative, that the major causal significance of sex stratification for fertility lies in the risk that it can create for women through economic dependence. Moreover, it is women, not men, for whom the incentive for high fertility is greatest as a consequence. I would argue further, however, that the internal structure of the family, including sex inequality, is probably less important as a determinant of fertility than factors external to the domestic group that affect the economic welfare of all family members in a similar way (e.g., natural disasters) and in response to which a particular reproductive strategy serves the interests of all family members.

Extended Family Networks and Fertility

Caldwell firmly rejects the co-residential household as the appropriate unit of analysis for fertility research in favor of the family of "mutual

obligations": "Family residence arrangements have little or nothing to do with the true extended family of mutual obligations ... it is the size and ramifications of this family of obligations that may well help to determine fertility" (1976: p. 329). According to Caldwell, what is the significance of the extended family for fertility? There seem to be two main elements in his argument. The first is that the decision makers in an extended family, those with power and those who benefit most from situational advantage, are often not the conjugal pair, but rather members of an older generation. The second is that, in the extended family, an individual's orientation is toward the larger group rather than the immediate nuclear family. A man may be more committed economically and emotionally to his brother, for example, than to his wife and children. This emotional and economic extension, and the mechanisms of control that support it, preclude heavy investments in children and perpetuate a net flow of wealth from children to parents.

A major problem with Caldwell's analysis is that it is not clearly specified who comprises this demographically more significant unit, and for what purposes. For the area extending from Morocco to Bangladesh, Caldwell has said:

In the rural areas of the region the great majority of people still live in extended families, in that they live either with or in close proximity to relatives and share land, budgetary arrangements, or at least mutual obligations and guarantees against disaster. There is no absolute distinction between living close to each other and living as a joint family in the same residence... (1978: pp. 557-558)

While this characterization is vague about family membership, it would seem from other parts of his discussion that Caldwell has in mind the three-generational extended family at least: a patriarch, his sons, their wives,

and children; or, if the patriarch has died, brothers, their wives, and children. Is this an accurate description for the region as a whole? Do such groups typically share land, budgetary arrangements, and guarantees against disasters?

For Bangladesh the answer would seem to be "no". There, descent is patrilineal and residence is patrilocal, as is apparently the case for the region as a whole. Households or primary domestic groups are typically composed of a man, his wife, and their children. In the village that I studied (Char Gopalpur), 56 per cent of all households were nuclear in structure at the time of our village census. An additional ten per cent were "sub-nuclear" (that is, they contained no currently married couple) and 19 per cent were "supplemented nuclear" (that is, they contained a nuclear unit plus other relatives not currently married, often the widowed mother of the head of household). Only 15 per cent of all households were joint in structure, containing more than one married couple.¹⁴ Even in wealthier families, sons typically establish their own households shortly after marriage. While this may entail no more physically than the construction of a new hearth and hut near the parents' dwelling, the creation of an independent household has far-reaching social and economic significance.

The new head of a household assumes independent authority and primary responsibility for the welfare of his household. When the son of a landed family establishes his own household, he will usually be given independent rights to cultivate a portion of his father's land -- a form of ante mortem inheritance. The title to land will not usually be transferred until the father's death, but the son will cultivate his portion independently upon establishing his own household. From the outset, therefore, in both produc-

tion and consumption, households tend to function as corporate economic units under the authority of the male head. There are exceptions. A son in an independent household may co-operate in joint production with his father, but such cases are rare. It is true, of course, that the economic ties between father and son in separate households are seldom severed completely. There may be a good deal of borrowing of tools, draught animals, labor, food, and cash on occasions. For landed families, the retention of title to land by the father permits a degree of control over his sons, and, in general, a father can expect the support of his sons if he falls ill and as he grows older. The fact remains, however, that even between father and son, separate households typically share neither land nor budgetary arrangements. Generally, there is even less co-operation between brothers who have established separate households. While they typically live close to one another, they organize production and consumption quite independently. In sum, contrary to what Caldwell suggests, in rural Bangladesh the great majority do not live in extended families; the nuclear family is usually also economically "nucleated;" and there is a very important distinction between living in the same household and living nearby.

And what of mutual guarantees against disaster? Are members of extended families or extended kin linked together through networks of mutual obligation and support, as Caldwell suggests? I did not find this to be the case in the village of Char Gopalpur. It is revealing to look at the pattern of land transactions and partners in land transactions. During the village study we reconstructed the history of land asset gain and loss for each of 114 households from the time of inheritance to the date of interview (these were conducted late in 1976).¹⁵ As noted before, rural Bangladesh is a high-risk

environment. One rather desperate response to adversity -- that is, to major interruptions of income streams due to flood, illness, or whatever -- is to sell land in order to cover current consumption expenditures. This is obviously an unattractive means of adjustment to risk, and, indeed, may be interpreted as reflecting a failure or the absence of adequate insurance mechanisms. Of all land sale transactions that were recorded in the sample of 114 households, almost 80 percent could be classified as "distress sales" -- sales for such purposes as purchasing food or medicine.¹⁶ Many of these sales occurred during the early 1970s, a period punctuated by a series of natural and man-made disasters.

Networks of kin are not necessarily an effective form of insurance, particularly if all members of the network are equally affected by a disaster. As noted by Ben-Porath: "...if family relationships are intensive, there is also a greater chance that risks are positively correlated across members, that fluctuations in the economy or in other external conditions would hit the coinsurers simultaneously;"¹⁷ or, in a similar vein, the peasant may be presented "with a brother who would give him the shirt off his back but who is more likely than not to be as destitute as he...". Therefore, one might observe a high frequency of distress land sales even where kin were close-knit and committed to one another. If this were the case, however, one would not expect to find a large number of such transactions taking place between brothers or other close kin. A brother with enough cash to purchase land is also in a position to lend his brother the same amount or give it to him outright if he so chooses.

In Table 1 I present the distribution of land purchase and sale transactions in Char Gopalpur according to kinship relation of partner in the

Table 1 Land Transactions by Kinship Relation of Partner
Char Gopalpur Village, Bangladesh¹

	Type of Transaction			
	Purchases	Sales	Total	%
Brother	41	50	100	18.0
Father's Brother or Father's Brother's Son	66	58	124	22.4
Other Patrilineal ²	6	2	8	1.4
Related through Wife, Mother or Daughter's Husband ³	38	32	70	12.6
Non-relatives ⁴	154	82	236	42.4
Not Specified	12	6	18	3.2
Total	317	239	556	100.0

1. Transactions undertaken by the male head of household, or in the case of female headed households (all widows), undertaken by the widow or the deceased husband, in a random sample of 114 households. Included are all transactions between the date of inheritance and the date of interview (1976).
2. For example, father's father's brother's son.
3. For example, wife's father, mother's brother, daughter's husband's father.
4. Due to recall error, insufficiently persistent questioning, or difficulty in reckoning distant kin, some transactions involving kin relations were undoubtedly placed in this category by mistake.

transaction. Forty per cent of all recorded transactions took place between close kin: 18 per cent between brothers and 22 percent with either father's brother or father's brother's son. In view of the preceding discussion, the very high frequency of transactions between close kin suggests that the extended family functions very poorly as a source of insurance for its members. Indeed, one point that quickly became apparent in the village study was the relatively high degree of economic differentiation among brothers. Although they invariably lived close to each other, it was not at all unusual for brothers to differ markedly in economic status. The fact that brothers and other close kin frequently purchase the land of their siblings and other relatives rather than help them to preserve their holdings in times of distress does not mean that all forms of assistance in all circumstances are unavailable. Kinsmen can usually be counted on to help in small ways and sometimes in large ways. Even if a villager purchased all the land of a hapless brother, it is unlikely that he would permit his brother to starve if it were within his power to prevent it. It is also possible to find cases of active support and co-operation between brothers, but usually only in the wealthiest strata, where the issue is not prevention of loss but greater gain through co-operation. Despite such cases, the true measure of a kinship network's effectiveness as a source of insurance is its success in preventing loss among members, and, as is evident from Table 1, the extended family in Char Gopalpur is at best highly unreliable according to this criterion.

What are the implications of the economic structure of families for fertility in this setting? Economically, the nuclear family is turned in upon itself and usually must find solutions to economic problems on its own. Analytically, it is useful to distinguish between immediate lateral kin (bro-

thers, cousins, uncles) and immediate lineal kin (father, son, and, perhaps, grandson). The weaker the lateral bonds of obligation and economic cooperation, the more an individual must depend on lineal kin. In rural Bangladesh, where lateral bonds are very weak, a man can build a kin-based insurance network only through reproduction. The value of children as a source of insurance and the value of having many children is thus increased by the weakness of lateral kinship bonds. Accepting that the reliability of extended kin networks as insurance varies in degree across developing societies, one might venture the hypothesis that, ceteris paribus, the greater the reliability of extended and lateral kin networks, the less important children will be as a source of insurance, and the less resistant will the society be to fertility decline. It is quite likely, for example, that the enduring economic solidarity of the extended family among Chinese populations has facilitated fertility decline by diffusing risk and preventing children from becoming the focal point of parental security concerns.¹⁹

The general poverty of rural Bangladesh may in part explain the economic isolation of nuclear families in that society. It is possible that increasing poverty has caused a social and economic regression similar to that described as a response to famine.²⁰ But it seems unlikely that poverty is the only explanation. I was struck, when working in the three villages of Maharashtra and Andhra Pradesh, by the relative cohesiveness of the extended family there when compared to families in Char Gopalpur, despite similar levels of poverty. For example, while only 15 per cent of all households in Char Gopalpur were joint in structure, 30 per cent were joint in the sample of 119 households from the three Indian villages. More revealing is the incidence of joint production between brothers. Of the 67 households in the Indian

sample that currently own and operate land, and that are headed by a male who has a living brother, 22 per cent are engaged in joint production with a brother living in a separate household.²¹ Of 56 heads of household whose fathers were dead, who had inherited land, and who had a living brother at the time of the father's death, 34, or 61 per cent, cultivated land jointly with a brother for some period after the father's death. The median period of joint cultivation was ten years.²² Joint production of any sort between brothers in Char Gopalpur is very rare, and it is found only among the relatively wealthy. By contrast, the incidence of current joint production involving brothers in the Indian villages is actually higher in the poorer strata than among the wealthy. I cannot say why brothers co-operate more in the three Indian villages than in the Bangladeshi village, except to attribute it to some unspecified cultural differences. Regardless of cause, however, the effect is to permit a greater diffusion of risk in the Indian setting.

I do not mean to imply, therefore, that the economic independence of the nuclear family in rural Bangladesh is characteristic of the region that Caldwell considers. It is likely, however, that Caldwell has underestimated the variability of family relationships in the region and that his analysis of fertility suffers accordingly. The assumption that "the extended family is the dominant economic and security unit in this region" (1978: p. 558) needs to be critically examined. Within the economic sphere, one must consider the activities associated with the family (production, consumption, credit, and insurance) separately, and determine the extent to which the same family members are involved, if at all, with what degree of commitment in each.²³ Only then can the role of children, and the relative economic importance of the

parent-child relationship, be assessed. Similarly, it is analytically important to distinguish the role of the family in economic matters from its role in social and political organization. For example, despite the economic isolation of the family in rural Bangladesh, kinship remains the dominant basis of social and political organization. Disputes are heard and judged by elders from the patrilineage, families belong to larger kin-based social units that collectively celebrate members' rites of passage, and a man can usually count on the support of brothers and other kin against political and physical threats. Yet this support does not extend to general economic assistance.

Discussion

There are undoubtedly sharp limits to the generality of any single explanation for the determinants of fertility in the developing world, given its tremendous diversity. The importance that Caldwell attributes to the effects of mass education and Westernization on family and fertility may be appropriate in some settings, but surely not all. With respect to the impact of Western education, one must, for example, question the size of the labor market for educated persons in many regions, and the ability of the state to enforce compulsory formal education in the absence of a substantial market for those who are educated. In some areas a large and growing market exists and the state is strong, but in other areas both the market for those with education and the state are weak. For the latter, it would be hazardous to project rapid expansion in school enrollment, and it is difficult to see how formal education could have a decisive impact on fertility in the near and

medium term.

It would seem to me that the process of family and fertility transition that Caldwell describes could occur only where questions of economic need are no longer predominant: where, because of greater affluence, children provide no necessary economic functions and their direct costs are easily absorbed. But in settings such as these, the process may have little to do with a reversal of intergenerational wealth flows. One can imagine, for example, that the flow of wealth is already overwhelmingly from parent to child among the middle class of Kuwait, despite their pre-transition fertility levels. Here, the transition, when it occurs, may represent more the kind of shift in "tastes" about which micro-economists speculate.

A major impediment to the elaboration of theories of family and fertility in developing countries is the meager empirical foundation on which we can build. This is evident from the discussion of sex stratification and extended family ties in this paper. One suspects that there are important variations in these aspects of the family in developing countries but it is not known with certainty to what extent and in what ways they do vary. Certainly, the evidence (fragmentary at that) from four villages in South Asia does not allow for very confident or general conclusions. The correct interpretation of the causal effect of such variables on fertility, however, depends in the first instance on measuring them accurately. In the case of the economic functions of extended families, and the extent to which they serve as a source of insurance against risk for members, we are far from being on an empirically solid footing. Caldwell is not at all alone in his assumption that networks of extended kin do perform such functions; indeed, this is a very common assumption. But in fact, there has been little research conduc-

ted in this area, even by anthropologists. We are much more likely to be told what the ideal is in a society than what actually happens. I would recommend this as an important topic for future research (as does Caldwell), along with a more critical approach to the economics of fertility and children in general (one that allows for a range of optimal fertility strategies), and special consideration of the potential role of risk as a source of derived demand for children.

NOTES

1. J. C. Caldwell, "Toward a restatement of demographic transition theory," Population and Development Review, 2(3-4), 1976, pp. 321-366; and J. C. Caldwell, "A theory of fertility: from high plateau to destabilization," Population and Development Review, 4(4), 1978, pp. 553-577. Two subsequent articles elaborate certain themes but do not substantially alter the arguments put forward in the two earlier papers: J. C. Caldwell, "Mass education as a determinant of the timing of fertility decline," Population and Development Review, 6(2), 1980, pp. 225-255; and J. C. Caldwell, "The mechanisms of demographic change in historical perspective," Population Studies, 35(1), 1981, pp. 1-27.
2. The discussion that follows is limited to the economic benefits of children. A more complete treatment of diversity in the economics of children would consider sources of variation in costs, including those generated by public policy and different institutional settings. See: G. McNicoll, "Institutional determinants of fertility change," Population and Development Review, 6(3), 1980, pp. 441-462.
3. M. Cain, "The economic activities of children in a village in Bangladesh," Population and Development Review, 3(3), 1977, pp. 201-227.
4. R. Cassen, India: Population, Economy and Society (New York: Holmes and Meier, 1976).
5. Statistics on average hours worked by age are taken from B. White, "Child labour and population growth: some studies from rural Asia," presented at the Workshop on Child Labour, sponsored by the Institute of Development Studies, Sussex, U.K., 5-8 January 1981. Statistics for Java are from White's own work; for Nepal, from M. Nag, B. White, and P. C. Peet, "An anthropological approach to the study of the economic value of children in Java and Nepal," Current Anthropology, 19, 1978, pp. 293-306; for the Philippines, from R. E. Evenson, B. M. Pepkin, and E. K. Quizon, "Nutrition, work, and demographic behavior in rural Philippines households: a synopsis of several Laguna household studies," in Rural Household Studies in Asia, eds. H. P. Binswanger et al. (Singapore: Singapore University Press, 1980); and for Sri Lanka, from M. W. Tilakaratne, "Economic change, social differentiation and fertility: Aluthgana," in Population and Development, ed. G. Hawthorn (London: Frank Cass, 1978). All figures refer to relatively poor segments of the villages in question.
6. Caldwell, loc. cit. in footnote 1, 1981.
7. M. Cain, "Risk and insurance: perspectives on fertility and agrarian change in India and Bangladesh," Population and Development Review, 7(3), 1981, pp. 435-474.
8. Caldwell, loc. cit. in footnote 1, 1978, p. 559.
9. R. Gronau, "Leisure, home production, and work: the theory of the allo-

- cation of time revisited," in Rural Household Studies in Asia, eds. H. P. Binswanger et. al. (Singapore: Singapore University Press, 1980).
10. M. Cain, "The household life cycle and economic mobility in rural Bangladesh," Population and Development Review, 4(3), 1978, pp. 421-438.
 11. Caldwell, loc. cit. in footnote 1, 1978.
 12. M. Cain, S. R. Khanam, and S. Nahar, "Class, patriarchy, and women's work in Bangladesh," Population and Development Review, 5(3), 1979, pp. 405-438.
 13. Cain, loc. cit. in footnote 7.
 14. This distribution is similar to those produced in other studies of rural Bangladesh using larger samples.
 15. The method of data collection is described in Cain, loc. cit. in footnote 7.
 16. Cain, loc. cit. in footnote 7.
 17. Y. Ben-Porath, "The F-connection: families, friends, and firms and the organization of exchange," Population and Development Review, 6(1), 1980, p. 22.
 18. J. C. Scott, The Moral Economy of the Peasant: Rebellion and Subsistence in South Asia (New Haven: Yale University Press, 1976), p. 28.
 19. On the Chinese extended family, see R. Freedman, B. Moots, T. Sunn, and M. B. Weinberger, "Household composition and extended kinship in Taiwan," Population Studies, 32(1), 1978, pp. 65-80; and S. Greenhalgh, "Chinese Chia and the level of income equality in Taiwan: rethinking the recipient unit in income distribution studies," presented at the Seminar on Interrelationships Between Demographic Factors and Income Distribution: Problems of Measurement, Description and Interpretation, sponsored by IUSSP and Sardar Patel Institute, Ahmedabad, 5-8 January 1981. For a related discussion, see R. Lesthaeghe, "On the social control of human reproduction," Population and Development Review, 6(4), 1980, pp. 527-548.
 20. R. Dirks, "Social responses during severe food shortages and famine," Current Anthropology, 21(1), 1980, pp. 21-44.
 21. In one case there was joint production between nephew and uncle.
 22. This underestimates the true median because some of these 34 continue to cultivate jointly with a brother.
 23. J. Goody, "The evolution of the family," in Household and Family in Past Time, ed. P. Laslett (Cambridge: Cambridge University Press, 1972).

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- 39 Paul Demeny, "On the End of the Population Explosion," March.
- 40 Bernard Berelson and Robert H. Haveman, "On Allocating Resources for Fertility Reduction in Developing Countries," March.
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- 77 John Bongaarts and Mead Cain, "Demographic Responses to Famine," November.
- 78 Moni Nag, "Impact of Social Development and Economic Development on Mortality: A Comparative Study of Kerala and West Bengal," December.

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