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Women and Development: Objectives, Framework,

and Policy Interventions*

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1. Introduction

This paper examines from an economic perspective women who, as producers and consumers, are attached at various stages in their lifetimes to families and households. Women's contribution to the economy is in principle no different than men's. In practice, however, the problems of valuation, measurement, and policy inference are more complex. Moreover, the design and evaluation of development policies to increase women's productivity and advance other social objectives are culturally sensitive, because these policies may change customary patterns of work, specialization, and the evolution of the family and other basic social institutions.

All societies coordinate, in one way or another, production and consumption of goods, child bearing, and investment in human capital, such as education, and nonhuman capital. This occurs because such cooperation generates important economies, including increased scale of production, specialization, and shared consumption of public goods. Many activities that produce goods and services and allocate them among persons are coordinated by semi-permanent family groups that are not restricted to one sex or age. These family groups may also share a residence and join in reproduction and extended periods of child rearing. A common group is a nuclear family, perhaps with older members, but of course families take diverse forms around the modern world. It is difficult and probably inappropriate to analyze women's contribution to the development process without reference to the family or household.

Changes in women's earning power compared to men's and children's can affect what the family does better than other institutions in society, such as

firms and government. Functions where the family retains a comparative advantage may also be performed with a different mix of labor and capital as the economic capabilities of women approach those of men.

No matter how overall economic coordination is achieved, governments are limited in their ability to redistribute resources among persons within families. This is because families can compensate for most government transfers, readjusting the allocation of private resources within the family until the distribution of total resources among persons again reflects the incentives and values of the family (or its more powerful members). To propose sensible policies that will affect women, it is essential to understand how family incentives affect women, children, and men; how government activities penetrate the family and modify women's economic capabilities; and how the costs and results of such government activities compare to other social investments.

The family's consumption patterns, savings, and investments in family members may all change when women's and men's productive capabilities change. To maximize production and growth, internal rates of return to investments should be equalized across the formation of human capital, the increase of home-based production, and the increase of firm based-production. A divergence in the estimated rates of return to investments in home, firm, and human capital suggests an inefficiency, and calls for an analysis to isolate what institutions, information or incentives could be responsible for the seeming misallocation of resources.

Empirical evidence on the responsiveness of persons and families to different external influences and constraints show what the limits are on the decision-making units responsible for particular forms of behavior, ranging from a lone individual to an extended family. Such specific knowledge about

family coordination and pooling of economic resources also helps to specify general models of the family that better reflect the conditions that constrain family choice in various cultures. More accurate predictions of the impact of socioeconomic change and policies should then be feasible insofar as they affect families and particular members of these families.

Economics of the Family and Development

In more traditional agricultural societies and in the early stages of the development process, the family and the simple firm blend together. As trade and industrial specialization develop, technical economies in the scale of production emerge, and firms gradually replace families as the main source of output, except perhaps for agriculture (Kuznets, 1957; Schultz, 1988a). This shift in production from family enterprises to non-family firms is associated with greater participation of women's in the work force on a more equal footing with men (Boserup, 1970; Schultz, 1988a). Initially, women are often confined to a broad set of home production activities. Later they move to participate more fully in wage and salary jobs outside of the family, to reap the full benefits of more specialized vocational training.

It is often said that by obtaining a job (for wages) outside of the family, a woman increases her control over the productive returns to her labor and hence gains relative influence over how the family uses its economic resources. Women may be motivated to enter the wage labor force, either by domestic poverty, or by the appeal of employment opportunities outside the home. The level of a woman's productivity is of primary importance to her welfare and that of her children, but the conditions under which she works may also matter. Changes in women's labor force participation may be a good or ill event, depending on its causes. To distinguish between such income and

wage effects on a woman's marketed supply of labor, many factors must be evaluated together, as specified by a family model of decisionmaking.

Moreover, the distinctive role of women in managing investments in children may be a strong reason for increasing women's capabilities and their control over family resources. Improving the productivity of women is a social objective to advance economic development, and also possibly to channel that development toward socially desired investments in the food, health care, and schooling of children. Raising women's productivity often also leads to reduced child mortality and, at approximately the same time, to a reduction in fertility. If the latter more than offsets the former, the rate of population growth may be reduced and the proportion of the population in the labor force may be slowly increased, as the demographic transition progresses. Quantitative confirmation of these apparent linkages, however, requires much study and replication to build sound generalizations from empirical regularities and to identify the special features in society that affect these behavioral tendencies. If these empirical studies are guided by a coherent modeling framework, the accumulation of useful knowledge can be expected to occur more rapidly.

Concepts of the Family Guiding Empirical Analysis

A conceptual and statistical framework is essential to draw inferences from nonexperimental data about how family production, consumption, and behavior respond to changes. This applies to experimental pilot programs as well. It is hard to forecast how social institutions, such as families, firms, and government social programs will evolve over time. The first step is to work out the rules for decision-making in the family that account for observed producer and consumer behavior. This requires analysis of how individual,

social, and environmental constraints interact to determine the productivity and role of women in a particular society. Such constraints must be clearly defined, adequately measured, and beyond the family's direct control or exogenous to the family. Where the line is drawn between family choice variables and exogenous constraints depends on the question addressed. The analysis may encompass the broader extended family, if its members pool resources and share obligations. This coordinating group is the elusive starting point for empirical analysis. Two questions are paramount: How extensively do individual and family decisions interact? What are the economic limits to the family?

Ultimately, the family has a life cycle perspective. Moreover, there is an element of inter-generational altruism as parents spend part of their earnings to help their children, and grandchildren, ad infinitum. However, past decisions in the life cycle of the family should not be viewed thereafter as exogenous constraints on later behavior. Women who worked before marriage are certainly more likely to work after marriage than other women, for example, and they may also have fewer births. But do the work decisions influence the fertility decisions, or do both instead depend on other exogenous influences or unobserved variables, such as preferences, operating on the basic sequence of lifetime choices?[1] The latter is more nearly correct. Marital status, work patterns and fertility are thus considered all endogenous and in need of explanation. According to many studies, the likelihood of being married, or living in a family depends on the distribution of endowments and capabilities of men and women (e.g., Becker, 1974, 1981; Friedan, 1974; Grossbard, 1976; King et al., 1986; Montgomery and Sulak, 1988). If the aim is to estimate the longer-run tendencies of families, and hence society, to adjust to changing conditions and constraints, a longer sequence of these interdependencies

should be viewed as endogenous. The modeling framework should thus specify the timeframe and the appropriate class of endogenous outcomes and exogenous conditions.[2]

To determine what family group decides on any particular production, consumption, investment, or behavioral decision in each society, it may be necessary to design new sampling procedures to collect data from several potentially relevant groups of family members. In some societies, for example, men might be expected to help pay the school fees of their sister's children, in which case the schooling decision will be imperfectly understood unless the wage rate and unearned income of uncles are included among the constraints on child enrollment. A simple empirical test of the limits to such a family decisionmaking process would establish whether an uncle's endowments affect significantly a child's schooling behavior. Conversely, if financial transfers are observed from the child's uncle to the child's mother, they should be treated as endogenous variables, potentially identified, perhaps, by information on the uncle's exogenous endowments.

Many disciplines contribute to the empirical literature on linkages within the family and offer evidence on how women's capacities are increased and how they in turn affect the productivity, welfare, and behavior of family members. These studies employ disparate standards for statistical evidence, and do not share the same modeling methodologies. Categorizing constraint-like variables into exogenous conditions and endogenous restraints that evolve over time because of past decisions is therefore an important step in formalizing an analytical framework that can potentially illuminate empirically women and development.

2. Consumption and the Family

"Who deserves consumption" involves the values of society and the family, and is not necessarily clarified with the tools of welfare economics. Economists can postulate a social-welfare function that will permit welfare comparisons to be drawn between persons and thus derive "optimal" distributive policy. But such economic formulations are rarely responsible for the transfer schemes that societies adopt. Nor are they often a persuasive basis for designing policies to intervene in the economy. Yet it may be possible to describe the tradeoffs made by society and by the family and thus identify factors affecting intrahousehold consumption patterns. This section discusses the neoclassical model of family behavior, suggests its limitations, and explores a more flexible "bargaining model" of family decisionmaking. This latter model recognizes the different interests in, and control over, resources that individual family members have.

Models of Family Behavior and Distribution

What is responsible for the inequality between men and women and why should it vary in different countries? Undoubtedly a tension exists in the family between efficiency and equity, as it does in society as a whole. From the point of view of efficiency, a family member's food, consumption, health, and long term formation of skills, such as education, should be supported only so long as these investments are more profitable than alternatives. Conversely, pure parental altruism could lead parents to consider each child's satisfaction as important as their own. This would encourage parents to invest in their children's endowments until they are similar to that of the parents. Egalitarian parents may also derive satisfaction from leaving their children equally "well off." By contrast, the criterion of efficiency is

likely to encourage parents to invest more human capital in the children who are more able, assuming that these natural abilities enhance the returns on parental investment. Parental bequests to less able children would then include a greater proportion of property whose market rates of return are not affected by the child's ability. In this manner, Becker and Tomes (1979) show how parents might distribute their human and physical investments among their children of differing ability. If the marginal returns on human capital exceed those on physical capital for any child, the parents' pursuit of effi- ciency would come into conflict with their ideal of consumption equality in the family (Becker, 1981). Available evidence suggests that on average the private rates of return to investments in education are larger than the re- turns on nonhuman capital today in low income countries (Psacharapolos, 1973). In these circumstances, intergenerational mobility is accomplished by parents more efficiently if they invest in the education of their children rather than transfer to them property during their lives or through bequests.

Empirical estimates of intrafamily distribution of consumption and human capital investments provide clues as to how families trade-off efficiency and equity. Does this trade-off differ at different levels of family income? Are such differences comparable in different societies? Families may balance the objectives of efficiency and equity differently when average income falls toward subsistence and the family's very survival is at risk. Sex differen- tials in child survival, nutrition, and schooling offer a basis for analysis of welfare differences between girls and boys. These in turn affect the economic capabilities of adult women and men--and thus influence their social mobility and inequality, as well as on their productivity.

These gender differentials within the family are analyzed here, first

across households within societies. Interpreting these differentials and estimating how policy might affect them requires a framework that accommodates the salient constraints on the family and accounts for critical features of the personal distribution of family consumption and human capital investment. A more complete model must also describe who is found in a family or, more precisely, family composition. Adults that are observed to reside in families are not a random sample; they are selected according to criteria that are likely to also influence what they expect to receive from the family's resources. A sample selection bias is therefore potentially present in any analysis restricted to families. The decision rules that govern family formation and marriage should be combined with an analysis of the constraints determining intrafamily resource allocations. Though elements of such a theory are at hand (McElroy, 1988), empirical applications are limited and largely confined to U.S. data. But the theoretical approach is well suited to the study of women's productivity in low income countries.[3]

Models of Marriage and Family Behavior

Adults presumably maintain their attachment to their existing family, or marry, or go their separate way, because there are net gains in doing so as compared to other foregone opportunities. In marriages, so long as both partners share the net gains in excess of the opportunity costs given up from alternative arrangements, the union has at least an economic basis for continuation (Becker, 1974). The division of output between partners might be studied as it responds to market forces (Becker, 1981:42). But it has not received attention because it is hard to attribute consumption to a particular family member, and traditional models of the family do not prescribe distributional rules.

The classical unified family decision-making framework assumes that the family behaves as if it is trying to allocate the time of its members and other endowments to satisfy a common set of "family" preferences (Becker, 1965). This process involves pooling resources and agreeing on the form of the family's preferences. Becker (1974) describes conditions under which this process could take place. The simplest assumption is for couples to share the same preferences. Given the limitations of this working assumption, Becker describes a dominant family decisionmaker, the husband, who allocates the gains from marriage to reward the other individual with more than she expects to receive as a single person or in another union. Incentives are also established to encourage the non-dominant member to allocate her time and other family resources to accomplish the solution chosen by the dominant individual. If the gains from the union are insufficient to motivate coordinated family behavior, the family may dissolve. This second model, though it is more realistic than the first, still does not imply any testable predictions about intrafamily consumption. One way to proceed further would be to specify the structure of household production and then estimate the magnitude of the gains from marriage based on the endowments of the partners, market prices, and production technology (Wallace, 1974).

How are such marital gains actually distributed? The family demand system does not help in predicting which intrafamily allocations are more likely to occur. It does imply strong restrictions, but these may not fit data because the demand model also depends on auxilliary assumptions, such as the functional form of relationships, that are not central to the conception of a unified family decisionmaker.

Extending the family demand model to accommodate the conflicting inter-

ests of family members is a reasonable next step These conflicts of interest must be resolved by a specific bargaining mechanism to be tractable and testable. Many game theoretic models do not imply unique solutions, nor do they lend themselves easily to empirical testing. The cooperative Nash-bargained framework, as stated by McElroy and Horney (1981), is an interesting possibility. It nests within it as a special case the unified family demand system. Statistical tests can be readily implemented, therefore, to determine whether data on observable family behavior satisfy the restrictions implied by the unified family demand model, or instead, suggest that this systematic form of bargaining is consistent with the data. These tests are also intuitive: They simply imply that nonearned income of the husband or wife may influence consumption differently. When the woman controlls physical assets or streams of nonearned income, her bargaining power in the family to distribute the family's resources is increased. If these tests support the bargaining model versus the unified family demand model, additional more complex tests of the extended demand system can be worked out (Horney and McElroy, 1988).

Other approaches to bargaining behavior in marriage involve making specific assumptions about asymmetric information available to spouses, assume differences in transaction costs within and outside of the family, or specify the form of the utility function for the family (e.g., Fabella, 1982). For many reasons, few empirical tests have been implemented to show that any of these bargaining approaches are helpful in explaining family behavior. Acceptance of bargaining models of family decision-making will depend on comparisons of the model's capacity to account for related forms of family behavior that are not adequately explained by the unified family demand model (Manser and Brown, 1980; McElroy and Horney, 1981; Pollak, 1985; Jones, 1986;

Peters, 1986; Carlin, 1988; Schultz, 1988c).

Empirical Evidence on the Nash Bargaining Model of the Family

Evidence is slowly accumulating that is consistent with the cooperative Nash-bargained model of family decision-making but not with the strict formulation of the neoclassical unified family demand model. Other models of bargaining may be developed that are less restrictive and more general than the cooperative Nash-bargained solution, and they may permit the partners to know different information and choose among a wider range of Pareto allocations (Chiappori, 1988). But the goal here is to describe the initial modeling efforts that have added flexibility to the neoclassical family demand model by dealing with the distinct interests and resources of family members. The model should also allow eventually for a partial pooling of resources, rather than the complete pooling assumed in the family demand model.

Consider, for example, how the individual supplies labor. It is generally assumed that increases in nonearned income (not contingent on the individual's allocation of time) increase demand for leisure and nonmarket time and reduce time supplied to the labor market. As this framework was adapted to analyze the labor supply behavior of wives and then other family members (Mincer, 1963; Koster, 1966; Heckman, 1971), the leisure of each family member was added to the family utility function, but the family's nonearned income was pooled. This approach to family demands and labor supply consequently assumes that the effect of nonearned income would be identical regardless of the individual's status in the family or the source of the nonearned income. Situations may arise where this neoclassical assumption appears realistic and others where it does not conform to what we know about resource pooling of family members or coordination of decision-making.

The cooperative Nash-bargained model assumes the partners cooperatively maximize a product of the individuals' marital gains in their utility compared to their utility available outside of the union. This utility of the alternative state represents a "threat point" beyond which the partner would leave. It thus limits the consumption allocations within the family that are acceptable to both spouses. Nonearned income of the husband or of the wife will, thus, influence the "threat point" of that spouse: it leaves the spouse less dependent on marital gains. It thus strengthens the spouse's bargaining power, and potentially changes the distribution of consumption in the family.[4] This would be most obvious in its effect on the consumption of leisure, since this is thought of as a private good. The effect on other forms of consumption may be more ambiguous, such as expenditures on tobacco, alcohol, toys or apparel, for there is nothing to prevent wealthier women or men from deriving satisfaction from varied consumption activities.

Consequently, nonearned income (or its sources) should be divided into those elements brought to the marriage or accumulated during the marriage through distinct individual activities, the receipt of bequests or transfers, or other personal connections. A wife's nonearned income, such as she might have inherited or brought to the marriage as a dowry, might be expected to reduce her market labor supply more than the same amount of nonearned income brought to the marriage by her husband.[5] Conversely, the payment of a bride-price in many areas of subSaharan Africa by the groom to the bride's parents may be associated with the bride increasing her supply of time to the labor force.[6] This prediction of the individualistic bargaining model received only modest support from its first empirical test against U.S. household data (Horney and McElroy, 1988). Subsequent study of the allocation of time of

U.S. husbands and wives to housework provided more support for the bargaining approach (Carlin, 1988). But data from Thailand strongly confirm its usefulness (Schultz, 1988c).

In the 1981 Socioeconomic Survey of Thailand, participation by women aged 25 to 54 in the labor force is reduced by three times as much for a given flow of nonearned income (from rentals, interest or dividends) if that nonearned income is owned by the woman as compared to the effect of that income if it is owned by her husband. Conversely, men aged 25 to 54 reduce their participation by three times the amount when the family's nonearned income is owned by the man rather than his wife (See Appendix Tables A-3 and A-4). In Thailand women are frequently in the labor force, and while marriage has been nearly universal, they often divorce and remarry. It might be more difficult in some other societies to collect meaningful data on the ownership of nonearned income for each individual in a family. For example, in a survey of rural Northeast Brazil, few women report nonearned income, though the proportion increases in urban areas.

At a more anecdotal level, there is evidence that as women's education and marketable skills improve, women are treated better and consume more of their family's resources. But there remain relatively few studies of household surveys from which to draw such generalizations. The neoclassical family demand model emphasizes that the human capital embodied in women affects their value of time and influences the allocation of time and investments within the family (Mincer, 1963; Becker, 1965). Consequently, evidence that time allocations, consumption, and investment patterns within the family respond to differences in male, female and child wages does not discriminate between the family demand and bargaining models. But the cooperative Nash-

bargained model of household behavior also predicts differential consumption effects of nonearned income depending on who <u>controls</u> it. The bargaining framework suggests why women may engage in separate jobs from their husbands to enhance their control over resources. Indeed, this pattern is particularly notable in subSaharan Africa and South East Asia (Schultz, 1988a), although women are still mostly working as unpaid family workers.

In parts of Africa husband and wife often cooperate in the joint production of some crops, while other crops or parts of the production process--e.g. marketing--are entirely the responsibility of one member. The neoclassical model of the family leads to the expectation that the wife allocates her time between the joint crops and her own crops to equalize the value of her marginal product across all activities. The bargaining model, however, predicts that she would work more on her own fields, because the value of her marginal product there is more under her control. Jones (1986) confirmed these predictions of the bargaining model with survey data collected from North Cameroon. Allocative incentives within these Cameroon families, therefore, may not achieve an overall efficient use of labor but advance other individual interests of family members.[7]

Another implication of the demand model is that the income-compensated cross-substitution effects should be symmetric or equal. This restriction of the unified family demand model implies in allocating labor supplies that the husband and wife agree on the value of each other's nonmarket time. It is possible to imagine, as an alternative hypothesis, that a husband would assign a higher value to his nonmarket time than does his wife to his time. In the case of their valuations of the wife's nonmarket time, the wife might also value her own time more highly than does her spouse. An individualistic

bargaining model should allow for the possibility that the wife and husband might value some "goods" differently, such as their own "leisures." Hence, a test of the family demand model is the strong restriction that the income-compensated effect of the husband's wage on the wife's nonmarket time is equal to the income-compensated effect of the wife's wage on the husband's nonmarket time. Heckman (1971) tested this statistically and rejected it with U.S. data, although this finding was not emphasized in a subsequent paper (Ashenfelter and Heckman, 1974).[8] But the test is conditional on many other aspects of the demand model, including functional-form approximations.

To evaluate the partial effect of the husband's or wife's nonearned income on household expenditure patterns, the wage rates of both partners must be held constant. If expenditure shares are analyzed, then an instrumental variable estimate of the family's total expenditures might be included as a proxy for the effect of permanent income. It is expected that increases in the wife's nonearned income share of total expenditures will have the partial effect of increasing expenditure shares on children's nutrition, health, and education as well as on her leisure. This assumes, however, that the wife's nonearned income has no effect on fertility, and the above variables representing investments in children are defined on a per child basis. Unfortunately, most expenditure surveys do not distinguish these child investment expenditures, e.g. child and adult health care are combined in a single coded expenditure category (Schultz and Thomas, 1988), and tests of this form are not yet reported.

The neoclassical family demand model, nonetheless, has the appeal of simplicity and widespread applicability, and some successful empirical application (Smith, 1980). How much realism should be sacrificed by a theoretical

paradigm to gain tractability and testable predictions is debatable. Perhaps in societies where nearly all women marry by age 30 and there is little disso- lution of marriage, as was true until recently in Korea, China or Taiwan, the neoclassical model of the integrated family might prove satisfactory. But in much of Subsaharan Africa and South East Asia where men and women often have different sources of income and distinct responsibilities for the support of family consumption, individual interests may not be submerged in a "unified" family. The cooperative Nash-bargained model of McElroy and Horney (1981) appears to be a suitable model to structure research on family and individual behavior across societies, because it generalizes the neoclassical family demand model. It directs particular attention to who controls what assets and streams of income in the family, and may lead to new insights about how women's status influences the development process.

Measurement of Intrafamily Consumption Patterns

It is hard to evaluate systematically and comprehensively what individual family members consume. Many household goods benefit all members: one per- son's consumption does not diminish how much of such a "public good" is available to others. This property of public goods can be used to explain family formation (Lam, 1988). Children are often referred to as a marriage- specific investment or public consumption good, though the analogy has its limitations (Becker, et al. 1977). Economies in the scale of home production and public consumption are also difficult to disentangle empirically from the implications of public goods in the family. Both phenomena contribute to the gains from marriage.

Nonmarket production is also hard to track down in order to evaluate who in the family consumes what. Child rearing is the primary example of a family

nonmarket good that has some of the attributes for parents of a public good.
For this reason most empirical analyses of intrafamily distribution of re-
sources have focused on human capital investments in children, because such
investments are largely produced by the family, are embodied in the children,
and hence are subject to their future control, and are quantifiable in a
survey. A family's investments in children account for a large part of a
family's savings and intergenerational transfers. Three indicators of human
capital investment in children are most frequently studied: mortality,
anthropometric measures of child nutrition and health, and schooling. However,
the number of studies examining gender differences in child mortality, health,
and education in low income countries is still quite limited. A few economic
studies must suffice to illustrate how gender differences can be interpreted
within families to measure regularities in behavior that should inform policy-
making.

Assume that survival rates of girls and boys, or those of women and men,
are related directly to the relative contributions of women and men to their
families' cash and kind income. In India, where female mortality exceeds male
mortality (Visaria, 1971), as more women participate in the local labor market
and are more productive relative to adult men, the survival of girls compared
to boys is higher. This pattern can be observed at the district level in the
1970 Census of India among rural populations and also at the household level
in parallel studies of representative rural sample surveys (Rosenzweig and
Schultz, 1982a). A study in the Punjab (Anin and Pebley, 1987) suggests,
moreover, that public policies that increase access to health services, with-
out affecting the relative productivity of men and women, reduce general
mortality, but increase the mortality rate of girls compared to boys after the

first month of life. This is when the health of children responds primarily to the family's allocation of food and health care. Similar patterns are noted in Bangladesh, Nepal and elsewhere in India (Chen et al., 1980, 1981; Martorell et al., 1984; Bardhan, 1984; Sen, 1988).

In China, where social pressures have recently been focused on achieving a one-child family, the frequency of infant mortality appears to have increased disproportionately for girls (Aird, 1983; Zeng Yi, 1988). Perhaps as a consequence, rural families in China are allowed increasingly to have a second child if the first is a girl--the goal apparently being to reduce female infant mortality. The productivity and education of women has traditionally been far below that of men in China and continues to be in interior rural areas (Freedman et al., 1988). Indirect findings such as these suggest that economic productivity of persons in the family has a bearing on their share within the family of consumption and human capital investments. But the correspondence appears to weaken as the overall level of family income increases. Gender differences in nutritional status are smaller in studies of Nicaragua, Brazil, Philippines, Sri Lanka, and Ivory Coast (Blau, 1984; Popkin, 1980, Senauer et al., 1986, 1988; Strauss, 1986b; Thomas et al., 1987; Thomas, 1989) and may reverse in some regions of subSaharan Africa where women take an active role in the labor force (Svedberg, 1988). With increased wealth families appear to exhibit a preference for greater equality in nutritional investments within the family, at least between children by gender.

There is an analogous pattern across countries in the investments families make in the schooling of girls compared to boys. At low income levels investments in boy's schooling exceeds that in girl's. As real income per adult increases, public expenditures on schools per child tend to increase as

do enrollment rates. But the income related increase in enrollment rates among girls is significantly larger than it is among boys (Schultz, 1987). A catching up for girls is evident in both cross country comparisons at different stages of development and within countries as income increases. Equal educational treatment of boys and girls appears to be a "normal good" within the family, and as income per capita increases and reproductive goals are freely chosen, a variety of indicators of consumption and investment become more equally distributed between male and female family members.

Public policies sometimes are limited in their ability to influence the family's distribution of consumption because the family can, if it wants, compensate for them. A free school lunch program in Brazil or India, for example, leads to decreases in the family's supply of food to those children who benefit from the school feeding program. Part of the family's food that would have been supplied to the children in the program is apparently reallocated within the family to advance the family's own objectives. Nutritional intervention programs have had to take this into account (Chernichovsky and Zangwill, 1988).

There are more efficient ways to target resources transferred by public programs to specific uses in the family. The state could train individuals to accomplish their goal rather than contribute to the general pool of family resources or give the family income in-kind (i.e. food or health care) or transfer selected items for specific individuals to consume, such as school lunches. If public programs train women for vocational opportunities where they earn cash incomes directly, rather than through integrated (i.e. unpaid) family activities, the gain in women's productivity may shift consumption patterns toward women's priorities. Recent analyses of Brazilian data confirm

that nonearned income that is controlled by women has a larger effect on child health and nutrition than does nonearned income reported by men (Thomas, 1989). Empirical analysis of programs that encourage investments in women is needed to document what kind of changes occur in consumption patterns within families as the productivity of women is increased (Kennedy and Cogill, 1986; Blumberg, 1988).

The Composition of Families

One way that people express their demands for consumption patterns is in the form of the families they create. An increase in the proportion of households headed by women has recently been observed in many countries. It is frequently linked to the change in the jobs that women take, at least in the industrially developed countries and urban Latin America (Youseff and Hefler, 1983; Kniesner et al., 1987). One explanation is the increasing productivity of women compared to men in the labor market. Cross sectional patterns imply that increasing the level of male and female productivity and wages at the same rate is sufficient to increase women's participation in the labor market, reduce the frequency and onset of marriage, and diminish lifetime fertility (Layard and Mincer, 1985). These developments are hypothesized to have reduced the net gains from specialization of husband and wife in market and nonmarket production, respectively, within lifetime marriages (Becker, 1981). Though it has not been replicated in other U.S. social experiments, women who were given independent financial support for their children in the Seattle negative income tax experiment opted more often to separate from their husbands (U.S. Department of Health and Human Services, 1983). In those societies where women earn nearly as much as men, there are fewer marriages and more female headed households are enumerated.[9]

Individual data have also been analyzed to estimate the determinants of age-at-marriage among women. More educated women marry later, even in cases where marriage is sufficiently delayed in the overall society to avoid overlapping with school, as in East and much of South-East Asia (Montgomery and Sulak, 1988; Anderson and Hill, 1980; King et al., 1986). The growing tendency of young educated women to take paying jobs before marriage, financially encourages both them and their parents to delay their entry into marriage. Few studies have yet examined how local market demands for female workers affect the timing and length of marriage for women.

Evidence from Thailand suggests that the family bargaining model may help to understand variation in the prevalence of marriage in low income countries. Demographic and anthropological studies of Thai society document that marriage was until recently nearly universal. About 95 percent of men and women reported themselves as having been married (once) by age 35 (in the 1960 Census cited by Knodel et al., 1987; Table 5.1). An informal process of divorce has also been traditionally common with frequent remarriage (Smith, 1981). In the 1981 Socioeconomic Survey of Thailand 75 and 85 percent of the women and men, respectively, between the ages of 25 and 54 are living in the same household with their spouse. To explain who is currently married, the specialization argument as well as the bargaining model would suggest that marital gains would decrease with an increase in women's predicted wages and increase with an increase in men's predicted wages, other things equal. This pattern is confirmed for women's wages but not men's (see Table A-4). The bargaining model of the family suggests that the same pattern holds for nonearned income. If Thai women have unearned income this has a negative impact on their living with a husband. The ownership of nonearned income is associated among Thai

men with a greater proportion residing with a wife. But the estimated effect is nine times bigger for women than for men at similar levels of nonearned income (Appendix Table A-4). Marriage, it would appear, is not a "normal" good for women.

Other hypotheses could also account for these patterns of marriage and residence in the Thai data, and the available survey data do not distinguish among them. The death of a spouse could increase an individual's wealth through inheritance, and also transfer the individual to the "single" category. About half of the female headed households in Latin America are widows (e.g. Mohan, 1986; Rosenhouse, 1988). Alternatively, women might be more inclined than men, upon divorce, to move back into the household of their parents, other relatives, or children. Marital and residential histories with the timing of inheritance and transfers are needed to discriminate more adequately among these competing explanations for family formation patterns. Undoubtedly they will differ greatly as does the family in different societies.

Households Headed by Women: Multiple Causes

Comparisons of income and welfare of female and male headed households are not very informative. Most male headed households tend to include wives, while customarily few female headed households include husbands.[10] In some surveys the husband is treated as the household head even when he is not recently resident in the household.[11] Which women find themselves in families that are called "male headed" or in female headed households will be influenced by their resources and other opportunities, as in Thailand. Several studies have found an association between wealth of individuals and decreased frequency of divorce, separation, and death of spouse (Becker et al., 1977;

Peters, 1986). But the tendency noted in several parts of the world for the share of households headed by women to increase may be traced to a variety of sources, not all of which imply the same consequences. First, the increased longevity that occurs with development generally favors women compared to men. Improved health is associated, therefore, with an increasing fraction of women at the older ages. Households headed by the older women who have become widows and not remarried is a large proportion of all female headed households in Latin America and elsewhere. This group may not have children to support, and though their consumption, housing, and health needs are important issues, these groups also may benefit from accumulating inheritances and old-age support schemes.

Another source of the increase in female headed households in low income countries is migration, which affects women differently from one region to another. In Latin America, migration out of agriculture to the cities was led by women, as it was in Europe and North America. Urban job prospects for women were better than for men, and the ratio of women to men in some metro-politan areas of Latin America was as high as 1.2 in the 1960s (e.g. Gregory, 1986; Mohan, 1986). As a result, many urban women did not marry, but they are not necessarily disadvantaged compared to the conditions they left behind in the countryside. The prospects for women advancing in Latin America from urban domestic jobs--given their education--to ones in industry, commerce, and other services, appears favorable compared with men. The overall productive status of women relative to men is higher in the cities than in the country-side.

Unlike Latin America, migration flows in Africa were dominated by men, drawn (or driven) to the mines and plantations, domestic services and com-

merce, state enterprises, and government bureaucracies. Women remained on the land, often continuing to produce traditional food crops largely without the aid of modern agricultural inputs or technologies. African women suffered from lower levels of education than men, explaining in part why men were the first to migrate from the rural sector and were more successful in setting themselves up in urban businesses (Caldwell, 1968). In Africa, therefore, the high proportion of female headed households (de facto) is not associated with offsetting economic benefits for women. In both Africa and Latin America, however, the divergence of male and female migration streams has probably contributed to the relative decline in the two parent household, and to the growth of associated social problems.

There is widespread evidence that women have increased their educational attainment compared to men in most low income countries in recent decades (Schultz, 1986). Associated with these educational gains some data also confirm that wage rates and productivity of women have increased relative to that of men. Gains in the market productivity of women compared to men reduces the traditional spheres of specialization by women and men, and erodes the economic advantages of lifetime marriage (Becker, 1981). This development along with the increasing participation of women in the market labor force is another factor contributing to the increase in the proportion of female headed households.

Households headed by women generally report lower per capita income than those headed by men. Market income differences between male and female headed households may overstate the gap in welfare unless consideration is given to a broader concept of "full" income which also includes nonmarket production and time allocated to home production and even leisure. Even so, differences in

"full" income between male and female headed households warrant more study. There may be more children to support per adult in younger households headed by women than those headed by men (Youseff and Hefler, 1983; Preston, 1984). Changes in family structure are viewed as the choices of consenting adults, but society may be involved in the impact on third parties--in this case, children dependent on their mothers. If the physical and mental development of children is adversely affected by this shift in family structure, then society may wish to intervene to reverse the trend or compensate for its adverse consequences on children. If governments cannot ensure that fathers pay child support, whether or not they live with their child's mother, generalized social transfers to poor children may be an attractive alternative. Such transfers might alleviate depressed consumption levels in these families headed by women and thus advance the society's goal of equity. But direct aid of this form also encourages two-parent poor families to separate in order to better provide for their members. Targeted transfers to equalize consumption opportunities may weaken, therefore, the incentive to create or maintain the family which is a long standing institutional response to the consumption and production disparities among persons of different ages and sex. Policy to reverse trends in family composition can be adequately designed only with an understanding of the fundamental forces that have motivated more women and men to live apart. Little is now known about the magnitude, source or severity of this trend. Treating the symptom of the disease rather than dealing with the underlying cause within the family economic production-consumption system may be ineffective and possibly counterproductive.

3. Production and the Family

For the purposes of this survey, it is assumed that factor markets clear sufficiently regularly to ensure that market prices provide a satisfactory approximation for the shadow value of factors, adjusted for transactions costs (Singh, Squire, and Strauss, 1986). Many exceptions, of course, can be imagined, such as slack agricultural seasons when the labor market is thin, or interlinked factor markets where collateral or bullock power may permit their owners differential access to tenancies (Bell and Srinivasan, 1985). Labor markets, particularly for women and children, may not be perfect in all societies, and the demographic composition of the family's labor supply would then be expected to influence household production decisions. But the current evidence does not confirm that this market imperfection is important (Lopez, 1986; Seavey, 1987; Benjamin, 1988).

The family is engaged in many interdependent production and consumption decisions. The simplification that is widely adopted involves treating these two areas of decision-making as sequential, in order to analyze first the production problem as a profit maximizing stage, and then the consumption problem of what is consumed and by whom. Having explored in the previous section some aspects of the consumption and human capital investment decisions made within the family, the production problem facing the family is now analyzed. How does the family allocate its resources and time between (i) self-managed production at home or in the family farm or firm, or (ii) external factor markets, such as renting out family land or hiring out family labor for wages. If the family both sells some of its factors to the market and also uses some in its own production, the market price of the factor should be equated to the factor's return in self-managed production. For example, if a mother's time

is spent producing food and clothing for her family, that task is construed by the family as of at least the value to what she might have earned in the labor market, minus the transaction costs in terms of time and goods of her entering the labor force and any taxes that would be deducted from market earnings. If the value of the factor to the family's self-managed activity exceeds the market price, the profit motive ought to induce the family to hire in more of the factor than it initially owns, until diminishing returns set in, and the factor's return to the family is driven down to the market supply price. Thus, by clearing factor markets across families, market prices are expected to signal appropriately the social value of factors to all families. This value at the margin is also assumed to be a satisfactory measure of the contribution of each factor to the family's income or welfare.

Occupational Segregation and Discrimination

In some societies, there may be an additional cost to employment of women outside of the family household: customary restrictions on what is "suitable" work for women or the circumstances under which they work with persons outside the family. These barriers to the allocation of women's (and men's) time may at some stages of development serve some social purpose that outweighs the economic inefficiency that such rules impose. But when the workplace and people's work are changing rapidly,[12] the new productive opportunities, both in the home and marketplace, require changes in old rules of employment segregation of men and women. Otherwise, people may find themselves employed where they are not most productive. As these customary assignment rules become more costly to sustain in terms of their inefficiency or resulting lost family production, they may be retained only if preferences for them are inflexible or barriers restrain the development of alternative institutional arrangements.

For example, purdah requiring women to work in only sexually segregated settings, become increasingly inefficient when male and female labor are complementary in particular lines of production for which demand is growing. Inertia in occupational segregation may prevail in the short run, and as these traditional division-of-labor arrangements become increasingly counterproductive, the costs lower the welfare of families. If they penalize disproportionately women, it may be useful to ask at what point does segregation become discrimination? The answer may be important but very hard to clarify because it involves both cultural values and economic efficiency of entire institutional systems.

However, the mere existence of sex segregation in labor markets does not necessarily imply that these patterns are an important source of inefficiency or discrimination, though it presumably increases the costs of production during modern economic growth. Interventions should be based on sound empirical evidence that these arrangements result in a major misallocation of labor. For example, it might be shown that women's productivity in non-traditional work exceeds their output in traditional work (e.g. in families) where there is no joint production and the women in both sets of activities possess the same endowments and capabilities. Evidence of this form is hard to obtain, however, for two reasons. The product of women's traditional non-market activity is generally consumed directly within the household, and does not enter the marketplace, and is thus not valued in monetary terms that are comparable to market wage rates. There are also cases where women jointly produce several goods which are difficult to monitor and value. For example, the need to look after children may lead women to accept lower-paying jobs so that they have flexible hours and informal work routines that can be located

in the home or occasionally combined with home duties. Women might choose a better paying job in the formal wage labor market, if they were not also productively engaged in nonmarket family activities. This argument does not imply that women are biologically pre-disposed to look after children or even that nursing of infants cannot, at a cost, be rearranged to fit work routines of women in the formal sector (Blumberg, 1984; Friedl, 1975; Nerlove, 1974).

The conclusion of many observers is, nonetheless, that customary forms of sex segregation in the labor market in developing countries lead to a misallocation of woman's labor. The reduction of sex segregation in the labor market should raise current output and encourage investment by families in women (Rosenzweig and Schultz, 1982a). Devising mechanism that encourage poor families to invest more heavily in the market oriented skills of girls is a challenge to policy in certain parts of the world. Improving the operation of factor markets that discriminate between men and women as productive agents can also involve social costs, for interventions use economic and administrative resources that are very scarce in most low income countries.

Comparisons of Productivity in the Market and Home

Because of the difficulty of measuring and valuing nonmarket production, economists have focussed on the marketable component of income of families and individuals, including the market value of products or factors sold or exchanged, net of purchased inputs. Within this limited context, household surveys have found it notoriously hard to estimate the net return to self-employed entrepreneurs. Even surveys such as the Current Population Survey in the United States account for only about half of the National Income Account estimates of the value added by self-employed producers such as farmers. With far less sophisticated accounting procedures available in low income coun-

tries, extensive farm or enterprise management surveys are needed to measure current income comprehensively, along with changes in net worth.

Beyond these limits, economists strive to document the market value of goods produced and consumed at home, such as food, fuel, and housing, for which there are market priced equivalents. But nobody, to my knowledge, ascribes a market value to the fetching of water for family use, though conceptually it is no different from the collection of fuel, or the home production of food, all of which tend to be "women's work." In high income countries, as such forms of income in-kind have become an progressively smaller share of income they have been neglected. When this omission is replicated in low income countries, where income in-kind can be a large share of personal income, a serious distortion is introduced. This systematically affects one's perception of woman's contribution to the economy. It distorts the entire quantitative record of modern economic growth. Economists understate sources of income that are proportionately larger for poor families, and within families for women's earnings relative to men's (Kusnic and DaVanzo, 1980; Evenson, 1983). This partial accounting of income reinforces the view that women who engage in traditional household activities are less useful than they would be if they worked in the market labor force. From another perspective, per capita national income will appear to grow more rapidly than it should, if women allocate more of their time to the market labor force, because we make no offsetting debit to national income for the time women retract from nonmarket production that would otherwise benefit them and their families. Thus, statistics interject a subtle but pervasive slant into our study of modern economic growth and affect the choice of development policies.

Assessments of technical change can be distorted. If it boosts the pro-

ductivity of workers in the labor market it will be encouraged. If it prom-
ises only to raise the productivity of workers engaged in undocumented home
production it may be overlooked. Public policies have probably shifted the
gains arising from technical change toward workers in the market labor force
rather than nonmarket workers, and toward men rather than women (Boserup,
1970; Blumberg, 1984; Ngwira, 1987). This oversight and distortion are
corrected only when the quantitative importance of nonmarket and in-kind
income is estimated, and its bearing on public sector priorities explicitly
evaluated. Economic-demographic household surveys in low income countries
that account for the productive use of time in both market and nonmarket
spheres are beginning to change how we view women as a productive and
innovative agent in the development process (e.g. Binswanger et al., 1980;
Birdsall and McGreevy, 1983; Evenson, 1983; Gertler and Newman, 1988). Much
work remains to be undertaken if the assessment of policies is to be neutral
in its encouragement of nonmarket and market productivity.

Time Allocation and Labor Productivity

Microeconomic analysis of family behavior assumes that people allocate
physical resources and time in response to the family's nonhuman endowments,
the opportunity value of the time of each family member, and the relative
prices of the family's potential market inputs and outputs. The market place
sets the wage rate offered for various types of labor and thereby determines
the marginal value of time for those working in the market or hiring in simi-
lar labor. This framework is readily extended to account for differences in
fertility and human capital investments that add to the productive capabil-
ities of family members. First the implications of the neoclassical unified
family allocation model are restated, and then relaxed to allow for

differences in individual preferences within a more general bargaining framework. Extensions of this approach appear to have promise also for understanding women's changing roles in the economy.

As described earlier, the simplest representation of the family is as a unified decisionmaker, like an individual, but with several blocks of time to allocate, associated with different family members. This generalization of the neoclassical model of consumer demand and labor supply to a multiperson household has evolved in the contributions of Mincer (1963), Becker (1965), and Heckman (1971). It has become a suggestive tool for analyzing family economic and demographic behavior and has helped to account for numerous empirical regularities in both high and low income countries (Schultz, 1981, 1988d).

This framework helps to explain why the market labor supply of married men is relatively inelastic or even backward bending. Men, who are on average already working nearly full time, weigh more heavily than do women the negative "income effect" on labor supply due to any increase in their market wage rate. This may be only partially offset by the positive "substitution effect" associated with the increase in men's wages. For women, on the other hand, many of who are not yet in the market labor force, there are relatively few inframarginal hours to weight up the negative income effect. Consequently, the positive substitution effect of an increase in women's wages is more likely to prevail. Implicit in this distinction between a negative income and a positive substitution effect on labor supply is the expectation that if most jobs come with substantial time commitments, then the participation rate of women may positively respond to market wage offers, while women who already hold full-time jobs behave more like men and possibly even exhibit a backward

bending supply of labor, on average, in response to further increases in their wage rate (Schultz, 1980b).

There are good reasons, therefore, to analyze separately the decision to enter the market labor force and the choice of how many hours to work when participating. The analysis of both decisions together as though they were both generated by a single truncated process (i.e. Tobit model) may suppress distinctive features of the two decisionmaking processes.[13] Evidence of this pattern can be seen for Thailand in Tables A-3 and A-4.

To this individual market nonmarket time-allocation model of participation and hours, Mincer (1963) was the first to note that the earnings of a husband should increase the reservation wage of a married woman and thereby reduce her time allocated to the labor market. Symmetric treatment of both husband and wife implies that the wage rates of both are appropriate determinants of the labor supply function of husband and wife (Heckman, 1971).[14]

Empirical studies of the labor supply of married couples have found that the labor supply of men is relatively inelastic with respect to their own-wage rate and relatively unresponsive to variation in their wives' wage rate (actual or predicted). In the case of married women, market labor supply is elastic with respect to their own-wage and inversely related to the wage of their husbands. Because the own-wage elasticity is generally larger than that associated with her husband's cross-wage elasticity (in absolute terms), the net effect of a proportionate increase in the level of wages paid to women and men is to increase women's market participation. These response patterns are replicated in cross sectional data from many industrially advanced countries and from a substantial number of low income countries.[15] A general increase in the level of both men's and women's wages is sufficient to induce an

increase in women's labor force participation. According to these estimates of female labor supply, it is not necessary for the ratio of female to male wages to increase in order to induce more women to enter the labor force, though such a relative advance in female wages would of course accelerate the process.

Fertility and Investment in Children

In addition to family labor supply behavior, the pattern of consumer demands may be sensitive to variation in market wage rates available to men and women, particularly in the cases of consumption goods that require a disproportionate amount of the time of either the husband or wife to produce. The care of children in many cultures consumes much of their mother's time. An increase in the earnings potential of women's time relative to men's is likely to increase the money perceived to be lost by childbearing and child care, and thus to depress fertility, even though at the same time the woman's earning potential increases the family's income opportunities. Increases in wages of women relative to men, are generally associated not only with a reduction in fertility but also a reallocation of women's time from nonmarket to market work. On the other hand, increases in the labor productivity and wage rates of men and particularly children can enhance the attractions of a large family and are often associated with increased levels of fertility, at least in low income agricultural countries (Schultz, 1981; Levy, 1985).

The labor supply and fertility patterns predicted from this economic model of the family are based on the assumption that the nuclear family pools resources. Consequently, a married woman is assumed to rely on the earnings of her husband for the purchase of market goods consumed by her children and herself. Where wives engage intensively in economic activities oriented

toward market exchange as well as family subsistence needs, such as in rural subSaharan Africa, Thailand, and Malaysia, it is less clear whether the productivity and wealth of the husband are pooled with that of the wife to support equally all members of the family.

The family decisionmaking framework also addresses how the reproductive choice is linked to the amount of resources parents intend to invest in each child. Empirical evidence suggests that investments in child "quality" are an alternative for the numbers of children parents have, or more specifically, child quality is a substitute for the quantity of children. This conclusion does not follow from any general aspects of economic theory, as shown by Rosenzweig and Wolpin (1980). Economic theory does not prescribe whether any two goods are substitutes or complements; this relationship depends on production technology and people's preferences. But this limitation of theory does not diminish the usefulness of investigating how policies and price changes affect both child quantity and "quality" decisions of parents.[16]

Most models of family behavior call attention to the potentially distinct effects of the wage rates of the wife, the husband, and children on their economic behavior and on how many children the parents are likely to have (Mincer, 1963; Becker, 1965). Consumption that takes a large amount of the women's time is said to be an intensive user of her time and will be consumed in lesser amounts as the labor market opportunities for women increase in relation to those for men. If the rearing of children is such a female time-intensive household "commodity," fertility and the market productivity of women are likely to be inversely related across families and across societies and within societies over time. What we know from many societies about the allocation of time within families and the relationship between market wage

rates of men and women and fertility levels is consistent with these generalizations.

Increases in a couple's wealth adds to its economic opportunities, permitting it to consume more goods that do not have superior substitutes. Children seem to fall in this category. Nonearned income that is derived from nonhuman capital such as land and physical property tends, therefore, to be positively related to fertility, at least in traditional rural societies (Mueller, 1984; Schultz, 1988).

Land and physical assets that can be employed in home production may also enhance the productivity of child labor for parents, and encourage landowners in particular to have additional children. At the frontiers of settlement in North and South America, Scandinavia, and Africa, people with more land and less labor have tended to be relatively fertile, as noted by Malthus two centuries ago and reconfirmed in studies of low income countries today (e.g. Merrick, 1978). But these tendencies may be offset if wealthier parents are inclined to spend more on the human capital and property of their offspring, which may deter them from indulging in a larger family.

A critical, but largely untested, hypothesis is that the private returns on human capital increased in the last century throughout the world, and this development has encouraged parents to invest more in the "quality" of their children and less in the quantity of them (T. W. Schultz, 1967, 1974, 1975, 1981; Becker, 1981). Contemporary evidence does not contradict this hypothesis. But serious gaps in our knowledge prevent us from assessing how much of the observed decline in fertility can be attributed to this factor. Rarely is there documentation of how private rates of return on schooling have changed over time during the full course of the demographic transition. Nor is it

clear what caused the productivity of educated workers to increase initially, pushing up the private returns to schooling. Until such a forcing variable is isolated and measured, it is hard to confirm how it might have shifted the aggregate demand for educated labor and thereby affected fertility. But recent surveys provide a sounder basis for measuring contemporary private returns to human capital for girls and boys. These measures of returns for females and males may help to explain the patterns of human capital investments of parents in their children, and to forecast how the pivotal differences in wage rates between women and men will evolve in the future in response to changes in human capital investments.

Wage differentials between groups with different amounts of schooling are used to approximate private returns to schooling. Schooling may operate as a screen to identify innately more productive individuals, or it may, as assumed in the human capital literature, impart disciplined work habits and productive skills. The private returns associated with schooling, plus any consumer benefits, signal the rewards that individuals and families can expect to receive by investing in schooling, regardless of whether the wage differentials are due to screening or acquired skills (Schultz, 1988e).

4. Investments in Human Capital and Rates of Return

Labor productivity can be approximated by the wage rate people are paid. According to this measure, women are on average less productive than men in many labor markets (e.g. Schultz, 1986). However, comparisons of women's and men's wages may not be representative of the productive value of the time of all men and women for several reasons:

1. Many men and two-thirds of women do not report a wage because they do

not work for one (Tables A-5 and A-6). How the sample of wage earners is nonrandomly selected may bias intergroup comparisons, particularly if available wage data pertain only to a modern subsector of the economy, such as large manufacturing firms.

A first step toward a more accurate comparison of male and female wages is to identify the productive abilities of workers, as valued by what employers are willing to pay them. This information should help to assess how much of the gender gap in wages is accounted for by differences in abilities, innate or acquired, and how much remains unexplained. A large literature on wage and earnings differences has developed in the last 25 years to explore this question.

Estimates are obtained separately for men and for women of how productive characteristics of workers are partially associated with their wage rates. If the regression estimates of his hedonic wage function for men are cross multiplied by the average characteristics of women workers, a prediction of the average wage for women is obtained based on the male wage function. The observed gender gap in wages can then be split up into components related to the differences between men and women in each of the measured productive characteristics (Oxaca, 1973; Birdsall and Fox, 1985; Gannicott, 1986). There is no obvious reason to prefer the wage function coefficients for one gender as the basis for such calculations. Consequently, this form of regression decomposition of group wage differences yields two, equally tenable, answers, and hence a range of uncertainty.[17] Also, no matter how finely one distinguishes worker capacities, unobserv ed productive characteristics of workers and amenities of jobs in addition to statistical ambiguities will always inject substantial uncertainty into such adjusted intergroup wage comparisons.

2. Individuals who decide to work entirely in nonmarket (or nonwage) employment are likely to do this because they are more productive than the average person at it or less productive in market (or wage) work. Thus it would overstate the gender gap in labor productivity to attribute market-wage opportunities to women not in wage employment. The assessment might better focus on the shadow value of their time in nonwage work (Griffin, 1987).

3. Many individuals specialize during their lives in either market or nonmarket work, and marriage tends to encourage women to specialize in non-market activities (Becker, 1981). This increases the gap at later stages in the life cycle between the job opportunities available to married women and men in wage employment, if on-the-job experience is imperfectly substitutable between home and market jobs. Differences in market job qualifications between men and women are therefore narrower among young people than among the middle aged, although this tendency may vary from country to country as does the persistence of women's attachment to the labor market (e.g. Goldin, 1989).

Although the unobservables that might contribute to the first general form of sample selection bias could either widen or narrow the observed wage gap between men and women, the second and third sources of static and dynamic bias are likely to overstate the lifetime productivity gap between men and women if only market wages are analyzed. Moreover, these problems of comparing the productivity of women and men will not be easily resolved. The only direct solution is to assign commensurate value to nonmarket work in the home. Since some forms of nonmarket production are untraded, such as children, each family arrives at its own valuation, and this adds to the difficulty of comparing the labor productivity across groups of persons who do not work at all in the market labor force.

The major part of the private investment cost incurred in the formation of human capital is the time that the individual cannot be occupied in immediately productive work during the investment period, whether as a student, trainee, migrant, etc. To rank alternative investments in terms of their economic efficiency, the internal rate of return is a suitable criterion. For young persons, with many expected years of adult work time ahead of them, the percentage increase in average lifetime wages caused by an additional full year of human capital investment is a first approximation of the private internal rate of return to that investment of foregone earnings (Becker, 1969; Mincer, 1974). The opportunity cost of women's time to attend school may be lower than that of men's time, while the wage of female graduates may still be lower than male graduates. But the percentage gains in average wages associated with a specific year of schooling are not systematically lower for women than for men, as documented later. Second-order adjustments for other factors may raise or lower the private returns, from this wage differential without necessarily altering the comparison of private rates of return to schooling for men and women. For example, if students work part time at home or in jobs when they are attending school or during vacations, this relative wage differential associated with a year of schooling can overstate the student's time input to schooling and thus understate the private rate of return. Conversely, if school attendance imposes added costs on the child's household that exceed the value of his or her production outside of school, such as for the purchase of school clothes, books, and tuition fees, or to repeat grades, the apparent relative wage gain associated with a year of completed schooling can overstate the private rate of return.

There are, of course, many other limitations to intergroup comparisons

for estimating returns to schooling that are beyond the scope of this paper; they are discussed extensively elsewhere (e.g. Griliches, 1977; Schultz, 1988e). One is the inadequacy of statistical controls to take account of individual ability (i.e. omitted input bias or selection by comparative advantage) (Willis and Rosen, 1979; Heckman and Sedlacheck, 1985). Another is the neglect of school quality in the wage function, which because quality tends to be directly related to the quantity of schooling individuals receive, may overstate the returns to additional years of constant-quality schooling (Welch, 1966; Behrman and Birdsall, 1985). There is no consensus on precisely which variables should enter the wage function or how to statistically identify individuals who invest in schooling or work for wages in the labor force. Different strategies for constructing the comparison groups may imply private rates of return to schooling that are substantially lower, or sometimes higher, than the simplest logarithmic wage function that includes only years of schooling in linear form and a quadratic in years of post schooling experience (Mincer, 1974). Controversies involving the methods for estimating returns to schooling are, hopefully, less germane to my objective here, which is to compare the rates of return for women relative to those for men, rather than to assess precisely the absolute level of the returns to private and public resources invested in the education of women.[18]

Labor Supply and Rates of Return to Schooling

Several studies on returns to education by school level for men and women are summarized in Table 1. They are not entirely comparable. Several methodological problems and inconsistencies arise because of the different ways analysts have handled the effects of time allocation on the computation of returns, and the potential bias due to sample selection because analysts can

Table 1

Returns to Education by Sex and School Level: 1959-1985

Country (year of data)	Estimation Method [a]	Primary		Secondary		Higher	
		Male	Female	Male	Female	Male	Female
United States (1949)	I	17.8	5.6	14.0	13.0	9.7	4.2
Colombia, Bogota (1965)	II	18.2	nil	34.4	18.9	4.5	5.3
Germany (ca 1960)	b	••	••	••	••	4.6	6.0
Greece (ca 1960)	b	••	••	3.0	5.0	••	••
Kenya (ca 1960)	I	21.7	7.1	23.6	19.5	••	••
Malaysia (ca 1960)	b	9.4	9.3	12.3	11.4	10.7	9.8
New Zealand (ca 1960)	b	••	••	19.4	25.3	13.4	13.5
Brazil (1960)	b	17.9	38.6	••	••	••	••
Australia (ca 1960)	I	••	••	••	••	21.1	21.2
France (1976)	b	••	••	14.8	16.2	20.0	12.7
United Kingdom (1971)	b	••	••	10.0	8.0	8.0	12.0
Japan (1980)	I	••	••	••	••	5.7	5.8
South Korea (1971)	b	••	••	13.7	16.9	15.7	22.9
Taiwan (1982)	b	8.4	16.0	••	••	••	••
Puerto Rico (1959)	b	29.5	18.4	27.3	40.8	21.9	9.0
Andra Pradesh, India (1977)	II	8.9	11.8	8.7	11.9	6.2	8.9
	I	7.2	.3	6.8	2.41	5.5	5.5
Ivory Coast (1985)	II	18.3	5.5	17.0	28.7	21.1	13.6

[a]Estimation Methods: I - include participation rate in labor force to deflate returns, depressing female returns disproportionately; II - estimate wage rate relationship without labor force adjustment. See text for discussion.

[b]Estimation method not known.

•• Not reported.

Source: Psacharopouos, 1973 (Table 4.5), 1985 (Table A-2), except for India (Tilak, 1987: Table 6.8). Average return; Ivory Coast (Van der Gaag and Vijverberg, 1987: Appendix 2); and Colombia (Schultz, 1968: Table 7) hourly wage.

only observe differences in wages for a portion of the population receiving different amounts of education. In the first studies of the association between education and labor earnings, private rates of return were calculated under the assumption that the more educated benefited from schooling only to the extent that they held a job in the labor force and reported earnings.[19] Thus, if a year of additional schooling raises the wage rates of men and women by the same proportion and they both work full time in the labor force, then the life-cycle internal rate of return to the opportunity cost of attending school for that year is approximately equal to the proportional wage increment, and the return is then identical for men and women. But if women worked only half of the time in the labor force after completing their schooling while men worked all of the time, the conclusion was drawn that women earn only half of men's rate of return on their year of schooling.

Becker (1964), in his seminal contribution on this subject, observes that the lower return to women's education due to their lower participation in the labor force is consistent with the smaller proportion of women than men attending college in the United States in the 1950s (Becker, 1964: 178). Subsequent empirical studies and surveys of the field that specifically addressed male-female differences in rates of return to education adopted Becker's methodology (Hines et al., 1970; Thais and Carnoy, 1969; Psacharopoulos, 1973; Woodhall, 1973). The implicit assumption of these researchers was that schooling had no appreciable effect on the productivity of persons working outside of the market labor force.[20] But this assumption has subsequently been challenged by a large number of empirical studies that indicate education increases the productivity of time in nonmarket production, particularly that of women (summarized in Michael, 1982; Haveman and Wolfe,

1984). Moreover, the opportunity cost of the time of females while attending school are not symmetrically discounted; girls are implicitly assumed to be giving up a full-time job in the labor force to attend school, which may not be the case. These working assumptions for estimating the rates of return bias down the rates of return to groups, such as women, who participate in the labor force less than average amounts or work more often as an unpaid family worker.

A second possible working assumption is that education affects labor productivity in market and nonmarket work to the same extent, and consequently the allocation of an individual's time between market and nonmarket activities is not biased by his or her education. According to this approach the returns to education are approximated by estimating a function where the logarithm of the wage rate is the dependent variable. This approach differs from that adopted by Becker (1964) and Mincer (1974) which examined differences in annual earnings, and thus mix together the productivity enhancing effect of schooling with its possible effect on market labor supply. It is an empirical fact that unemployment rates tend to be lower among more educated workers once they have reached age 25, and a common pattern, though far from universal, is for hours worked when employed to be larger for more educated workers. Consequently, rates of return to schooling are sometimes higher if based on the logarithm of annual earnings as the dependent variable rather than on the logarithm of the hourly wage rate.

Becker's neglect of nonmarket productivity effects of schooling introduces a downward bias to the estimated rate of return to education for groups who do not all participate in the market labor force. But the direction of potential bias due to the second approach based on the estimation of a wage

rate function is ambiguous; it could overstate or understate the appropriate rate of return for the entire population. Either approach should deal with potential sample selection bias (Heckman, 1979; 1987). Statistical techniques have been widely used to correct for this source of parameter bias. They can be employed here if an identifying variable, observed for all persons, influences the probability of entering the labor force but does not affect at the same time the market wage rate a person is offered. In other words, information must be known about some exogenous determinant of the person's productivity or value of time in nonmarket production that does not affect her or his labor productivity to a firm. This critical information permits one to correct the estimates of the market wage-rate function for the potential statistical bias introduced because market wage rates are only observed for the selected sample of persons for whom the offered market wage exceeds the value of their time in alternative nonmarket activities.

Theoretically, the variable needed to identify the nonmarket productivity (or reservation wage) function is a household fixed productive factor that affects the individual's nonmarket productivity, but does not alter his or her labor productivity in the market. In the short run, children have been viewed as such a variable raising a woman's productivity only in the home (Gronau, 1974). But over the life cycle, this variable is also jointly determined and responsive to labor market wage rates, and thus, should be viewed as endogenous or determined within the same framework. Land ownership and family business assets and the market productivity of one's spouse may be more satisfactory measures of fixed household endowments that enhance the value of an individual's time in nonmarket activities. The choice of this identifying restriction determines how the estimates of the market wage function are

interpreted and hence whether the implied private rate of return to schooling is a satisfactory estimate for the entire population or for only the nonrandom sample of wage earners.

If more than one selection process is used to screen the observed sample, and the selection processes have different determinants, multiple sample selection equations and corrections may be appropriate (e.g. Catsiapis and Robinson, 1982). For example, participation in the market labor force, and acceptance of wage employment may respond to different home and market constraints. If the marginal product of labor is measured with less error for wage and salary workers than for self employed workers, this scheme of double sample selection may be appropriate, to reduce measurement error, despite the loss in final sample size that is implied by estimating the market productivity of all persons from only wage earners.

Most recent studies of the returns to education tend to include only wage earners and thus to exclude the self-employed and unpaid family workers for whom a wage is difficult to infer or measure precisely. This omission represents a relatively small segment of the labor force in high income countries, but it is a major part in low income countries. Nonmarket workers, the self-employed, and family unpaid workers together represent about half of the adult male population of the world, and two thirds of the adult female population (see Tables A-5 and A-6). Thus, any bias from sample selection could be important for the analysis of educational returns to men as well as to women.

Table 2 summarizes private rates of returns to years of schooling for men and women in several Latin American countries. A common conceptual and statistical methodology is adopted in all of these studies (Schultz, 1980b). Although these estimates deal plausibly with the labor supply issue, by using

Table 2

Estimates of Private Returns, in Percent per Year,
Which Men and Women Earn on Investing Their Time in Schooling,
in Selected Labor Markets and Years[a]

Country and/or Metropolitan Area	Year of Survey	Internal Rate of Return in Percent per Year			
		Age 25-44		Age 45-65	
Argentina, Buenos Aires (estimates similar in 1976)	1980[b]	9.3	6.6	10.	11.
Bolivia, La Paz (estimates similar in 1976)	1980	9.8	11.	9.6	6.7
Brazil, Sao Paulo (estimates higher in 1980)	1971	5.4	6.3	6.0	6.1
Colombia (estimates lower in 1980)	1973	18.	18.	16.	14.
Paraguay, Asuncion (estimates similar in 1977)	1979	11.	8.0	10.	11.
Peru	1974	14.	14.	11.	19.

[a]Private returns refer to the estimated coefficient (times 100) on the variable years of completed education in a logarithmic hourly wage rate regression which also includes post-schooling experience, experience squared, and some regional or migration origin variables. Samples vary from 21 to 3478, but all estimates are statistically significantly different from zero at the .001 confidence level (t > 2.83). The selection of the sample of only workers in the labor force for whom wage rate could be calculated is not treated as a specific source of bias in these estimates.

[b]The available age groups in Argentina are 25-49 and over 49.

Source: Schultz (1988c).

the hourly wage, they do not attempt to correct for analyzing only wage earners. Because the samples are small, some of the estimates are imprecise. Overall, however, there is no clear evidence that returns to schooling differ systematically by sex. They do differ considerably across countries, however, presumably because of differences in macro economic conditions and the level of past investments in schooling (Schultz, 1988e).

An analysis of the returns to education in Andra Pradesh, India illustrates how sensitive the return calculations are to the treatment of the labor force participation rate of women (Tilak, 1987). Both the private and social returns to schooling at virtually every level are greater for women than men when the returns are adjusted only for unemployment. But when nonparticipation in the labor force is also factored into the calculation as Becker proposed, the private rate of return for women is less than it is for men (see next to the last two rows for Indian study in Table 1). This study also documents the lower public cost of female than male education, and the lower opportunity cost of time for female than male students. However, the adjustment for nonparticipation of women is not introduced to deflate the opportunity cost of female student time but only to deflate the stream of benefits.

A study of Sri Lanka also confirmed that women's returns to schooling that are not deflated by nonparticipation rates exceed those of men. The private rate of return to completing the general certificate of exams at the end of the secondary school are three times as high for women as for men in urban areas (36 versus 13 percent), and twice as high in rural areas (14 versus 7 percent). At the university level, however, the rates of return in Sri Lanka appear to converge between men and women (Sahn and Alderman, 1988: Table 17).

Fixed-effect estimation procedures can eliminate bias that may arise from certain types of unobserved or omitted variables in a relationship. A cross section is drawn from a number of distinct localities, for which price and quality for market goods and public services may differ. If these local market variables influence the productivity of schooling or its quality, then this local variable should be controlled to estimate the returns to varying only years of schooling. In this case introducing a fixed effect for every school district into the wage function removes any bias due to the omission of school quality that might be correlated with quantity of schooling received. Clearly, the effect of other local market variables cannot then be estimated when community fixed-effects are included. If the local school quality changes over time or individuals in a school district move or attend more than one school, the community fixed effect is a less adequate control for school quality.

It is also reasonable to expect that family background influences average ability through genetic and environmental mechanisms, instilling motivation and habits, as well as influencing the quality of schooling that siblings receive. If these family background characteristics affect productivity and are correlated with years of schooling, their omission from the wage function would also bias upward (in all likelihood) the estimated rate of return to schooling. One strategy for dealing with these unobserved characteristics is to introduce fixed effects for each family and thus base the estimates of schooling returns on only within-family variation in worker productivity. However, this procedure may increase the relative importance of measurement error by eliminating all between-family variation. Exaggerated measurement error would bias the within household fixed-effect estimates of schooling

returns to zero (Griliches, 1977, 1979). Household fixed effects, therefore, may represent a lower bound on the estimates of the market productivity effects of schooling. It has not, to my knowledge, been examined how the restriction of the estimation sample to those residing with other wage earning family members distorts the comparison group and thus potentially biases the return estimates.

Private rates of return to schooling have been estimated for men and women from a 1986 survey of Indonesia that compare ordinary estimates of the wage function to those that include both community fixed-effects (proxy for school quality, etc.) and household fixed-effects (proxy for family background correlates) (Behrman and Deolalikar, 1988b). Three increments of schooling are compared in Table 3: primary, general senior high school, and university. Private rates of returns to schooling for women in all six comparisons exceed those for men, and as expected the estimates that include community and house-hold fixed-effects are between 9 and 24 percent smaller than those obtained from the simple regressions that include inter-family and inter-community variation. These estimates do not attempt to control for the potentially unrepresentative character of the sample of wage earners, nor are the two sets of estimates based on the same sample, since 16 percent of the wage earners included in the first set of estimates apparently did not reside in a house-hold with another wage earner and is therefore excluded from the fixed-effect estimates (Behrman and Deolalikar, 1988b: Table 3). Differences in the private rates of return estimated for women and men in Indonesia change moderately as fixed effects are added for the community and household, with the difference decreasing at the primary school level and increasing at the university level.

Table 3

Implied Impact of an Additional Year of Schooling
in Indonesia in 1986 by Sex, With and Without Controlling
for Both Community and Family Fixed Effects

| | Implied Private Return by Schooling Level [a] | | |
	Primary	General Senior High	University
Females:			
Without fixed-effect controls	9.1%[b] (21.1)	11.8%[b] (43.4)	12.4%[b] (27.8)
With community and family fixed-effects	6.9%[b] (17.3)	9.6%[b] (35.3)	10.9%[b] (24.7)
Males:			
Without fixed-effect controls	7.6%[b] (2.64)	8.2%[b] (10.9)	9.2%[b] (6.41)
With community and family fixed-effects	6.1%[b] (1.43)	6.2%[b] (10.8)	8.4%[b] (5.23)

[a] A logarithmic monthly earnings function is estimated pooling men and women that includes dummy variables for nine levels of schooling and a quadratic in age. Parameters are estimated for the difference between male and female coefficients for all variables including the intercept. The community and household fixed effects are believed to control for possible school quality variation and the effect of family background on earnings (see text). Unfortunately the ordinary regression estimates and those including the fixed effects are for different samples as noted in the text, raising the possibility that the differences reported may be due to the different samples and not due to the introduction of the fixed-effect controls.

[b] The absolute value of t ratios are reported in parentheses beneath the coefficients in the case of female returns, and for the difference between the male and female regression coefficients beneath the male returns. Thus a significant t ratio under a male return, e.g. secondary, suggests that the rate of return on schooling for men and women differ by a statistically significant amount in this pooled earnings regression.

Source: Behrman and Deolalikar, 1988b: Table 2.

Chiswick (1976) developed a technique to include self employed workers in the estimation of an annual earnings function along with wage earners, and thereby avoid the selection bias due to analyzing only wage earners. Her approach attributed a share of self employed earnings to entrepreneurial capital or risk taking. Based on an analysis of Bangkok from the 1971 Socioeconomic Survey of Thailand, male wage earners (not self employed at all) received a 10.4 percent return on their years of schooling, whereas females received a 14.5 percent return. Including partial and full-time self employed in the sample reduced slightly the returns to schooling to 9.1 percent for men and to 13.0 percent for women. The urban estimation sample increased by 39 percent for males and by 53 percent for females with the inclusion of the self employed. In both cases, women's returns exceed those for men, but those who are self employed report slightly lower returns on their schooling than do wage earners. This is broadly consistent with the pattern of more educated women (beyond primary school) working more frequently in wage jobs than the less educated. It is uncertain whether underreporting of incomes by self employed biases such estimates of return to schooling and by how much.

There are few studies of the relationship between wage rates and schooling that assess how the selective sample of wage earners biases findings (e.g. Anderson, 1982; Mohan, 1986; Griffin, 1987; King, 1986; Schultz, 1988c). Moreover, these studies often deal with men alone or women alone and thus do not help assess whether the bias due to sample selection modifies systematically comparisons of male-female estimated returns to education, as reported in Tables 1 and 2. Here is an important issue for public policy that has received surprisingly little empirical study.

Griffin (1987) analyzes the earnings of married women in the Philippines

in 1980 to appraise estimates of schooling returns subject to alternative methods for dealing with sample selection bias. He estimates a nonmarket (reservation) wage function and a function for market wage offers. The reservation wage function determines the shadow value of nonmarket time of the individual, and hence what the individual requires to induce him or her to enter the market labor force. The selection-corrected model of Heckman's is plausibly identified within the context of the family or bargaining labor supply model. A conventional log linear specification of the earnings function is estimated where returns to schooling are constant across schooling levels.[22] The selection-corrected maximum likelihood estimate of schooling returns is 18 percent, compared with the conventional estimate of 14 percent (based on only the third of the sample who earn wages). In this case the estimated returns to schooling increases for women with the adoption of a sample selection procedure, and the selectivity term is statistically significantly different from zero, showing that the sample of wage earning women are not a random sample of the population with regard to their wage rates.

King (1986) analyzed the earnings of women in the 1985/86 Peruvian Living Standard Survey. A probit equation for women participating in paid employment (i.e. wage earner or self-employed) is used to estimate an hourly earnings function with Heckman's (1979) two-stage procedure. When the sample selection correction is employed, the rate of return for women decreased trivially from 12.2 to 12.0 percent for primary schools, from 8.0 to 7.8 percent for secondary school, but from 6.8 to a -1.7 percent return at the university level (if a diploma is received after four years of study) (King, 1986; Tables 10, 11 and 12). As in Griffin's study, the family's nonearned income and husband's characteristics are included only in the paid-participation equation, along

with the woman's marital status, plus a variety of more controversial identi-
fying variables.

Khandker (1989) has subsequently examined the returns to schooling for
both men and women based also on these Peruvian LSS data. He restricts his
analysis to wage earners and identifies the sample selection probit equation
by the family's land holdings, unearned income, as well as possibly the indi-
vidual's marital status and the education of his or her mother and father.
The return estimates appear to be relatively robust to variations in this list
of identifying variables included only in the sample selection equation. For
the country as a whole, women's returns increase when controls are introduced
for sample selection, and returns are then marginally higher for women than
for men at the secondary and higher schooling levels. At the primary school
level in the metropolitan area of Lima, however, the returns are low, and low-
er for women than for men, 2 percent compared to 5 percent. This low level of
private returns to women at the primary level is perhaps related to the fre-
quency of domestic servants in this group, preponderantly women, whose income
in kind (food and lodging) is difficult to evaulate and is often omitted from
survey reports of wages. The same pattern has been noted elsewhere in metro-
politan Latin America (see Schultz, 1968) and has led some researchers to
exclude domestic servants from samples in estimating wage functions (Mohan,
1986).

The 1981 Socioeconomic Survey of Thailand provides another basis to eval-
ute the effect of sample selection bias on the estimates of private rates of
return to schooling for both women and men. In this case two selection
correction terms are incorporated into the analysis representing the probabil-
ity of being in the labor force and being a wage earner. These selection

equations include family nonearned income, hectares of land owned by the family that are irrigated or unirrigated, plus the standard market wage rate determinants, including years of schooling completed at the primary, secondary, and higher education level.[23] Land and nonearned income are assumed to raise the nonmarket reservation wage of workers and thereby reduce the likelihood that they will take a wage job or work at all in the market labor force. Education does not exert a monotonic effect on the labor force and wage earner status of Thai men or women (see Appendix Tables A-7 and A-8). An individual with primary schooling is less likely to be a landless laborer. The more years of secondary schooling an individual has, the higher are the chances that she or he is working for a wage. Each year of university education strongly increases the likelihood of working in a wage or salary job. Herein is the clue why the sample selection bias can also be nonmonotonic with respect to level of schooling. Many landowners are also wage earners. If they have enough land, however, they presumably withdraw from the wage market. The controversial issue is whether land is exogenous or merely a proxy for self-employment, in other words, is land a legitimate variable to use to identify the selection model.

A final problem in specifying a wage function to estimate returns to education is how to model regional labor markets. If there were no interregional migration, wage functions should be estimated separately for each region. The wage differences related to education within a region would then be the appropriate parameter determining private investment in schooling in that closed regional population. But interregional migration occurs and more educated persons migrate more frequently. On balance, they move from lower to higher wage markets, and from rural to urban areas (Schultz, 1982). In Latin

America, for example, as much as half of the lifetime returns to schooling for the children of rural residents is realized by the increased likelihood that the children will migrate from the rural to the urban labor market (Schultz, 1988e). One could analyze this process if one knew where people migrated from, the costs they incurred in moving and where they received their schooling. Alternatively, if the individual's current residential regional labor market is held statistically constant in estimating a wage function, this procedure purges from the estimate of the return to schooling that component due to migration, to the extent that interregional migration toward higher wage regions occurs with increasing frequency for the better educated, as it clearly does in Latin America and the United States (Schwartz, 1976).

Finally, regional labor market nominal wage differences may reflect compensating variation in price levels and reinforcing variation in the quality of subsidized public services, and thus not measure accurately real wage differences. Urban high wage regions have more and better schooling, and regional shift variables in a wage function may also reflect this difference in the quality of schooling across workers (Behrman and Birdsall, 1983). Other than school and health services, most other prices are generally higher in urban high wage regions, particularly housing. On balance, nominal regional wage differences may exceed real wage differences, if public services are unimportant. Estimating the participation and wage functions with and without regions as explanatory variables should at least help to assess the importance of migration in the estimation of school returns. The lack of information on migration in the Thailand survey data does not permit any further analysis of this issue here.

The selection-corrected private rate of return estimates are contrasted

Table 4

**Estimates of Private Rates of Return
to Schooling in Thailand in 1981 by Sex,
With and Without Sample Selection Correction**

	Private Internal Rate of Returns by Schooling Level[a] (t statistics beneath coefficient)		
	Primary	Secondary	Higher
Females:			
Without Correction for sample selection of wage earners (OLS)	5.2% (2.70)	34.2% (22.1)	1.6% (.55)
With correction for sample selection of wage earners (two stage Heckman)	10.0% (5.00)	24.7% (6.77)	10.8% (3.04)
Males:			
Without Correction for sample selection of wage earners (OLS)	15.5% (9.98)	23.9% (20.9)	5.4% (2.16)
With correction for sample selection of wage earners (two stage Heckman)	14.3% (8.95)	13.1% (9.04)	4.1% (1.66)

[a]The private rate of return is approximated by the coefficient estimated on the years of schooling variable in a logarithmic wage rate regression that also includes as regressors the individual's years of postschooling experience and experience squared, and four regional dummy variables. The sample includes all persons 15 to 49 in the 1981 Socioeconomic Survey of Thailand. The Heckman (1979) lambda correction terms are included from probit equations for labor force participation and for wage earner status, identified by the inclusion of own nonearned income and irrigated and nonirrigated land.

Source: See Appendix Tables A-7 and A-8.

in Table 4 with those based on the ordinary least squares (OLS) estimates for wage earners that ignore the potential bias due to the selection of the sample of only wage earners. The two-step estimation procedure proposed by Heckman (1979) for dealing with selection bias is identified by the inclusion of non-earned income and hectares of irrigated and unirrigated land owned in the two selection probit equations that predict the probability that the individual is in the labor force and is a wage earner. Both the wage function and the two selection equations differ in level across five regions of Thailand: the least developed Northeast region, the rural population, the suburban sanitary districts, the urban municipal areas, and finally Bangkok. The gains that accrue to education through the more frequent migration of more educated persons from regions of lower wages to ones with higher wages are, thus, excluded in these estimates of the private returns to education, because regional shifters are specified in the wage function.

Thailand has for most of this century invested heavily in primary education. Still, it enrolls a smaller proportion of its population in secondary schools than do other countries at a similar stage in their development, such as South Korea, Taiwan, Philippines and Malaysia or the two city states of Hong Kong and Singapore (Sussangkarn, 1988). On the other hand, the proportion of the Thai population enrolled in higher education is relatively large for a country at its income level. The relative supply of workers by educational level would lead to the expectation that in Thailand the returns to education would be relatively high at the secondary level and relatively low of the university levels, compared to other countries at Thailand's stage of development (Sussangkarn, 1988).

Table 4 shows that if one ignores the potential problem of sample selec-

tion, because analysis of labor productivity relies on analyses of only wage earners, the private rate of return to primary education is 5 percent per year for women, 34 percent to attend secondary school, and 2 percent to university education. For men the OLS primary school returns are 16 percent, secondary school 24 percent, and university education 5 percent. The statistical correction for the two sample selection processes that might render these estimates biased modifies the estimates markedly in four out of the six cases. Three out of four selection terms are statistically highly significant (Appendix Tables A-7 and A-8). The returns to primary education for women doubles to 10 percent, whereas the returns to secondary school decline for both women (to 25 percent) and men (to 13 percent). Higher education private returns increase to 11 percent for women and decline for men to 4 percent. Although much more work is needed to assess the effect of alternative methods to deal with sample selection bias as it impacts on the returns to education of women compared to men, these data from Thailand suggests the levels of returns to schooling may be sensitive to this source of bias. In this instance, returns to women's schooling increase compared to the returns to men's schooling.

In concluding this section on measuring labor productivity and the returns to investing in the economic capabilities of either women or men, I should stress the need first to understand what underlies the individual's allocation of time. This is required to correct analyses of wage earners from which one seeks to infer the effect of investments in schooling on the productivity of all workers. A potential bias is introduced by the process. This sample selection correction procedure depends on the relevant family unit and how family behavior is modeled. The bargaining model implies a few, pos-

sibly useful, differences in the empirical specification of the family labor supply model from that implied by the unified family demand framework. But on the whole, both models require similar variables for inclusion in the wage function and for identification of the sample selection rule. Conclusions drawn from this section are likely to be robust to changes in how we model the family decisionmaking process.

Social and Nonmarket Returns to Schooling

Social returns to schooling are traditionally calculated by including public expenditures on education in addition to the private opportunity costs of the time of students. Hence, social returns are lower than private returns, often by between one-third and one-fifth. This adjustment should not affect comparisons between returns to women and men, unless the public resources employed in teaching women and men differ. In Latin America, this may be the case. Much of the higher education received by women is in preparation to be school teachers in "normal schools," for which student costs per year are less than in regular academic universities (e.g. Birdsall and Fox, 1985). This is also noted in India (Tilak, 1987). In this case, including public costs of education could decrease the social returns from schooling by a greater amount for men than for women.

If governments tax labor earnings and hence the returns to human capital, some of the public expenditures on education, health, etc., will be recovered. Only market returns, however, are taxable, and of them only the returns to wage and salary workers are effectively taxed in most low-income countries.[24] The tendency for more men than women to work for a wage might appear to provide a differential social return via taxes that would favor social investments in the schooling of males over females (Tables A-5 and A-6). But a more

complete answer to this question requires an analysis of how labor supply to wage employment responds to a change in market wage offers (after taxes). Most empirical labor supply studies in high- and low-income countries indicate that women respond positively to an increase in their own market wage, and negatively to a wage increase of their husband. Consequently, the taxable supply of women's labor increases with an investment in women's capabilities and decreases with a comparable investment in men's capabilities. Moreover, male labor supply estimates often reveal a tendency for men to reduce their labor supply as their own wages rise.[25] Thus, to the extent that governments recoup public expenditures on human capital investments, the social return to investing in women should increase relative to those from investing in men.[26]

A more generally accepted rationale for public expenditures on education of both men and women is that there are social benefits to an educated population that increase welfare in a manner that cannot be readily captured by the more educated individual or their families. This argument for public support of education suggests that a more educated society is more capable of managing a political system that protects individuals' rights and facilitates efficient and equitable growth. Though these claims are difficult to substantiate, there are more concrete examples that have been empirically confirmed. Most of them favor the schooling of females.

Determinants of Child Nutrition and Mortality

Studies in the 1970s and 1980s in demography, economics, anthropology and sociology came to the conclusion that there was a strong, probably causal, relationship between increases in mother's schooling and decreases in the incidence of mortality among her own children, particularly in low income countries (e.g. Basu, 1987). Many hypotheses are offered as to why this correlation is observed, some of which are discussed below (e.g. Ram and Schultz, 1979; Barrera, 1988). The patterns is widely replicated because many fertility surveys provide the minimum data on women: their age, education, children ever born and children still living. The universality of the relationship is reminiscent of the discovery in the 1960s of relative (logarithmic) wage differentials associated with the years of schooling. The human capital interpretation of these latter wage-education differentials as an approximation of the private rate of return to schooling has gradually gained acceptance (Schultz, 1988e).

In the case of child mortality, an added year of maternal education is associated with a 5 to 10 percent reduction in child mortality. Although the level of mortality tends to be higher in rural than in urban populations of low income countries, the proportionate reduction in child mortality associated with an additional year of mother's schooling is of a roughly similar magnitude in both urban and rural areas of many countries (Cochrane et al., 1980). The proportionate mortality reducing effect is smaller for the father's schooling than the mother's, especially in rural populations (Mensch et al., 1986). Studies in Latin America have also noted that the child mortality differentials associated with maternal education are more moderate in Costa Rica and Cuba. The hypothesis advanced to explain these exceptions is

that these country's strong egalitarian public-health programs could improve access and use of health care even among the least educated mothers (Behm, 1980). Other economic hypotheses for the differences in the relative magnitude of schooling effects on child mortality are analyzed in Colombia (Rosenzweig and Schultz, 1982b), and discussed generally elsewhere (Schultz, 1984; Thomas et al., 1987).

Is education simply correlated with the use of more health inputs, or does education provide a mother with the capacity to cope with health risks and better manage her child's environment? In Colombia an analysis of the 1973 census indicated that controlling for household income or husband's education or the marital status of the mother did not eliminate or even greatly reduce the independent role of mother's education as a partial explanation for her children's survival (Schultz, 1980a). Studies elsewhere showed that it was possible to control for many lifetime events and changes in socioeconomic status in relation to child mortality rates and still mother's education had its effect (Farah and Preston, 1982). In Brazil a third of the mother's education effect seems to operate through family income (Thomas et al., 1987). However, in addition to influencing child mortality, mother's education undoubtedly influences many of these intercorrelated variables, such as migration, labor market behavior, use of health care, and modern attitudes. Therefore, to control statistically for all these types of variables is likely to understate the net effect of schooling (Mensch et al., 1986).

The puzzle remains why mother's education explains more of the variation in child mortality than other variables describing the individual's access to health care, or prices, or even total family income that could be spent on health care? Three competing hypotheses are (1) that the more educated mother

uses a different mix of observable health inputs, or (2) that she uses these inputs more effectively, or (3) that her education is positively correlated with the use of unobserved health inputs and her education is credited with the effect of these unobserved inputs on child health (Schultz, 1984).

Clearly, the mother is the most important health worker for her children. How well she performs this task appears to depend "on her schooling, which equips her with general and specific knowledge, and the means and confidence to seek new ideas" (Barrera, 1988b: p. 4). The challenge is to discover how education influences the use of health inputs to reduce the probability of child mortality. Because relatively few children die in middle and high income countries, a more widely distributed or continuous indicator of child health status is sought to extend and broaden the analysis. Weight of a child is often recorded at birth and provides a sensitive predictor of child mortality as well as lifetime health problems and mental and physical developmental handicaps. The self-selected health inputs of pregnant women must be analyzed as endogenous variables if one is to estimate the unbiased effect of these inputs on the production of child health (Schultz, 1984). Selection of some health inputs occurs in response to the mother's expectation of a good or poor birth outcome, and consequently the simple correlation between these self-selected inputs and health outcomes may be misleading. Seeing a doctor early into the pregnancy is correlated with having a lower birthweight child, whereas administering the same health input to an average woman exerts a posi-tive effect, holding constant the initial (but generally unobserved) health condition of the mother and child. In a U.S. study, the effect of mother's education on birthweight in 1967-69 and in 1980 appeared to be transmitted largely through the variation in the same four measured prenatal inputs

(Rosenzweig and Schultz, 1988).

It is probably a more difficult task to measure all or even the major inputs that play a role in producing good nutrition, good health, sound development, and survival in an older child. A statistical explanation must also be found for which mother use each of these health inputs, if the effect of these inputs on the production of child health is to be estimated without input self-selection bias. It is simpler to examine directly the impact on child health of interactions between mother's education and her constraints in caring for her children's health. Estimates of these interaction effects show how maternal education exerts its elusive effect on child health. For example, Caldwell (1979) hypothesized that the education of the mother enables her to exploit local public health care more effectively. His view suggests that the interaction between mother's education and local public health infrastructure as it determines child health is complementary or positive. But Rosenzweig and Schultz (1982b) found the opposite to be true in 1973 in Colombia, where differences in maternal education have a smaller impact on child mortality in urban populations that receive more public and private hospital and clinic services per capita. Their findings are consistent with the aggregate patterns reported elsewhere in Latin America by Behm (1980) and Palloni (1981) and in Sri Lanka by Meegama (1981). If the effectiveness of health care of children associated with the education of mothers is a substitute for local public health expenditures in the production of child health, as these studies imply, additional outlays on public health should have the greatest impact improving child health among the least educated segments of the population. Although more research is needed on the personal distribution of the benefits of many forms of public expenditure programs, these initial investigations suggest

that public health programs distribute their benefits progressively across low income populations, according to levels of adult education.

Other studies examine interactions of health input choices themselves and environmental constraints on child mortality. Where household water and sanitation facilities are poor in Malaysia, breast-feeding is associated with larger reductions in infant mortality (Butz, et al., 1984). Estrey and Habicht (1987) found that safe water supplies reduced child mortality by a greater amount for more educated mothers, whereas access to toilets in the household is less effective in reducing child mortality for more educated mothers. In Costa Rica, Haines and Avery (1982) found the effect of a year of education for the mother is to reduce her child mortality between 6 and 7 percent, holding constant for household sanitation and dwelling quality and local levels of child mortality and health care facilities. Haines and Avery confirm that the child health gains related to mother's education are smaller in urban areas, a result also noted by Schultz (1980a) in Colombia and Behm (1976) in several Latin American capital cities.

But the studies of Malaysia and Costa Rica treat the household's water and sanitation infrastructure as well as the mother's breast-feeding as exogenous or, in other words, as not affected by maternal education or unobserved variables that might themselves influence child health outcomes.

Barrera's (1988b) study of household and community data from the Bicol Province of the Philippines extends these earlier studies. He assumes that water and sanitary facilities of the household are endogenous choice variables and may be thus potentially correlated with unexplained variation in child health. Consequently, he first analyzes the relation between maternal education and child health conditional on community average levels of water and

sanitation, not the household's actual variables that are affected by the family's own choices. Barrera then finds mother's schooling has a larger protective effect on child health in unsanitary communities where there are visible signs of excreta and in communities that are further (in time) from out-patient health care facilities. In a community where piped water is the predominant source of supply, the impact of mother's education is diminished. Where water sealed toilets are more common in the community, there are larger maternal education differences in child health. Barrera's shift from household-level measures of water and toilet facilities to community-level variables representing the local availability of these facilities, reverses the conclusions drawn by Estrey and Habicht (1987). Community water supply appears to substitute for mother's education, but the modern toilet complements it (Barrera, 1988b: Table 16). At the same time, higher income and mother's education are shown by Barrera to increase the chance that a household has acquired piped water and water-sealed toilets.

Another important input to child health, the duration of breast-feeding, is inversely related to mother's education in many countries (e.g. Blau, 1984; Wolfe and Behrman, 1982; Sirilaksana, 1986). Breastfeeding is a beneficial input for child health primarily if it is supplemented by other foods before the end of the baby's first year. In Barrera's rural Philippine population, the mother's education shortens only the duration of unsupplemented breast-feeeding (1988b: Table 23). Moreover, he estimates that the duration of unsupplemented breast-feeding is a "positive" child health input only up to six months of age. The more educated mother is more able to replace mother's milk with sanitary substitutes. For the less educated, Barrera hypothesizes, the supplementation of breastfeeding at less than six months is more harmful.

Thus, the measurement of the optimal duration of breastfeeding and time to introduce supplementary foods in the child's diet depend on the education of the mother who must manage to provide sanitary substitutes for her own supply of milk. In other words, the duration of unsupplemented breastfeeding and education appears to be substitutes in producing child health. This finding may partially account for why more educated mothers breastfeed less (Barrera, 1988b: Table 25).

Nutrition and labor productivity are positively related at the individual or household level. With the recent use of simultaneous equation estimation techniques (Strauss, 1986) it has been shown convincingly in three studies that nutrition raises labor productivity, at least at very low levels of income (Strauss (1986) in Sierra Leone; Deolalikar (1988) in India; and Sahn and Alderman (1988) in Sri Lanka). Since the demand for nutrition is also influenced by prices and incomes, the standard assumption that production decisions and consumption decisions can be sequentially and separately solved by the farm household may need to be studied further (Singh, et al., 1986). To analyze intrahousehold allocation of nutrition, data are needed either on individual food intakes or on measures of nutritional status. Most analysis has been based on the latter anthropometric indicators of nutritional status, such as height for age, or weight for height, thickness of skinfolds, etc. that can be readily measured in a single survey. But these anthropometric indicators of nutrition reflect more than the adequacy of current nutritional inputs. They also incorporate the past pattern of nutrition, as modified by individual differences in metabolism, absorption rates possibly related to infectious and parasitic diseases, and activity levels. Studies such as Barrera (1988), Struass (1987) and Thomas, et al. (1987) analyze such

accumulative indicators of nutrition.

Much less economic analysis has focused on actual individual consumption patterns by gender within the family, because (1) they appear to be accurate only over a short recall period, of say 24 hours, and (2) they should be repeated at least several times over a year to reflect the variation associated with seasonal changes in food availability and activities, and (3) they appear to embody more measurement errors than do anthropometric indicators. In the available studies of individual nutrient intakes in low income countries, small working samples also weaken the evidence. One suggestive study of Central India finds that calorie intakes are not significantly biased in favor of boys compared to girls, except during the lean season, when households have lower overall consumption levels (Behrman, 1988). Further studies of actual nutrient intakes within the family should be encouraged along with the demand for health care and time allocation within the family (e.g. Pitt and Rosenzweig, 1985, 1988).

Determinants of Child Achievements in School

There are surprisingly few studies of the household determinants of school enrollment and attendance rates by gender in low income countries, though this may be changing. In an analysis of district-level data from the Indian Census of 1961, Rosenzweig and Evenson (1977) found that where child wages were higher, children supplied more labor to the market and enrolled less in school. Male wage rates were negatively associated with child schooling levels, while female wages were positively associated with the enrollment rates. These partial effects of wage rates on schooling were implied by their model, but only after a number of cross-commodity substitution patterns were imposed and price (wage) effects were assumed to outweigh income effects.

More generally, individual level data often show father's education is also a stimulus to the child's achievements in school.

King et al. (1986) estimated from several Asian surveys the determinants of parents' investing in the schooling for their children, and how they respond differently toward the schooling of girls and boys. Analysis of schooling decisions from a Peruvian survey permitted the analysis of whether the parents invest by sending their children away to continue their schooling, generally at a private versus local public school. Analysis of the schooling decision suggests that community school access and family income both increase enrollments, particularly for girls (King and Bellew, 1988; Gertler and Gleewe, 1988).

In most studies of schooling of children in high income countries, the mother's schooling has a larger effect than the father's, even though the father's education implies a larger market income effect, because he tends to receive a higher wage and work more hours in the labor force (Leibowitz, 1974; King et al., 1986). The evidence that mothers' schooling exerts a greater effect on the schooling of their daughters than their sons is less well established (e.g. DeTray, 1988): Table 5). It is a hypothesis that needs further study.

Determinants of Fertility

Fertility is generally observed to decrease as women's education increases. Occasionally, however, fertility of unschooled women is lower than that of women with a few years of primary education (Cochrane, 1979). A husband with more schooling (or income) in traditional agricultural societies is frequently observed to have a larger family as noted previously. But spouses of similar education tend to marry. Because of the general positive

association between education of spouses, the evaluation of the partial effect of women's schooling on fertility becomes more negative and more likely to be monotonic when the positive effect of men's education or income on fertility is controlled. Economic models of family decision-making direct attention to the distinctive effects of men's and women's schooling on demands for children and resulting fertility. Simple correlations can be misleading in this area.

Women's education not only decreases desired fertility, it also permits couples to come closer to reaching their reproductive goals. Their increased reproductive control is partially achieved by delaying marriage, but more educated wives also have fewer unwanted conceptions (and births). Though the husband's education also enhances contraceptive effectiveness, the wife's education has a stronger effect on these forms of reproductive behavior, whether inferred from a respondent's own classification of conceptions as unplanned or from econometric analyses of the reproduction function and its residual (Rosenzweig and Schultz, 1985, 1987). This may be yet another sphere of nonmarket production where the education of women generates an important spillover that may be valued by society--avoidance of unwanted births.

All of these routes by which women's education may benefit society-- reducing child mortality, improving child nutrition, increasing child school- ing, and reducing unwanted fertility--involve benefits that are partly captured by the woman's own children. If parents are entirely "altruistic" toward their offspring, and view their children's utility as their own, these activities would be allocated investments and be produced in an efficient manner within the family. In other words, most of the "externalities" from women's education that accrue from her nonmarket production activities are internalized in the altruistic nuclear family. Nevertheless, there are

numerous instances where society has strengthened the rights of children relative to the economic claims of parents, such as when the conditions of child labor are restricted or school attendance legally mandated. Improvements in a woman's education are linked in many societies to increases in the level of investments in the human capital of her children. A subsidy that favored women's schooling would help to shift private household resources toward investments in the quality of the younger generation. Empirical studies have not yet sought to appraise the responsiveness of family resources to practical interventions of this form.

Policy Implications of the Empirical Evidence

The available evidence indicates that primary and secondary schooling for women can be defended on the grounds of efficiency (high market social returns), equity (increased capabilities of the poor), and intergenerational redistribution that improves the health and education of children. In contrast, direct transfers of consumption to women and children, for example by food programs, are likely to be only marginally effective because these public transfers are readily redirected within the family to conform to its traditional goals. Investments in women's traditional vocational skills may not help much, because they may limit their future employment opportunities. Restricting women's work to traditional sectors may compel them to compete in less profitable and possibly declining sectors of the economy. Antidiscrimination laws are of uncertain value even in high-income countries, while in low-income countries these policies appear to penalize primarily large firms that cannot avoid the resulting bureaucratic red tape. Innovative institution building to advance the rights and welfare of women is appealing in principle, but in practice requires a deeper understanding of social

engineering than is commonly encountered.

It would be useful to develop alternative measures of women's status that can be quantified for comparative purposes across societies. This would be particularly valuable in those cases where there is insufficient data to fit sample selection-corrected wage functions, as in rural Bangladesh (Khandkar, 1988), or as a check on these indirect statistical procedures. The woman's age-at-marriage is often used to approximate the economic influence she commands in the family (e.g. Acharya and Bennett, 1983). The bargaining model of the family could also be used to interpret the difference between her husband's age and her own as a relative measure of their economic powers. But as the earlier discussion of marriage patterns implied, these outcomes are conditioned by the woman's family's resources, her parents' education, their investments in her schooling, the number of her siblings, and so on (King et al., 1986). We need to know how these parental constraints interact with community infrastructure (e.g. schools), and with the local social norms of marriage. This should be high on the research agenda if public policy is to increase the economic capabilities of women and provide them with the opportunity to manage more of what the family spends.

From another perspective, the difference between a wife's education and that of her husband can proxy for the balance of economic capacities. This line of analysis can be further refined by imputing to both a market wage rate that is corrected for sample selection bias or the shadow value of nonmarket time for nonparticipants. But for the same reason that age differences between spouses is best viewed as an endogenous indicator of relative female-male authority and economic influence in the family, the educational difference between spouses is an even clearer reflection of the opportunities

provided by the parental families to girls and boys intermediated by the marriage matching institutions of a specific society. To treat these spousal differences in education or age as an exogenous constraint on the family's subsequent behavior is to truncate the analysis before it is possible to understand how the parent resources and investments in children along with community policy variables work their effect on the balance of economic capabilities acquired by young men and women. The potential leverage of policy on this process is thus suppressed from empirical analysis by including measures of spouse matching, as though they were exogenous variables. In the short run these spousal differences are given, but in the longer run they should adapt to policy interventions.

No studies have assessed, to my knowledge, the impact of legislation that sets a minimum age for marriage for women, prohibits dowries, or specifies women's rights in divorce and inheritance. If most members of society to not see these laws as in their interest, are the laws still treated as symbolic social goals but merely left unenforced? What are the real consequences for women and society of such changes in legal code in low income countries? The topic could benefit from research, but the task will not be easy.

There is a consensus among anthropologists, sociologists, and economists that women generally achieve a higher status in society if they are more productive economically in relation to men (Blumberg, 1984, 1988; Marini, 1987). Targeting consumption resources to women is likely to be an ineffective and transitory means to increase the productivity of women and improve their lifetime welfare. Legislating changes in labor markets, prescribing employment practices, and modifying sectoral priorities to expand and improve women's employment opportunities appear to be blunt and probably ineffective policies

in a low income country. Investing in the human capital of women to perform market and nonmarket work more productively is a more promising way to increase women's economic capabilities. Formal education is the most widely documented way to achieve this goal efficiently. With better education of women, household spending is likely to go increasingly for child health, nutrition, and schooling. Basic schooling appears to be the most efficient and equitable investment option, and one that is often now allocated dispro- portionately to men. This allocation of human capital requires more study; its justification on "cultural' grounds should be reckoned carefully in terms of economic costs reflected in shorter lifetimes, higher fertility, and lower per capita productivity.

Regional Patterns of Investment in Women and Men

The largest investments in human capital are in schooling and health. Differences in education between women and men can be inferred from two sets of data: school attainment as reported by individuals in a census and enroll- ment rates as reported by schools to UNESCO. Although both types of data have their shortcomings, and probably overstate the human capital received by women in relation to men, the patterns across countries in both are similar.

Today in the industrially advanced high income countries women receive nearly the same number of years of schooling as do men, and women often report higher enrollment rates than men until secondary school. Latin America and East Asia are quite similar to the developed countries in this regard. At the other extreme are most of the countries of South and West Asia and North and subSaharan Africa where women receive between half and three-fourths the years of schooling as do men. This regional pattern is illustrated in column 1 of Table 5 using estimates of years of completed schooling from a recent census,

Table 5

Years of Schooling Completed and Expected Years
of Enrollment Ratios by Sex, for Regions from 1960 and 1980:
Selected Available Countries

Region (number of countries observed)	Years of Schooling 1960-1980 Completed Age 20-24		Expected Years of Enrollment			
	Female to Male Ratio (1)	Male Level in Years (2)	Female to Male Ratio (3)	(4)	Male Level in Years (5)	(6)
1. High income industrially advanced countries (including Japan, Israel, and South Africa)	1.00 (24)	8.9 (24)	.94	1.00	10.8	12.6
2. Latin America	.94	5.5	.92	.97	5.6	9.8
3. East Asia (excluding Japan)	.83 (5)	6.4 (8)	.65	.75	7.5	9.4
4. South Asia	.45 (5)	3.8 (5)				
5. West Asia (excluding Israel)	.34 (2)	4.7 (2)	.49	.73	3.5	7.0
6. North Africa	.39 (2)	3.5 (2)				
7. SubSaharan Africa (excluding South Africa)	.44 (7)	3.3 (7)	.56	.73	3.5	7.0
World Total	n.a.	n.a.	.75	.82	7.7	9.8

(Rows 3 and 4 bracketed as "Asia (excluding Arab)"; rows 5 and 6 bracketed as "Arab States"; row 7 bracketed as "Africa (excluding Arab)")

Source: Colums 1 and 2 derived by averaging of the available sample of country estimates reported in Table A-1 by the author. Columns 3-6 derived from UNESCO estimates of enrollment rates by level, with different regional groupings. 1987 Statistical Yearbook, Table 2.10. See footnote 27 for definition of expected years of enrollment.

and in columns 3 and 4 based on official enrollment rates accumulated across school levels (see Table A-1).[27] The estimates of educational attainment are for persons age 20 to 24 in a sample of censuses in about 1970, and approximate the distribution of educational investments made around 1960. The 1960 accumulated enrollment rates are estimated by UNESCO to represent averages for all countries in each region. The figures in column 3 are slightly higher than those in column 1 for Asia and Africa. From 1960 to 1980 enrollment rates increased, slowly converging between women and men. But differences remain large. Are these differences in female and male educational investments explained by the diverse economic conditions in these countries?

An analysis of educational systems from 80 countries for the period between 1960 and 1980 sought to account for differences in public expenditures on education and enrollment rates on the basis of household demand and production theory. More than 90 percent of the intercountry variation in public school expenditures per school aged child and 40 to 70 percent of the variation in primary and secondary school enrollment rates are explained by real income per adult, the relative price of teachers, the school-aged share of the population, and urbanization. The proportionate increase in girl's enrollment rates associated with a proportionate increase in income is significantly larger than the analogous income elasticity for boy's enrollment. Price elasticities are also larger in absolute value (negative) for female enrollment rates than for male. Economic growth and long run expansion of the educational system that contributes to the decline in the relative price of teachers appear to increase women's schooling in comparison to men's. Within countries over time this gap between the educational attainment of women and men has also narrowed, but more slowly than forecasted from this relationship

across countries at different levels of development (Schultz, 1987).

Unless special measures are adopted, female enrollments may decrease by a larger proportion than male enrollments in periods of declining income per adult. Public sector retrenchments since 1975 in Africa and Latin America have cut real expenditures on public education, while private schools are also contracting (Schultz, 1987). Research is needed to determine whether female enrollments are indeed falling relative to male enrollments in those countries that are undergoing more difficult periods of macroeconomic adjustment, or whether the forward momentum in investments in women has offset the current decline in income in Latin America and Africa.

This regression model is then employed to hold constant for national income, prices, and demographic structure, while the remaining unexplained variation in enrollment rates and public school expenditures per child are summarized in Table 6 by region. The pattern in these residuals is somewhat different from that in Table 5. Africa is an over-achiever in schooling, given its low income and high cost of teachers. These conditions in Africa also account for the lower female to male enrollments in that continent. South and West Asia, however, continues to invest less in primary and secondary schools than can be explained, and the shortfall is significantly larger for females than for males. Latin America reports lower than expected enrollment rates, but its shortfall is greater for males than for females. In the high income countries, there is a small positive deviation in enrollment rates for those predicted by the model, and they tend to be slightly larger for women than for men at the secondary school level.

There are no analogous indicators of the gender differential in investments in health or use of health services. There is even little agreement on

Table 6

**Percentage Deviations in National Educational Investments,
Adjusting for the Effects of Income, Teacher Salaries,
and Demographic Composition: 1960-1980[a]**

| | Primary School System | | | | Secondary School System | | | |
| | Number of Country/Year Observed | Enrollment Rates | | Expenditures per School Aged Child | Number of Country/Year Observed | Enrollment Rates | | Expenditures per School Aged Child |
Region		Female	Male			Female	Male	
Europe, Oceanic and North America	36	+6	+6	-6	21	+3	+7	-6
Latin America	43	-10	-15	-5	35	-30	-39	-16
East Asia	21	+22	+12	+9	18	+27	+19	+2
South and West Asia	24	-49	-24	-21	16	-49	-7	-4
Africa	62	+26	+16	+15	49	+43	+34	+17

[a]Dependent variables are (1) the logarithm of the number of children enrolled in primary schools divided by the number of children age 6 to 11, and (2) the logarithm of the secondary enrollment divided by the number of children age 12 to 17; and the local public expenditures on the school level divided by the children in the respective benefiting age class expressed in real 1970 local currency and converted to 1970 U.S. dollars on the basis of IMF exchange rates prevailing on average for 1969 to 1971. See source for more detail.

Source: T. P. Schultz (1987: Table 13).

measures of adult morbidity or what constitutes functional good health that could be applied to men and women comparatively across societies. Mortality by age is therefore used as the preferred measure of health for men and women. It is typically summarized as life expectancy at birth, but infancy is the most vulnerable period, and infant mortality by sex is particularly sensitive to differential care in the family, as noted earlier.

Life expectancy appears to be greater for women compared to men in populations where schooling is more equally distributed by gender, as shown by WHO estimates by region shown in Table 7. Biological evidence suggests that women are genetically more viable than men. Given similar consumption and self-investment opportunities, women have lower death rates than men at all ages, except perhaps during the years women bear children if they have not had any education. Death due to bearing a child is twenty times higher in South and West Asia and North and subSaharan Africa than in developed countries, and women in these regions also bear two to three times as many children as do their counterparts in high income countries (column 7, Table 7). Nonetheless, infant and childhood mortality is quantitatively a larger factor in the low life expectancy of females in these low income regions. Differences in child mortality by sex are rarely known with great precision in poor populations, and the official figures as averaged in columns 5 and 6 of Table 7 are not necessarily reliable. Greater confidence can probably be placed in the infant and childhood mortality estimates derived retrospectively from the recent round of World Fertility Surveys (Rutstein, 1983; Hobcraft et al., 1985). Only two out of 29 surveys, those for Jordan and Syria, revealed greater female than male infant mortality, while three reported higher female than male child mortality between the ages of 2 and 5 years--Bangladesh,

Table 7

Life Expectancy at Birth and Infant Mortality,
Ratio by Sex and Maternal Mortality, for Regions in 1960 and 1980

| | Life Expectancy at Birth | | | | Infant Mortality | | Maternal Mortality per 100,000 Live Births ca 1983 (7) |
| | Female to Male | | Male Level | | Female to Male ca 1980 (5) | Male Level ca 1980 (6) | |
	1960-65 (1)	1980-85 (2)	1960 (3)	1980 (4)			
High Income	1.09	1.11	66.6	68.8	.80 a	17.4	30
Europe	1.05	1.09	67.0	69.7	(22)	(22)	30
Oceania	1.07	1.06	61.7	64.8			
North America	1.10	1.12	66.9	69.4			
Japan	1.08	1.07	66.5	73.8			
Israel	1.04	1.05	68.1	71.0			
South Africa	1.07	1.05	52.1	60.9			
Latin America	1.06	1.07	54.9	62.1	.83 (11)	44.09 (11)	270
East Asia (excluding Japan)	1.06	1.05	51.0	64.5	.79	34.2	187
South East Asia	1.06	1.06	43.2	53.5			
Other East Asia (e.g. Hong Kong, Korea)	1.07	1.06	54.2	63.4			
China	1.06	1.04	53.4	68.5			
South Asia (middle)	.97	.98	43.3	50.7	.82 (4)	51.0 (4)	618
West Asia	1.05	1.06	48.2	58.2	--	--	
Africa	1.07	1.06	40.6	49.3	.98	58.1	500
North Africa	1.05	1.05	45.5	54.7			
SubSaharan Africa (exculding S.Africa)	1.08	1.07	39.1	47.7	.81 (4)	86.4 (4)	676
World	1.05	1.04	50.9	57.9	--	--	---

aNumber of countries averaged in parentheses: Not necessarily representative of region because of data limitations.

Sources: First four columns weighted by populations. Estimates from United Nations, Demographic Indicators of Countries, New York, 1982; Columns 5 and 6 are unweighted averages of countries reporting in 1983 UN Demographic Yearbook, Table 15; Column 7 are estimates weighted by population of regions from Ross et al., 1988, Table 34. For country level estimates that are probably more reliable for Africa and Asia, see Appendix Table B.

Pakistan, and Egypt. All of these countries fall in the South and West Asian and North African regions.

Analyses of mortality trends by sex confirm, as with education, that in most regions of the world the prospects for survival are improving more rapidly by women than for men (United Nations, 1982). Most countries are converging toward the sex differences in mortality schedules that are observed in the industrially advanced countries, but the pace of progress differs markedly by region. Women's education is the best predictor of the level and sex differences in mortality schedules; female enrollment rates are used in 50-year forecasts of national mortality schedules (Zachariah and Vu, 1988: xv). Until life expectancy at birth for women exceeds 60 years, the rate of increase in longevity is greater in countries where more than 70 percent of girls are enrolled in primary school (as 1956-59). Thus, studies of national mortality patterns confirm the critical role of women's education in the rate of health improvement of national populations, extending the evidence beyond the survival of a woman's own children that is documented from household studies (Cochrane et al., 1980; Mensch et al., 1986).

In conclusion, women are especially poor in relation to men in their acquired capabilities, such as schooling, in the world's poorest countries, and in these same countries women's low health status is reflected in their shorter lives in comparison to men's. This deficit is particularly pronounced in South and West Asia and North and subSaharan Africa. Increasing the productive capabilities of women in these poor countries through investment in their schooling appears to be an efficient use of social and private individual investment resources. Beyond schooling, other public policies have been proposed to help women realize more efficiently their productive potential and

contribute more to the growth of their societies. Though these policies have not been empirically evaluated as extensively as investment in education, some appear promising.

5. **Factor Markets, Information Diffusion, and Equipping Interventions**

There is much evidence that the long-run individual and social benefits from increased human capital investments in women are attractive compared to alternative uses of public resources. But are there other avenues for development programs that could also enhance women's productivity, given their current stocks of human capital. There are indications that women could be more productive in the short run, if they had greater access to new technical knowledge, had more instruction on how to use effectively new and existing productive inputs, had means to acquire credit to respond to economic opportunities, and had greater control over their own assets and livelihood.

The public sector subsidizes and/or manages many activities and services because the private market fails to produce them in sufficient amounts. The most commonly cited reason for the underproduction of these services is because market structure does not provide private firms with the means to charge the consumer or producer for what they produce. Alternatively, there may be internal economies of scale that encourage natural monopolies with their exploitative pricing. Arguments of basic needs, social externalities and equity are also made to justify these interventions of the public sector. Individuals may benefit as consumers or producers because the public sector reduces time and monetary prices of such goods and services.

The provision of public services frequently complements the capabilities of some people more than others, adding to their economic productivity. Some

public services are associated more with female than male productivity, and vice versa. But administrative records, and hence quantitative analysis, rarely consider the gender of the recipient of a public service or for that matter the gender of the administrative staff who provides the service to the public. It has been observed that public services that favor female productivity are given relatively low priority in most low income countries. This may be traced to our undervaluation of home production. For example, priority is often given to supporting cash crops, which are often managed by males, because of the commercial and governmental interests in these potential export crops that provide tax revenue. Regardless of why private markets fail to meet social needs, the economic issues of effectiveness and distribution of benefits tend to be hard to evaluate empirically. They involve measuring the substitutability between male and female labor in many production processes, the interaction of modern productive inputs and extension with male and female labor, and the functioning of interconnected factor markets as they impinge on the marginal product of both types of labor.

Home Production and New Technologies

Women stand to gain from the development and spread of new technologies that improve their efficiency in home production. There is relatively little systematic investment by the public sector in low-income countries designed to improve labor productivity in the home, yet this is a large share of total production in these countries. Only a few international assistance agencies have encouraged research and development projects that seek small scale technologies that would enhance production possibilities in the home. Systematic evaluation of these undertakings is rarely attempted.

Women in the lowest income countries spend much time fetching water and

fuel, preparing family food, and caring for children. Innovations developed to relieve these female tasks can also allow women to transfer some of their production from the home to the market, as in the case of rice milling in Indonesia (Timmer, 1973) or the production of beer in Africa (Haggblade, 1987). Reductions in consumer prices should distribute widely the benefits from such new technology in the long run. If this process is monitored more frequently, policymakers will be alerted to the home and price environment in which technical change will permit women to capture more of the resulting economic opportunities. Technical change will undoubtedly continue to trans-fer production from the family to market-oriented firms. Instigation and guidance of this complex process will require empirical evaluation studies that distinguish between the repercussions for men, women, and children.

Agricultural Extension and Research

Studies of the effectiveness of agricultural extension programs do not provide a strong foundation for policy although $5 billion a year is now spent on it, according to recent world estimates (Birkhaeuser et al., 1988). Most studies are from India and the United States, and do not necessarily agree on why some programs are more effective than others. To determine the environ-ment in which extension is either more or less cost effective requires more comparable studies in a broader range of countries, with different management structures, staff training, technological infrastructure, price policies and, most of all, the extent of the knowledge to be taught that is profitable for farmers to use.

A number of studies suggest that extension, by increasing farmer pro-ductivity, narrows the difference between more and less educated farmers. This parallels family planning, where contraceptive adoption and fertility

differentials between more and less educated women are narrowed by extension work (Schultz, 1988b). Agricultural and family planning extension appears to be a substitute for formal education. Extension particularly benefits the recipient who is less well trained to decipher and evaluate new technologies, adopt novel techniques, and obtain combinations of inputs that are likely to be more profitable or cost-effective. It has been argued for nearly two decades (Boserup, 1970) that some agricultural extension agents should be women, and that contacts with female as well as male farmers should be monitored in areas of the world where farms are often managed be women. Extension programs in the United States have generally included female agents to work with women in nutrition and home health measures, as well as farm management. Still there are no strong evaluation studies that distinguish how the gender of extension staff or of the person contacted at the farm level affects the productivity of farm labor. Farm-management and household-production studies have shown the levels of productivity of female farm managers and how it increases with education (Moock, 1976, 1981). But these approaches have not been used to evaluate extension or credit policies or to provide a basis for replication studies (Spring et al., 1983; Ngwira, 1987; Herz, 1988; Birkhaeuser, 1988).

Agricultural extension systems are often criticized as not serving women, particularly in subSaharan Africa, where women predominate in the farm workforce (Boserup, 1965; Lele, 1975, Berger et al., 1984; IRRI, 1985; Ngwira, 1987; Herz, 1988).[28] Women tend to concentrate on food staples eaten by the family and men on cash crops in Africa and in other parts of the developing world. But agricultural research to improve yields initially focused on export crops and consequently raised the productivity of men more rapidly than

that of women. In the last decade, some of this bias has been corrected; more research has been allocated to staple foods consumed by the poor, such as cassava, pulses, and sorghum (Judd et al., 1986). Nonetheless, there is evidence that the direction agricultural technology has evolved in Africa has placed women at a growing disadvantage relative to men. The recent relative decline in prices of some export crops in Africa compared to staple crops, may enhance women's productivity. But growing agricultural productivity is likely to continue the trend of slowly declining prices of rice, wheat, maize, and traded staples. If women's productivity in local foods does not keep pace, or they fail to diversify (e.g., into aquaculture or vegetables), their real income will continue to be eroded (Kennedy and Cogill, 1986).

There is debate today on how to stimulate African food production (Gladwin and McMillan, 1989). Some would encourage larger scale production units that can introduce more sophisticated technologies with greater capital intensity. Others would increase the productivity of existing small-scale farms, though the effect on marketed surplus might be smaller. The former direction would lead rapidly to fewer female farmers, if the larger scale units proved to be cost-effective. The latter course would entail programs to increase the productivity of peasant farms, most of which are currently managed in Africa by women. But perhaps in the longer sweep of history increasing intensification of African agriculture will nonetheless displace women, as expected by Boserup (1965, 1970). But this form of displacement would occur more gradually and at very different rates throughout subSaharan Africa, since some areas have not yet expanded to the limits of cultivation. Among the benefits and costs of these alternative forms of subSaharan agricultural development are the likely changes that they would imply for family

consumption and human capital investment patterns. The studies reviewed in Sections 3 and 4 suggest that changing the balance of productivity between women and men could have long-run consequences for the level of child mortality, nutrition, schooling and fertility in the continent, as well as rates of economic growth. The current policy debate should weigh these connections by evaluating carefully the consequences of existing programs that have been successful in promoting agricultural development in either direction.

Land Ownership, Credit, and Labor Markets

Along with extension services, farmers also need credit to pay for new seeds (HYV), irrigation wells, fertilizers, pesticides, etc. Although there are few experimentally designed studies, casual evidence suggests strongly that women are at a serious disadvantage in getting credit. Land ownership is the usual collateral for farm credit, but women seldom own land. Even where religious law refers to the equality of men and women, actual practices of inheritance and the control of property in marriage, strongly suggests that women do not have equal access to loan collateral and thus are denied credit (Davision, 1988; Moock, 1986; Hossain and Afsar, 1988). Women working on communal land have no marketable property rights to mortgage. If this form of market failure leads to an inefficient allocation of credit, institutional innovations may be needed--perhaps by replacing loans based on collateral by loans based on closely knit groups which are identified with their community. The community's future credit thereby depends on the repayment of current individual loans.

The most extensive and best documented program providing credit to the poor is that of the Grameen Bank of Bangladesh. As of August 1988, its 453 branches operated in about 9,000 villages, about ten percent of all villages

in Bangladesh. It had lent to some 413,000 "members" and 84 percent of these were women, and they received 70 percent of the loans. Groups of members borrow with no collateral and complete their repayment within one year or lose the group's rights to borrow in the future. Membership is restricted to only persons with less than .5 acres of cultivatable land or assets not exceeding the value of one acre of medium quality land. Repayment rates have been favorable compared to other commercial banks, but the cost for loan placement and monitoring of assets is not easily derived from reports. Evaluation studies of the Bank are favorable but not sufficiently analytical. They do suggest, however, that here is an institutional innovation that mitigates the disadvantages of poor women in expanding their means of production. Comparisons of the consequences of the Bank being in a village on average productivity and earnings of village women and men would strengthen future evaluation studies. Is economic progress more rapid in "bank villages" than control villages without access to Grameen Bank resources? (Hossain and Afsar, 1988; Hossain, 1987).

To promote the more efficient allocation of talent across the entire economy, women should be helped to compete in male-dominated professions and industries as men should be encouraged to enter female dominated segments of the economy. Women may work in declining sectors, where modern emerging technologies are likely to depress their incomes by the generation of new man-made substitutes. These women need opportunities to enter more favorably situated sectors. If they do not have as much education as men, women will need more specific training and assistance to redeploy their skills. Nonetheless, general education remains the most reliable means to improve the mobility of women in the long run. Women have fared poorly relative to men in

those regions--South and West Asia and Africa--where they have had the least education compared to men. The jobs they can compete for are limited by their schooling and vocational skills, and the hallmark of modern economic growth is relatively rapid changes in the structure of employment that rewards mobility (Kuznets, 1957, 1966).

Educated women are scarce relative to educated men in some countries, and they are in equal numbers to men in other countries. It might be expected that where educated women were relatively scarce their wage advantage over less educated women would be greater than that for men. But private returns to schooling are roughly comparable for men and women across a wide range of countries. Perhaps the apparent rigidity of sex segregation by occupation and industries does not preclude the substitution of male for female labor of comparable education across a sufficient range of activities to equalize relative returns at each level of schooling for men and women.

There is little evidence that families in all regions of the world are guided in their investments in female and male children by the private rates of return to schooling received by the child. The puzzle is why families are not efficiently allocating their investments among their offspring? Parental claims on the adult productivity of boys may be more secure, given some family-cultural systems, than their future claims on girls. If the parent's criterion for allocating school investments between boys and girls does not lead to a socially optimal intergenerational pattern of investment in human capital in some countries, what should be the role of public policy? The inefficient allocation of resources, even if we do not know precisely the cause, can frequently be corrected by a judicious application of taxes and subsidies.

In the classic textbook example of the apple grower and bee keeper, the external social economies linking these two activities lead to an underproduction of both because of the market failure. A subsidy to both independent producers could maximize social product, or both activities could be undertaken by the same producer to internalize the economy. In the case of the parents, unless they are appropriately rewarded by the groom for their educated daughter, the parents may underinvest in their daughter. Research should focus on why families invest different amounts in their girls and boys. It was noted above that this disparity in investment in men and women has a tendency to be smaller in high income industrially advanced countries and to diminish over time as countries develop (Schultz, 1987). Public policy can probably speed up this process with incentives that would motivate the family to invest more in females. But the costs of and responses to such interventions are unknown. The family's schooling behavior by gender must be studied to identify promising policies that could be justified given the scarcity of administrative talent and severely strained social-welfare budgets. Analysis would then be needed of pilot programs to evaluate precisely the capacity of such policies to produce the desired changes in intrafamily investments and to assess whether the policies induced any undesirable side-effects.

Family Planning and Maternal Health

Family planning programs subsidize contraceptive supplies and employ field workers to explain birth control techniques to potential users and inform them how these methods may be obtained. Some programs do offer male contraceptives, such as the condom or vasectomy. But the technological break-throughs of the 1960's-1970's that were disseminated by the first wave of family planning programs were female methods, such as the IUD and oral steroid (pill). These and female sterilization are still the most widely used contra-ceptives. Experience in East Asia suggested that female field workers were more successful in recruiting contraceptive users (e.g. Rogers and Solomon, 1975; Repetto, 1977). Older married women or midwives with an educational level on a par with their community appeared to be most effective. Similar evidence has been collected in Mexico and elsewhere (Azcona et al., 1980). It would be desirable to analyze actual fertility declines induced by the differ-ent types of field workers and not simply the acceptor rate (Schultz, 1988c). But it is reasonable to assume that where the methods offered by the program are for women, female field workers should have an advantage.

The same reasoning has not been transferred, to my knowledge, to the de-livery of prenatal, maternal, and child health care. These kinds of health care are also received by women who, if adequately instructed, would use it at home. Women doctors and paramedic staff might prove better than men in delivering many forms of health care oriented toward women and infants. I could not find reports on the design of pilot or experimental programs to test such a plausible hypothesis. Just as in the case of agricultural extension programs, the predominance of male health program administrators may have contributed to the allocation of a large proportion of government jobs to

males, even though women might do some of them better and probably at less cost.[29] Entirely new public policies may be appropriate to deal with the health problems of women and children. Nutritional supplementation in conjunction with child and maternal health is one such option (Winikoff, 1988). The large gap from region to region in maternal mortality rates illustrated in Table 7 shows that this serious health problem is not being resolved by traditional public policies (Herz and Measham, 1987). Some have even concluded that in subSaharan Africa, public health is unlikely to make any progress until the level of women's education improves (Anonymous editorial, Lancet, 1987).

6. Conclusions

Reliance on traditional market-oriented national income accounts has introduced a systematic bias in development economics that has assigned too low a value to the economic contribution of women in the development process. In reorganizing our approach to economic development, and refocusing our analysis of women and development, it is essential that a family economic framework incorporate both nonmarket and market activities of the members of the household. In what way would such a reappraisal of women's contribution to society clarify neglected opportunities for public policies?

Women are usually enmeshed in a family that trades off the competing interests of its members and coordinates the uses of its members' time and resources in market and nonmarket production. To affect women's status one must generally work through the family. Society can transfer resources to families to raise current consumption levels, but the family can reallocate its resources in a compensatory manner. Thus, this intervention will not

necessarily raise the efficiency of the family as a production unit or even influence how it allocates its resources among members. The effect of public transfers on intrahousehold consumption patterns is thus likely to be greatly reduced.

More promising are social interventions that work to change the constraints impinging on the family and thereby to motivate it to achieve its goals by investing more human capital resources in its female members. The private and social rates of return to women's education at the primary and secondary level are at least equal to those of men. Thus, a more equal distribution of education between men and women would not slow economic growth. In fact, because female education has greater effects on health, nutrition and fertility, it might actually accelerate development. This possibility warrants more study, particularly in South and West Asia and Africa where female education levels are especially low.

There is evidence to suggest that the economic bias of accounting only for market income has led to a misallocation of public development resources in favor of market vis-a-vis nonmarket activities, and consequently men's rather than women's work. A reevaluation of women's nonmarket work has begun to show the pervasiveness of this bias. But this has not yet affected development planning. The rhetoric on "women and development" has been substantial in the last decade, but progress toward establishing an analytical framework free of the traditional market bias has been slow. This framework must be used to guide the collection of data from households and communities that will show where investments enhance women's productivity, broadly defined to include nonmarket or home production.

The traditional economic approach to modeling family decision-making as

the outcome of a unified demand system needs to be relaxed to accommodate bargaining over conflicting individual interests. This will not entail weakening the emphasis it has assigned to the separate prices of women's, men's, and children's time as critical factors explaining the family's allocation of time, determination of fertility, and demand for market goods. But the bargaining model also emphasizes the ownership and control of nonearned income and the context in which individual members of the family work and are compensated for their labor. New data are needed to test and to exploit the distinctive features of this cooperative Nash-bargained framework, such as who owns and controls nonearned income in the household.

Labor supply studies will be needed to categorize "job types" in which women's "control" of their output varies, such as wage jobs, own account work at home or outside of the home, and unpaid family work. This classification process may be aided by parallel studies of family human capital investment in children and other intrahousehold resource allocations for which society has a vested interest. Research could then assess whether the intrafamily distribution of resources varies depending on whether women are engaged in different "job types."

A clearer distinction is needed as to what is the appropriate model for studying family behavior in various regions of the world. What are the empirical consequences of female control of resources for home production and consumption decisions? Evaluation of public policies affecting households will then be more sharply focused and precise. This should lead to sound policies that increase the output of market and nonmarket goods while raising the productive capabilities of women.

Anthropological studies of gender differences in family production and

consumption should be integrated with economic studies of household produc-
tion, labor supply, and expenditure patterns. The family bargaining framework
for evaluating public policies in low income countries should lead to new
policy insights. Since not much work has yet been undertaken, one can only
identify where the payoffs are likely to be large and the direction in which
they may move development policy. In this tentative form, directions are
offered for research and policy.

First, statistical methods have been outlined and the family bargaining
framework has been mentioned as a useful basis for estimating private and
social rates of return to schooling for women and men. Labor force partici-
pation and choice of wage employment both influence the selection of samples
on which market wage functions are estimated. Procedures should correct for
these sources of sample selection bias. Few studies have used comparable
identification restrictions. What evidence is available suggests that primary
and secondary schooling is a high return activity, and no less so for women
than for men. It would seem inefficient to maintain much lower schooling in-
vestments in females than in males, as evident now in South and West Asia and
in North and subSaharan Africa. Development agencies have a clear mandate to
emphasize this investment gap and encourage countries to raise female school-
ing rates toward those of males.

How this is to be accomplished at least cost has not yet been addressed
by practical policy makers nor studied extensively by researchers. How do the
constraints of institutions, household resource endowments, prices and wages
determine school enrollment rates for boys and girls in various cultural
regions of the world? The family controls this decision and must be motivated
to adopt the view that girls are as good an investment of parent resources as

are boys. This is apparently not now the case, and consequently social inter-
ests would appear to diverge from parental private interests. Persuasion and
propaganda are probably not the answer. Regulations such as quotas that
require schools to increase the fraction of girls enrolled, are also readily
circumvented, if the regulations are not viewed as in the parents' own
interests.

Variable user fees for boys and girls is one possibility that deserves
study as more public sector activities are financed through user fees. Lower
school fees for girls than for boys might be effective. One planning minister
of Nigeria proposed to do just this. Until maternal mortality rates of Asia
and Africa are brought down to the current levels in Latin America (Table 7),
an argument could also be made to waive fees for prenatal and maternal health
care at least for poorer rural populations.

Second, budgetary allocations of the International Agricultural Research
Centers should be reviewed according to where each project can be linked to a
particular crop and region (e.g. IRRI, 1985). These expenditures on a crop
and region should then be categorized as benefiting primarily either female or
male agricultural productivity, or both. If expenditures are imbalanced
according to this accounting exercise, the international centers could plan to
change their priorities gradually or explore policies that would erode sex
segregation of labor for specific high payoff crops.

Third, governments should publish data on the gender of staff and of
recipients of their extension and service programs. If these data were
available by region, program evaluation of the consequences of these varia-
tions could be undertaken. These data should cover agricultural extension
programs, family planning extension and services, public health extension and

services, academic and vocational education, home economics and community health programs, informal and adult education, agricultural credit and small business loans, etc. Analysis of these data may perhaps show that employment of more women doctors in the public health clinics or more midwives in the family planning outreach program would be more effective than existing programs. Data are rarely collected now in a form that enable hypotheses such as these to be tested. The cost of collecting such data, geared to explore plausible trade-offs in the mix of staffing and recipients, should be quickly recovered from improvements in the implementation of the programs. Although it would require more administrative effort, a parallel goal should be to collect the data on public sector salary and fringe benefit costs for all male and female staff by professional level, not only to promote wage parity for those performing comparable jobs, but also to permit evaluation studies to estimate the cost-effectiveness of alternative staffing and management structures.

Fourth, employment legislation and effective protection of some industries can generate large benefits (rents) for some workers and impose costs on others. Data on the distribution of these benefits and costs within families might show which public policies place a disproportionate burden on nonmarket production, and which policies benefit better educated workers, or those who work in cities or capital-intensive sectors. Men and women are not necessarily helped equally by such policies. Evidence suggests, for example, that fewer women participate in the modern labor force in low income countries when minimum wages are relatively high (Schultz, 1988a). Minimum wages discourage employment of persons whose productivity is below the minimum wage. A larger proportion of female workers than male workers fall in this category.

Finally, uncertainty and risk have led individuals to insure themselves against future variations in their income by risk pooling across the extended family (Rosenzweig, 1988; Rosenzweig and Stark, 1988). The public sector may try to provide alternative institutions to assist individuals when the family's mechanisms for coping with risk generate negative social externalities. What are the consequences for women's economic status if parent-arranged marriages for daughters are designed primarily to mitigate the family's risks from local crop failure? Crop insurance programs might provide an alternative worth exploring, where the variation of weather can be easily monitored to simplify administration.

Social insurance is also relied on to meet the costs of illness and old age. These forms of insurance influence how the extended family behaves. Women and young girls tend to withdraw their time from the labor force when there is a family need to care for the sick or elderly (e.g. Pitt and Rosenzweig, 1988). Consequently, these forms of social insurance undoubtedly affect women's market participation and productivity, and may thus influence the willingness of parents to invest in the market skills of their daughters. Can poor countries afford to provide parents with a public sector old-age support scheme that substitutes for having many surviving sons? Little empirical research is focussed on the family as an institution for mitigating risk in order to discover how family decision-making adapts to government social policies.

Without much firm evidence of how public policies affect women's productivity or family consumption patterns, it would be useful to design and implement a series of pilot programs based on current knowledge of more promising interventions. Accurately measured indicators of program objectives

must be selected and the program and control groups should be large enough and diverse enough to confidently assess whether the program was effective. Because there are many constraints on the family's decisionmaking that will also influence women's productivity, and these constraints may differ in unmeasured ways across communities, a dispersed sample of communities for the pilot programs and for the control communities is desirable. A theoretical model of family behavior should prescribe the primary factors systematically influencing the indicators of program success. These control factors would be monitored in the base-line and follow-up surveys of the pilot and control community households. Evidence on the program's impact will be more convincing if a random design of the community sample is adopted.

Pilot programs might first be designed around the objective of increasing school enrollment and graduation rates for girls. A second series of monitored pilot programs could assess the effect of equalizing access to agricultural extension services by male and female farmers in Africa, S uth-East Asia and Latin America. Measures of "farmer contacts" as an indicator of extension output has serious problems (Birkhaeuser et al., 1988), and therefore measures of productivity of men and women across distinct program regions should be analyzed. A third set of pilot programs might explore alternative configurations of child and maternal health programs, where the mix of staff by level and gender would vary. Finally, program innovations in the delivery of credit, such as the Grameen Bank in Bangladesh, should be evaluated. Not only in terms of the gender of the loan recipient, but also the program's consequences for community-wide productivity of women and men. Data should also be sought on investments of families in the education and health of males and females in the program and control communities. An intergenerational consequence of

raising the productivity of women should be to encourage parents to invest more in their daughters. All of the above pilot programs should therefore monitor the choices made by families in producing healthy and educated daughters and sons.

Footnotes

1/This unobserved variable enters into the statistical error in these outcome equations, as would idiosyncratic but individually persistent tastes.

2/Statistical specification tests of endogeneity are only feasible when there is agreement on model identification, which in the analysis of household behavior frequently rests on controversial distinctions that need more explicit discussion.

3/Any mechanism that converts "compensating variation" in family composition and specific consumption patterns into measures of the "cost of a child" or adult equivalence scales are ambiguous. Intercorrelations among endogenous variables are tricky to interpret. The emphasis here on disaggregation of family nonearned income by who controls it adds another complication to this time honored, but unsatisfactory, practice of conditioning demands on family composition (see Deaton, 1986; Gronau, 1988).

4/Of course, the bargaining could occur at the outset, when the family is formed, which suggests that members use their initial resource endowments to agree on the weights for individual goals in the "family's utility function." If these resources change unexpectedly, because of a bequest or inheritance or alternative marriage proposition, the "threat points" would shift and a new bargain and agreed-upon family utility function would be adopted as a guide to subsequent intrafamily allocations.

5/In principle, the measurement of nonearned income is to capture an exogenous difference across·persons in their budget constraint that does not also induce a change in money or time prices of various types of consumption or behavior. In practice, nonearned income (rents, dividends, interest, and capital gains) could arise from inheritances that are similar to schooling, in that they are largely financed by parents and family and can be viewed as exogenous at the start of adult life. But nonearned income also represents returns on a person's life cycle accumulation of savings, and hence captures in part the person's behavior. It then becomes, for some purposes, an endogenous choice variable. Hence, it is desirable for survey questionnaires to pursue the source of current nonearned income, current assets, and the date of receipt of bequests that led to these current assets, and whether they came from the husband's or wife's side of the family. The Rand Malaysian family life survey comes closest to asking these questions, but I know of no analysis of these data from the perspective outlined in this paper (Butz and DaVanzo, 1978).

6/Evidence compiled by Svedberg (1988) indicates that female nutritional status and survival prospects in subSaharan Africa are superior overall to male, possibly because women are economically more productive in converting calories into work than men. As a consequence, perhaps, parents are paid brideprices for their daughters and have a stronger incentive to invest in their health. The one region of subSaharan Africa where Svedberg's anthropometric indicators of nutrition and mortality do not indicate as strong a bias in favor of females is in Nigeria and perhaps Senegal. Both of these countries contain a significant Islamic element and women's productive roles are more circumscribed in these segments of the population (Caldwell and

Caldwell, 1987).

7/In principle there might be a superior Pareto efficient allocation of husband and wife labor that would yield a larger output for both members of the family. But in practice, there are costs in monitoring labor inputs over scattered plots and transaction costs in exchange of inputs and outputs that might be required to provide both persons with the incentives needed to achieve Pareto efficiency. These transaction costs might absorb most of the output gains.

8/The overall determinant-condition of maximization theory in the family demand model is also rejected by Heckman in the static case (1971: Chapter 2, pp. 32-33). Both the static and "life cycle" estimation approaches pursued by Heckman lead to rejection of the symmetry condition. Ultimately, however, he imposed the restriction to obtain his preferred estimates (Chapter 2, p. 37-38). One possible explanation for the rejection of the demand system parameter restrictions is the difference in spouse-specific nonearned income effects that may be used to infer individual compensated cross-wage effects.

9/Aggregate data were analyzed, for example, in Chile (DaVanzo, 1972), relative education in Thailand (Maurer et al., 1973), the U.S. (Frieden, 1974; Becker et al., 1977), and in Puerto Rico (Nerlove and Schultz, 1970).

10/For example, Rosenhouse (1988) illustrates from the 1985 LSMS from Peru that 90 percent of the male headed households are currently married, while

only 5 percent of the female headed households are in such unions. Her data also show that in Peru half of the female household heads are widowed, and they are older than the male heads. These groups are really quite incomparable and not particularly well structured to analyze particular sources of poverty in society. As discussed in the text, there are many possible causes for the increase in female headed households. The greater longevity of women than men is one possible source. Another source would be the lower frequency of remarriage by women than men. Female household heads also work fewer hours than do male heads, even ignoring the contribution of wives to their households, and the higher average wages received by men than women. Multiple earner households are also the rule, not the exception, in Peru, and the sources of behavioral and biological selection of individuals into households of very different compositions. It is simply difficult to infer anything from the widely reported characteristics of households with male and female heads.

11/It is easy to fault definitions of "head of household," when there is no consensus on the concept being measured or its use. There is a need to distinguish one individual around which to relate other household members, for the purposes of establishing kinship. There is also the idea of dominant economic provider or family elder whose authority is respected. But in the LSMS in Cote d'Ivoire the customary approach is to count females in the rural sector as belonging to a male headed household even though the "head" resided in a distant city, more or less permanently. The increasing documentation of short-term seasonal or circulating migration in many low income countries underscores the need to measure household membership according to a variety of rules depending on how the data are to be used. For a list of some of the

problems with the current data collection practices see Rosenhouse (1988).

12/ Obvious changes involve the decline in child and adult mortality, the increase in age at first marriage, the decrease in marital fertility, and the redistribution of population toward urban areas. All of these changes might plausibly lead women to take on more economic activities outside the family/household.

13/ This is empirically illustrated by Schultz (1980b), though the noted differences between the responsiveness of participation and hours can also be explained by other hypotheses, such as fixed costs of entering the labor force (Cogan, 1980b).

14/ Cross-equation restrictions are also implied by the family model of labor supply, because the income-compensated cross-wage effect of the husband's wage on the wife's labor supply should be the same as the income-compensated cross-wage effect of the wife's wage on the husband's labor supply. Heckman (1981) reported a test of this parameter restriction and rejected it in the case of a sample of married U.S. couples, both of whom were working and reported a wage rate. This is one way to test the restrictive nature of the neoclassical family labor supply model, though it is rarely attempted. Other estimates for U.S. married couples by age and race groups also confirm that the symmetry of the compensated cross-wage effects does not appear consistent with the unrestricted reduced form estimates (Schultz, 1981; Table 7.4).

15/Layard and Mincer (1985) compares estimates of female labor supply param-
eters from various industrially advanced countries. A comparative study of
seven Latin American countries (ECIEL, 1982) in the 1970s replicated the
family labor supply model specification proposed by Schultz (1980b) and re-
ported large positive own-wage labor supply elasticities for married women
and smaller negative husband cross-wage elasticities. The estimates of labor
supply behavior for women living without husbands were less elastic, as one
would expect because they tend to already be more fully in the labor market
and more self-sufficient. Men without wives, particularly at young and old
ages, exhibit more positive labor supply responses to their own market wage
rate, as do single women. Cogan (1980a) shows evidence that the lack of
adjustment for sample selection appears to change very little the parameter
estimates of the labor supply model for U.S. married women, the demographic
group for which the bias might be thought a priori to be most serious.
Returns to education for this group is changed from 8.5 to 8.8 percent, when
corrected for sample selection bias (Cogan, 1980a: Table 2.1).

16/For example, do subsidized birth control information, services and supplies
reduce the lifetime fertility of couples and also increase the "quality" of
their offspring? Are more accessible and higher quality (i.e., lower priced)
public schools an effective means of increasing school enrollments (quality)
and also reducing fertility? The answer to both related questions appears to
be a qualified "yes" in the few studies we have to date (Rosenzweig and
Wolpin, 1982). Both types of policies are also likely to be associated with
women taking on more market production activities and gradually increasing the
market wage opportunities of women relative to men (Rosenzweig and Schultz,

1985; Rosenzweig, 1988).

[17/]Heckman and Polachek (1974) confirmed that the logarithmic wage equation fit US male earnings data somewhat better than did the linear age equation. They also show statistically that Mincer's (1974) specification of the quadratic in post-schooling years of potential experience explains more of the variance in log-wages or log-earnings than does a quadratic in age. Rarely has a theoretically based empirical regularity such as this specification of the wage function been replicated so widely, in so many parts of the world, and had such an effect on economic thinking about a diverse range of social issues.

[18/]For example, if more able students self-select themselves into the more educated comparison group, the returns to education could be overstated until a selection-corrected measure of the private returns to schooling is computed (Willis and Rosen, 1979). But this form of selection might not necessarily bias the comparison of the directly measured returns of men relative to women, if ability operates in an analogous way to influence who goes to school among both girls and boys. The next section examines evidence on this issue.

[19/]From the perspective of the early 1960s, this empirical strategy may have reflected a desire to not overstate the returns to schooling, because the concept was novel and controversial. But as indicted below, the resulting differences in empirical methods practiced in the literature has led to reports of women's school returns being deflated for nonparticipation in some cases by half or more, and in other reports the estimates are drawn directly

from wage functions without deflation or sample selection correction.

[20]/The analysis of educational returns is complicated if education influences the supply of labor (Schultz, 1968). When a worker's human capital is increased, it is expected to exert an income effect reducing market labor supply and a substitution effect increasing market labor supply. If the costs of acquiring the human capital are fully borne by the individual or family and they exactly offset the market discounted gain in earnings, then the income effect of the human capital is zero. This is the implicit assumption in the equilibrium investment model of Becker (1964) and Mincer (1974) and elaborated by Lindsay (1971). If there is no income effect associated with education, the more educated should work more hours, because the remaining substitution effect on labor supply must be positive. But empirical exceptions can be readily found, such as in Colombia where the university educated worked in Bogota less than those with only secondary schooling (Schultz, 1968) and Thailand where in 1981 the more educated worked fewer hours per month, or in Indonesia in 1986 where men with more university training worked fewer hours (Behrman and Deolalikar, 1988b). Thus, in reality, both an income and substitution effect may be associated with the acquisition of schooling, and it can be argued that the return to schooling should include the income effect but exclude the labor supply effect induced by the substitution effect. In practice, if the dependent variable of the earnings function is the logarithm of the hourly wage rate, the coefficient on years of schooling approximates the private rate of return, holding labor supply constant. This procedure is correct if the income effect is negligible, as assumed in the equilibrium investment model. It is an underestimate of the private rate of return to

schooling if the more educated work fewer hours.

21/ Becker (1964) used the average earnings (of those with earnings) from tabulations of the 1950 Census and apparently then deflated these benefit streams by participation rates. This approach ignored the sample selection of those who had positive earnings, as well as the problem of mixing productivity per hour and labor supply responses associated with education. Mincer (1974) examined the 1960 Census public use sample, and fit the individual's logarithm of annual earnings to education and other variables. He could only include individuals with positive earnings and no correction for the potential bias is discussed from his analysis of a selected sample. However, Mincer's and Becker's analysis is focused on males and not females.

A shortcoming of the sample selection correction methodology, as it is commonly applied, is that it can lead one to conclude incorrectly that there is no sample selection bias, because the sample selection rule is not "well" identified. The only basis for identification can be the functional form assumed for the error in the selection rule equation, e.g. normally distributed (Heckman, 1979). More confidence can be placed in the estimates if theory prescribes conditioning variables that enter significantly in the sample selection rule equation, but are excluded a priori from the market wage equation. Thus, an insignificant sample selection term (i.e. Heckman's lambda) may become statistically significant when the exclusionary restrictions of the model are selected with more care. As a consequence, the sample selection correction procedure may then change the estimated returns to schooling. Agreement on acceptable criteria for identification would accelerate advancement of empirical research on this topic.

22/The nonmarket reservation wage of the wife is affected by the family's land, ownership of a business, assets, nonearned income, and the husband's education and experience. These variables are added to the wage-status probit equation. The Heckman (1979) two stage estimate that is less efficient yields an estimate of returns of .16 (Griffin, 1987; Table 3).

23/Alternative specifications can include the age and education of the spouse or the predicted wage of the spouse and a marital status dummy variable if these characteristics of the spouse are missing. These identifying variables are believed to be more likely to be endogenous than the land and nonearned income variables. But their inclusion in the model does not change appreci-ably the estimates of the private rates of return reported in Table 3 (Schultz, 1988c).

24/Taxes on personal income are a relatively small portion of government rev-enues in low income countries. The exception may be Latin America if one includes "social security" taxes (World Bank, 1988: 84). In the case of Thailand in 1981, direct taxes on personal incomes amounted to less than 5 percent of household expenditures and only 10 percent of wage recipients in Bangkok (National Statistical Office, undated). Most of government revenues in low income countries are from taxes on companies and commodities (excise and trade). This adjustment may therefore be of secondary importance in low income countries but could be quite important in industrially advanced countries.

25/The marginal revenue generated by the expansion of education for women, E_w, and men E_m, can be expressed:

$$dR/dE_w = tw_w\alpha_{1w}(\beta_{1w} + \beta_{2m})$$

$$dR/dE_m = tw_m\alpha_{1m}(\beta_{1m} + \beta_{2w})$$

where $\alpha_{1m} = \alpha_{1w}$ are the private rates of return to schooling of men and women which are assumed equal, $\beta_{1w} > 0$ is the wife's uncompensated own wage effect, $\beta_{2w} < 0$ is the wife's uncompensated husband's wage effect, $\beta_{1m} \leq 0$ is the husband's uncompensated own wage effect, and $\beta_{2m} \doteq 0$ is the husband's uncompensated wife's wage effect. The above indicated signs are those common-ly obtained in static instrumented family labor supply models (Cogan, 1980a; Schultz, 1981).

26/A parallel public finance argument can be made for taxing more heavily in-elastically supplied factors, if the goal is not to distort the optimal (i.e. untaxed) allocation of factors. This tax criterion implies that given the labor supply parameters outlined in footnote 25 that male labor incomes should be taxed more heavily than female labor incomes because they are inelastically supplied. I have not seen an endorsement of such an optimal tax policy.

27/The expected years of education reported in Table 5 is a synthetic cohort measure, defined as the sum of the three commonly reported age-specific enrollment rates--associated approximately with primary, secondary, and higher educational levels--weighted by the six year length of the age intervals used to compute each of the enrollment rates. Thus it represents the number of

years an individual would enroll in school if he or she enrolled at the average rates from age 7 to age 25 reported in a particular year. There are many reasons to suspect that these enrollment rates exceed attendance rates, and the actual time and effort applied to schooling undoubtedly differs greater across countries and over time within countries. There may also be differences in these "real" investment rates per year of enrollment between boys and girls, but they are not reflected in any of these UNESCO statistics.

28/There are few quantitative studies that seek to test the efficacy of public policy that varies (1) the mix of women and men hired to extend new agricultural technologies, (2) the sex of the agricultural worker these personnel have contacted, (3) the reported source of innovative practices or new productive inputs, and finally (4) the effects on the hourly productivity of male and female workers and managers, as well as their overall earnings. One description of the agricultural extension program in Malawi (Spring et al., 1983) shows the growing predominance of women full-time and part-time workers and managers. Female headed households and wives, however, benefit from relatively fewer extension visits than do men. But women attribute to extension agents their sources of modern agricultural practices more than do men. One interpretation of these data from Lilongwe Rural Development Project is that women agricultural workers are more responsive to the extension inputs they received. But they received fewer such inputs. Unfortunately, the education of the male and female farm managers and their size of holdings are not reported, and these characteristics of the farmers might help to explain the reported patterns. None of 50 extension evaluation studies reviewed by Evenson (1988) or Birkhaeuser et al. (1988) note the differential effective-

ness of male and female staff or the gender of farm contacts.

29/There are also numerous more specialized tasks in the delivery of health care where less highly trained (and less costly) paramedics who are dedicated to performing a few functions can do these activities better than, or at least as well as, doctors. In Thailand midwives were trained to insert IUDs. They were then carefully evaluated against doctors providing the same service. The midwives were more successful in delivering this single service than were the doctors. Performance was measured in terms of the incidence of a variety of objective complications and in terms of patient satisfaction and frequency of complaints (Population Council, 1972).

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Table A-1

Years of Education Completed of Women Relative to Men by Age in Most Recent Available Census

Region[a] Country	Year	Level of Male Schooling in Years Age 20-24	Female Relative to Male Years of Schooling				
			20-24	25-34	35-44	45-54	55-64
Africa (excluding S. Africa)		3.34	.43				
Malawi	1977	4.40	.49	.44	.33	.32	.35
Mauritius	1962	4.73	.66	.66	.62	.61	.68
Rwanda	1978	2.77	.61	.40	.20	.13	.10
Zambia	1969	4.92	.44	.34	.26	.25	.30
Egypt	1976	3.54	.55	.40	.27	.20	.18
Libya	1973	3.35	.22	.12	.14	.08	.06
South Africa	1970	8.97	1.02	.96	.93	.93	.93
Liberia	1974	4.14	.26	.27	.28	.29	.33
Mali	1976	1.15	.36	.26	.20	.13	.11
Sierra Leone	1963	1.04	.28	.31	.48	.64	.75
Latin America		5.45	.94				
Cuba	1981	8.79	.99	.93	.85	.88	.81
Domin. Republic	1970	4.19	.95	.86	.81	.81	.81
Haiti	1971	2.06	.68	.53	.52	.56	.99
Jamaica	1960	5.21	1.11	1.08	1.06	1.06	1.05
Puerto Rico	1970	9.37	1.04	.98	.87	.85	.84
Trinidad/Tob.	1980	7.31	1.05	1.00	.94	.88	.84
Costa Rica	1973	6.29	1.02	.95	.97	.96	.98
El Salvador	1961	2.58	.88	.82	.72	.69	.68
Guatemala	1964	1.73	.84	.83	.81	.78	.75
Honduras	1974	3.25	.99	.91	.79	.77	.79
Nicaragua	1950	1.37	1.03	.93	.86	.81	.79
Panama	1980	8.21	1.03	1.00	.98	.98	.95
Argentina	1980	8.64	1.03	1.01	.98	.96	.95
Chile	1960	5.46	.99	.97	.95	.93	.90
Uruguay	1975	7.87	1.08	1.06	1.05	1.02	.99
Bolivia	1976	6.42	.69	.61	.55	.53	.14
Brazil	1980	6.30	1.02	1.00	.96	.94	.94
Colombia[a]	1973	5.18	.92	.92	.92	.92	.92
Ecuador	1974	5.56	.93	.86	.83	.80	.77
Paraguay	1972	5.15	.92	.92	.87	.81	.74
Peru	1972	6.43	.76	.69	.65	.62	.60
Venezuela	1950	2.50	.80	.66	.61	.66	.78
East Asia (excluding Japan)		6.35	.83				
Hong Kong	1981	8.79	.94	.89	.79	.56	.46
South Korea	1980	10.13	.87	.83	.69	.55	.42
Taiwan	1956	5.00	.58	.48	.33	.21	.16
Indonesia	1980	3.98	.75	.75	.70	.75	.88
Malaysia	1957	4.42	.44	.35	.23	.14	.10
Philippines	1975	7.56	1.05	1.00	.96	.91	.86
Singapore	1980	4.90	1.04	.83	.65	.47	.34
Thailand	1980	6.02	.93	.89	.82	.75	.66
South and West Asia		4.62	.48				
India	1971	4.29	.40	.32	.28	.23	.17
Iran	1966	3.33	.41	.35	.37	.28	.18
Nepal	1981	2.36	.25	.22	.20	.21	-
Pakistan	1961	2.20	.21	.20	.19	.17	.13
Sri Lanka	1981	6.84	.99	.95	.85	.75	.70
Jordan	1961	4.81	.30	.28	.26	.30	.30
Syria	1970	4.62	.38	.31	.24	.19	.16
Israel	1961	8.52	.90	.84	.84	.82	.75
High Income Countries		9.13	1.00				
Japan	1980	13.33	1.01	.98	.95	.95	.94
Australia	1966	9.49	1.01	.98	.96	.96	.97
New Zealand	1981	12.17	.99	1.01	.98	1.00	.87
Canada	1981	11.13	1.01	.97	.94	.96	.97
United States	1980	12.37	1.01	.98	.96	.97	.98
Bulgaria	1975	8.44	1.05	1.03	.95	.89	.84
Czechoslovakia	1980	11.46	.98	.96	.93	.89	.89
German Dem. Rep.	1971	9.97	1.00	.92	.78	.74	.72
Hungary	1970	8.68	1.07	.99	.92	.91	.92
Poland	1970	9.03	1.04	.99	.89	.89	.87
Romania	1966	7.91	.94	.90	.88	.89	.91
Finland	1970	9.88	1.07	1.04	1.05	1.02	1.01
Ireland	1966	6.65	1.11	1.03	1.03	1.03	1.04
Norway	1980	11.01	1.01	.96	.95	.95	.95
Sweden	1970	8.72	1.05	1.01	.95	.93	.91
Greece	1961	6.60	.90	.86	.82	.78	.77
Italy	1971	8.57	.90	.84	.81	.76	.77
Portugal	1970	5.89	1.01	1.01	.99	.96	.92
Spain	1970	6.78	1.00	1.00	1.02	1.01	1.02
Yugoslavia	1971	8.03	.89	.67	.61	.60	.81
Belgium	1970	10.03	.98	.96	.96	.95	.95
France	1975	8.20	1.09	1.05	1.02	.99	.66
Netherlands	1960	7.73	1.02	.97	.96	.96	.97
Switzerland	1960	7.07	.96	.94	.92	.92	.90

[a]Regional averages are unweighted and as noted South Africa is excluded from Africa and Japan is included in high income category.

Source: Estimated from census and survey tabulations of populations.

Table A-2

Market Labor Supply Estimates for Women, Age 25 to 54: Thailand 1981[a]

Dependent Variable: Estimation Method:	Participation Probit	OLS	Hours per Week OLS	Sample Means[b]
Explanatory Variables				
Market Opportunity Wages: (Ln Baht/hour)				
Woman[c]	.467 (10.0)	.114 (11.9)	-1.13 (1.73)	.771 (.673)
Husband[c]	-.408 (10.6)	-.111 (13.7)	-6.83 (12.4)	.934 (.987)
Husband Present (=1)	.215 (2.75)	.0583 (3.83)	3.47 (3.36)	.699
Unearned Income: (Baht/month x 10^{-4})				
Woman	-3.11 (10.8)	-.580 (13.0)	-30.8 (10.2)	.0156 (.0856)
Husband	-.426 (1.82)	-.108 (1.81)	-4.20 (1.03)	.00987 (.0633)
Age of Woman	.131 (5.87)	.0267 (5.53)	2.78 (8.49)	36.1 (8.13)
Age squared (x 10^{-2})	-.174 (5.99)	.0353 (5.59)	-3.49 (8.15)	13.73 (6.18)
Residential Area:				
Bangkok	-.550 (12.2)	-.137 (13.4)	-8.08 (11.7)	.267
Municipal	-.751 (10.9)	-.174 (11.6)	-3.82 (3.75)	.364
Sanitary Dist.	-.425 (7.06)	-.0755 (5.92)	-2.29 (2.65)	.154
Northeast Region	-.261 (5.36)	-.0607 (6.20)	-2.94 (4.43)	.274
Intercept	-7.67 (1.89)	.467 (5.30)	3.35 (.56)	
R^2		.147	.145	
χ^2	1146.3			
Sample Size	8380	8380	8380	8380
Dependent Variable Mean (S.D.)	.834 (.372)	.834 (.372)	46.0 (25.2)	

Notes:
  [a] t ratios are reported beneath ordinary least squares (OLS) regression coefficients in parentheses, and asymptotic t ratios are reported beneath probit coefficients in parentheses.
  [b] Means of variables with the 1981 SES sample used for estimation, and standard deviations reported in parentheses.
  [c] Endogenous wage variables imputated from wage equations corrected for two sample selection biases of persons participating in labor force and reporting a wage rate. See Tables A-7 and A-6.

$\chi^2_{(1)} = 31.4$

Table A-3

Market Labor Supply Estimates for Men, Age 25 to 54: Thailand 1981[a]

Dependent Variable: Estimation Method:	Participation Probit	Participation OLS	Hours per Week OLS	Sample Means[b]
Explanatory Variables				
Market Opportunity Wages: (Ln Baht/hour)				
Man[c]	.124 (1.17)	.0056 (.81)	-9.75 (12.9)	1.39 (.938)
Wife[c]	-.160 (1.87)	.0042 (.81)	-2.94 (5.19)	.558 (.623)
Wife Present (=1)	1.03 (8.90)	.0672 (9.90)	7.70 (10.3)	.805
Unearned Income: (Baht/month x 10^{-4})				
Man	-1.27 (4.84)	-.185 7.17	-9.57 (3.40)	.0127 (.0727)
Wife	-.995 (1.86)	-.0147 (2.75)	.495 (.08)	.00342 (.0349)
Age of Man	.139 (3.49)	.00879 (3.64)	1.73 (6.53)	38.3 (8.41)
Age squared (x 10^{-2})	-.191 (3.77)	-.0116 (3.83)	-1.87 (5.63)	15.3 (6.57)
Residential Area: Bangkok	.101 (1.11)	-.0076 (1.37)	-.938 (1.55)	.268
Municipal	-.506 (2.89)	-.0331 (3.06)	11.3 (9.56)	.356
Sanitary Dist.	-.205 (1.50)	-.0102 (1.39)	4.90 (6.08)	.153
Northeast Region	.0638 (.58)	.0019 (.33)	-2.69 (4.21)	.273
Intercept	-.883 (1.21)	.769 (17.1)	23.9 (4.85)	
R^2		.0517	.1401	
χ^2	287.5			
Sample Size	7278	7278	7278	7278
Dependent Variable Mean (S.D.)	.973 (.162)	.973 (.162)	56.0 (18.7)	

Notes:
    [a] t ratios are reported beneath ordinary least squares (OLS) regression coefficients in parentheses, and asymptotic t ratios are reported beneath probit coefficients in parentheses.
    [b] Means of variables with the 1981 SES sample used for estimation, and standard deviations reported in parentheses.
    [c] Endogenous wage variables imputed from wage equations corrected for two sample selection biases of persons participating in labor force and reporting a wage rate. See Tables A-7 and A-8.

Table A-4

Likelihood That Spouse is Present in Household, Women and Men, Age 25 to 54: Thailand 1951[a]

Estimation Method:	Women Probit	Men Probit
Explanatory Variables:		
Wage (ln Baht/hour)[b]	-.310 (8.65)	-.271 (4.39)
Unearned Income (individual's) (Baht/month x 10^{-4})	-4.08 (15.1)	.8.61 (2.49)
Age	.310 (16.7)	.566 (25.3)
Age Squared (x 10^{-2})	-.406 (16.7)	-.653 (22.8)
Residential Area:		
Bangkok	-.0306 (.78)	-.0048 (.09)
Municipal	.0375 (.74)	.0176 (.17)
Sanitary Dist.	.0329 (.68)	.0727 (.98)
Northeast Region	.0214 (.58)	.0142 (.24)
Intercept	-4.79 (14.1)	-10.3 (24.7)
χ^2	887.4	1554.9
Sample Size	8380	7278
Dependent Variable Mean (S.D.)	.699	.805

[a] Asymptotic t ratios are reported beneath probit coefficients in parentheses.

[b] Endogenous wage variables imputed from wage equations corrected for two sample selection biases of persons in the labor force and in a wage job. See Tables A-7 and A-8.

Table A-5

Sectoral Shares of Female Workers and Share in Wage Employment by Sector and Region[a]

Sector of Employment:	Share of Female Workers Employed in Sector							Share of Female Workers Who Are Wage Earners						
	World	High[b] Income	Low[b] Income	Latin America	North Africa	East Asia	South & West Asia	World	High[b] Income	Low[b] Income	Latin America	North Africa	East Asia	South & West Asia
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Agriculture	.404	.121	.663	.205	.673	.609	.821	.275	.138	.297	.297	.075	.195	.344
	(.345)	(.149)	(.258)	(.158)	(.313)	(.166)	(.113)	(.211)	(.174)	(.207)	(.237)	(.167)	(.149)	(.207)
Mining	.003	.003	.002	.004	.001	.001	.003	.875	.966	.758	.831	.925	.535	.773
	(.003)	(.004)	(.002)	(.003)	(.003)	(.000)	(.001)	(.139)	(.023)	(.137)	(.164)	(.145)	(.222)	(.047)
Manufacturing	.158	.219	.103	.177	.076	.109	.080	.771	.925	.471	.723	.486	.532	.268
	(.088)	(.056)	(.075)	(.065)	(.112)	(.076)	(.059)	(.276)	(.077)	(.276)	(.200)	(.285)	(.240)	(.170)
Utilities	.003	.004	.001	.003	.002	.000	.002	.914	.995	.696	.946	.971	.918	.587
	(.002)	(.002)	(.002)	(.003)	(.003)	(.001)	(.001)	(.171)	(.005)	(.207)	(.062)	(.133)	(.159)	(.134)
Construction	.008	.013	.004	.005	.003	.003	.004	.808	.838	.716	.900	.883	.877	.595
	(.007)	(.008)	(.003)	(.003)	(.005)	(.003)	(.003)	(.133)	(.095)	(.179)	(.092)	(.162)	(.078)	(.117)
Commerce	.143	.218	.074	.128	.038	.158	.016	.627	.775	.231	.501	.342	.129	.155
	(.095)	(.043)	(.077)	(.062)	(.021)	(.054)	(.013)	(.307)	(.175)	(.223)	(.206)	(.243)	(.116)	(.183)
Transportation	.016	.029	.004	.011	.007	.003	.003	.952	.968	.850	.943	.963	.881)	.136
	(.014)	(.008)	(.006)	(.004)	(.010)	(.006)	(.003)	(.074)	(.026)	(.153)	(.074)	(.037)	(.136)	(.715)
Services	.265	.393	.148	.469	.200	.116	.072	.883	.927	.773	.824	.965	.811	.624
	(.190)	(.123)	(.162)	(.142)	(.222)	(.069)	(.059)	(.127)	(.056)	(.174)	(.084)	(.040)	(.098)	(.249)
NonAgriculture	.596	.879	.337	.795	.327	.391	.179	.793	.889	.561	.752	.780	.458	.427
	(.345)	(.149)	(.258)	(.158)	(.313)	(.166)	(.113)	(.207)	(.088)	(.223)	(.109)	(.198)	(.169)	(.208)
Total	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.583	.799	.385	.658	.306	.298	.359
								(.288)	(.186)	(.213)	(.167)	(.342)	(.142)	(.188)
Participation rate[c]	.349	.377	.326	.247	.124	.452	.328							
	(.135)	(.089)	(.158)	(.083)	(.143)	(.146)	(.145)							
Number of Countries	61	22	39	17	6	6	10	61	22	39	17	6	6	10
Employment Weight (in percent)	100	48	52	08	01	15	28	100	48	52	08	01	15	28

Country means are weighted by female employment in sector or economy, and weighted standard deviation is reported in parentheses beneath mean.

a Country means are weighted by female employment in sector or economy, and weighted standard deviation is reported in parentheses beneath mean.
b High income countries are synonymous with the "West" category in Table A-1 and includes Japan, Western Europe, Canada, USA, Australia and New Zealand, and low income countries include the remainder. See Table A-1 for a list including the regional breakdown of the "low income" countries.
c Female labor force participants for female age 15 or more.

Source: Schultz (1988: Table 2). Based on population weighted sample of 61 countries providing two or more censuses with the required tabulations of the labor force and GNP series.

Table A-6

Sectoral Shares of Male Workers and Share in Wage Employment by Sector and Region[a]

Sector of Employment:	Share of Male Workers Employed in Sector							Share of Male Workers Who Are Wage Earners						
	World	High[b] Income	Low[b] Income	Latin America	North Africa	East Asia	South & West Asia	World	High[b] Income	Low[b] Income	Latin America	North Africa	East Asia	South & West Asia
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Agriculture	.445 (.265)	.138 (.112)	.623 (.133)	.477 (.127)	.547 (.107)	.627 (.147)	.668 (.095)	.255 (.117)	.289 (.144)	.250 (.111)	.367 (.124)	.377 (.172)	.161 (.080)	.242 (.081)
Mining	.011 (.011)	.019 (.013)	.006 (.006)	.016 (.013)	.008 (.010)	.004 (.003)	.006 (.002)	.941 (.075)	.972 (.036)	.882 (.092)	.941 (.063)	.969 (.050)	.835 (.170)	.857 (.058)
Manufacturing	.174 (.098)	.286 (.058)	.109 (.042)	.164 (.036)	.105 (.029)	.082 (.059)	.101 (.019)	.808 (.193)	.928 (.059)	.623 (.180)	.825 (.082)	.785 (.116)	.702 (.135)	.501 (.109)
Utilities	.008 (.007)	.016 (.005)	.004 (.003)	.007 (.007)	.006 (.004)	.002 (.003)	.004 (.002)	.974 (.043)	.991 (.012)	.935 (.058)	.943 (.049)	.984 (.033)	.962 (.055)	.922 (.058)
Construction	.061 (.047)	.110 (.023)	.033 (.032)	.068 (.028)	.053 (.047)	.031 (.021)	.023 (.026)	.805 (.116)	.837 (.062)	.742 (.160)	.774 (.093)	.839 (.097)	.826 (.123)	.666 (.189)
Commerce	.103 (.051)	.155 (.041)	.073 (.027)	.091 (.026)	.082 (.014)	.092 (.035)	.061 (.017)	.543 (.254)	.735 (.139)	.305 (.135)	.483 (.089)	.343 (.071)	.234 (.134)	.256 (.077)
Transportation	.051 (.026)	.078 (.012)	.035 (.016)	.050 (.015)	.044 (.015)	.038 (.020)	.029 (.011)	.831 (.131)	.925 (.048)	.708 (.100)	.718 (.091)	.818 (.052)	.704 (.119)	.692 (.091)
Services	.149 (.063)	.201 (.061)	.118 (.040)	.137 (.058)	.155 (.026)	.123 (.031)	.109 (.032)	.816 (.107)	.872 (.031)	.759 (.123)	.758 (.115)	.902 (.046)	.855 (.053)	.714 (.119)
NonAgriculture	.555 (.265)	.862 (.112)	.377 (.133)	.523 (.127)	.453 (.107)	.373 (.147)	.332 (.095)	.767 (.146)	.870 (.054)	.630 (.114)	.734 (.044)	.760 (.056)	.651 (.083)	.564 (.099)
Total	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.539 (.228)	.790 (.113)	.393 (.130)	.559 (.101)	.551 (.150)	.344 (.118)	.349 (.084)
Participation rate[c]	.823 (.105)	.754 (.080)	.877 (.090)	.834 (.091)	.786 (.148)	.831 (.067)	.919 (.062)							
Number of Countries	61	22	39	17	6	6	10	61	22	39	17	6	6	10
Employment Weight (in percent)	100	37	36	11	3	11	39	100	37	36	11	3	11	39

[a] Country means are weighted by male employment in sector or economy, and weighted standard deviation is reported in parentheses beneath mean.
[b] High income countries are synonymous with the "West" category in Table A-1 and includes Japan, Western Europe, Canada, USA, Australia and New Zealand, and low income countries include the remainder. See Table A-1 for a list including the regional breakdown of the "low income" countries.
[c] Male labor force participants to males age 15 or more.

Source: (Schultz (1988: Table 1). See Table A-5 note for limitations of sample.

Table A-7
Sample Selection Corrected Wage Functions, Women, Age 25-54: Thailand, 1981[a]

Dependent Variable Estimation Method	Participation Probit	Wage Earner Probit	Log of Wage Rate OLS	Log of Monthly Earnings OLS	Sample Means[b] (S.D.)
Explanatory Variables:					
Schooling in Years:					
Primary	.00068 (.06)	-.0248 (2.34)	.100 (5.00)	.0903 (4.56)	4.13 (1.75)
Secondary	.0982 (7.45)	.240 (20.7)	.247 (6.77)	.219 (6.09)	1.45 (2.45)
Higher	.163 (3.58)	.145 (4.05)	.108 (3.04)	.116 (3.32)	.232 (.925)
Post School Experience in years	.146[a] (7.36)	-.0046[a] (.26)	.0901 (6.54)	.0887 (6.53)	23.1 (9.99)
Experience Squared ($\times 10^{-2}$)	-.191 (7.49)	-.0171 (.73)	-.122 (4.73)	-.125 (4.88)	6.34 (5.11)
Residential Areas					
Bangkok	-.489 (11.9)	-.0152 (.39)	.242 (2.97)	.289 (3.59)	.304
Municipal	-.699 (16.3)	-.411 (10.4)	.742 (6.22)	.688 (5.84)	.384
Sanitary Dist.	-.364 (7.00)	-.0205 (.47)	.442 (5.76)	.400 (5.28)	.170
Northeast Region	-.166 (3.66)	-.271 (7.07)	-.107 (1.43)	-.0648 (.88)	.199
Unearned Income ($\times 10^{-4}$)	-1.33 (7.34)	-.657 (3.39)			.0153
Hectares at Land Owned:					
Irrigated Land	.0241 (5.46)	-.0158 (6.67)			1.94
Dry Land	.0187 (7.61)	-.0177 (10.5)			5.35
Participation λ			2.80 (9.26)	2.78 (9.29)	.285[b]
Wage Earner λ			-1.45 (7.69)	-1.35 (7.24)	1.05[b]
Intercept	-1.24 (3.33)	.0727 (.22)	-.818 (2.97)	4.51 (16.6)	
R^2 / χ^2	1145.1	1278.3	.624	.597	
Sample Size	8816	8816	2419	2419	
Dependent Variable Means (Standard deviation)	.829	.380	.970 (1.81)	6.26 (1.72)	

[a] t ratios are reported beneath ordinary least squares (OLS) regression coefficients in parentheses, and asymptotic t ratios are reported beneath probit coefficients in parentheses.

[b] Means of variables with the 1981 SES sample used for estimation, and standard deviations reported in parentheses.

Table A-8
Sample Selection Corrected Wage Functions, Men, Age 25-54: Thailand, 1981[a]

Dependent Variable	Participation	Wage Earner	Log of Wage Rate	Log of Monthly Earnings	Sample Means
Estimation Method	Probit	Probit	OLS	OLS	(S.D.)
Explanatory Variables:					
Schooling in Years:					
Primary	.0916	.0368	.143	.145	4.43
	(3.78)	(3.16)	(8.95)	(9.22)	(1.49)
Secondary	-.0913	.115	.130	.0883	1.31
	(4.64)	(10.6)	(9.04)	(6.24)	(2.25)
Higher	-.0126	.0315	.0407	.0293	.159
	(.31)	(1.06)	(1.66)	(1.22)	(.774)
Post School Experience in years	.232[a]	.0318[a]	.0471	.0451	24.6
	(6.22)	(1.84)	(4.02)	(3.93)	(9.71)
Experience Squared (x 10^{-2})	-.295[a]	.0587[a]	-.0292	-.0297	6.97
	(6.17)	(2.64)	(1.35)	(1.40)	(5.08)
Residential Area					
Bangkok	-.0536	.236	.371	.370	.307
	(.66)	(6.05)	(7.840	(7.99)	
Municipal	-.333	-.231	1.28	1.27	.377
	(3.79)	(5.89)	(25.6)	(25.9)	
Sanitary Dist.	-.101	.0889	.675	.655	.169
	(.93)	(2.06)	(13.5)	(13.4)	
Northeast Region	.0040	.0380	-.558	-.487	.257
	(.04)	(1.07)	(13.3)	(11.9)	
Unearned Income (x 10^{-4})	-1.18	-.303			.0124
	(4.55)	(1.43)			
Hectares of Land Owned:					
Irrigated Land	.00728	-.0201			1.91
	(1.10)	(9.54)			
Dry Land	.00490	-.0179			5.21
	(1.29)	(13.1)			
Participation λ			.454	.587	.0546[b]
			(.75)	(.996)	
Wage Earner λ			-1.87	-1.83	.633[b]
			(13.6)	(13.5)	
Intercept	-2.36	-.272	.286	5.68	
	(3.34)	(.83)	(1.36)	(27.	
R^2/χ^2	153.3	875.3	.552	.528	
Sample Size	7986	7986	4525	4525	
Dependent Variable Means (standard deviation)	.978	.568	1.46	6.80	
			(1.68)	(1.60)	

[a] t ratios are reported beneath ordinary least squares (OLS) regression coefficients in parentheses, and asymptotic t ratios are reported beneath probit coefficients in parentheses.

[b] Means of variables with the 1981 SES sample used for estimation, and standard deviations reported in parentheses.

Appendix Table B

Estimates of Life Expectancy at Birth and Mortality for Women and Men from Africa and Asia

Country	Years	Life Expectation at Birth in Years		Ratio of Female to Male Life Expectation	Ratio of Age Specific Mortality Rates of Males to Females				
		Male	Female		Less Than One Year (infant)	Age 1 to 5	Age 5 to 10	Age 10 to 15	Age 15 to 35[a]
Africa									
Algeria	1948-51	44	49	1.11					
	1954-56	39	45	1.15		.90	.52	.74	.89
	1969-70	50	54	1.08	1.00				
	1970	53	54	1.02					
Egypt	1948-52	40	41	1.03	.97				
	1958-62	48	49	1.02	.97	.99	1.06	1.04	1.16
	1963-67	49	50	1.02	1.07				
Libya	1964-74	51	54	1.06	1.07				
	1968-73	52	55	1.06	1.25				
Morocco	1970	48	49	1.02					
Sudan	1968-73	43	44	1.02	1.00				
Tunisia	1968	52	50	.96	1.02	.85	1.14	1.14	.82
	1968-69	54	55	1.02					
Burundi	1965	39	42	1.08					
	1970-71	43	46	1.07	.99	.90	.94	1.08	1.22
Kenya	1969				1.40	1.18	1.19	1.21	1.06
Madagascar	1956								
Mauritius	1951-53	50	52	1.04					
	1961-63	59	62	1.05					
	1970-72	61	65	1.07	1.26	.88	.90	1.50	.81
Tanzania (mainland)	1967	39	42	1.08					
Central Africa Republic	1959-60	35	36	1.03					
Chad	1963-64	34	35	1.03					
Congo	1960-61	36	39	1.08					
Gabon	1960-61	40	42	1.05					
Botswana	1971	51	55	1.08					
Lesotho	1966	49	50	1.02					
Benin	1961	34	36	1.06					
Ghana	1968-69	46	48	1.04					
	1975	47	50	1.06					
Liberia	1962	36	39	1.08					
Mali	1960-61	31	33	1.06					
Niger	1960	36	37	1.03					
Sierra Leone	1973	31	35	1.13					
Togo	1961	37	39	1.05					
Asia									
China	1978	67	69	1.03					
Hong Kong	1961	64	71	1.11					
	1971	67	75	1.12					
Malaysia (Peninsular)	1956	56	58	1.04					
	1972	63	68	1.08	1.32	1.05			
Philippines	1948	49	53	1.08					
	1969-71	59	64	1.08					
South Korea	1961	54	61	1.13					
	1971-75	59	66	1.12	1.08	.85			
Singapore	1956-58	61	67	1.10	1.21				
	1969-71	66	72	1.09	1.12	1.13			
Indonesia	1971	45	48	1.07					
Malaysia Sabah	1970	49	45	.92					
Sarawak	1970	52	53	1.02					
Thailand	1947	49	51	1.04	1.19				
	1969-71	59	61	1.04	1.23	.95	1.22	1.38	
Taiwan	1956	60	65	1.08	1.10	.93	1.55	1.56	2.01
	1975	67	73	1.09	1.36	1.21			
Kuwait	1974-76	66	70	1.06	1.15				
Lebanon	1970	62	66	1.06	1.09				
Sri Lanka	1945-47	45	43	.96					
	1962-64	62	63	1.02		.85			
	1970-72	64	67	1.05					
Burma (urban)	1954	41	44	1.07		.91			
	1974	56	60	1.07	.91	.80			
Iran	1973-76	57	57	1.00		.96			
Iraq	1974-75	57	59	1.04					
Afghanistan	1972-73	34	36	1.06	1.10	1.04			
Bangladesh	1974	46	47	1.02					
Dem. Yemen	1973	41	43	1.05	1.09				
India	1941-50	33	32	.97	1.11				
	1951-60	42	41	.98	1.01	.76			
	1970-72	49	46	.94					
Nepal	1952-54	32	29	.91	1.04				
	1974-76	45	42	.93		.66			
Pakistan	1962-65	47	45	.96					
Yemen	1975	38	39	1.03					

Note: [a]Unweighted sum of age specific mortality rates from age 15 to 35, during which most childbearing occurs and thus the eff
of maternal mortality may be apparent.

Sources: United Nations (1982) various tables; Taiwan 1956 figures from Keyfitz and Fluger (1968), and Taiwan 1975 figures from
Demographic Yearbooks (1984).

Updated Version   Table A-1

Feb. 1989   Years of Education Completed of Women Relative to Men by Age
in Most Recent Available Census

Region* Country	Year	Level of Male Schooling in Years Age 20-24	Female Relative to Male Years of Schooling				
			20-24	25-34	35-44	45-54	55-64
Africa (excluding S. Africa)		**3.34**	**.43**				
Malawi	1977	4.40	.49	.44	.33	.32	.35
Mauritius	1962	4.73	.66	.66	.62	.61	.68
Rwanda	1978	2.77	.61	.40	.20	.13	.10
Zambia	1969	4.92	.44	.34	.26	.25	.30
Egypt	1976	3.54	.55	.40	.27	.20	.18
Libya	1973	3.35	.22	.12	.14	.08	.06
South Africa	1970	3.97	1.02	.96	.93	.93	.93
Liberia	1974	4.14	.26	.27	.28	.29	.33
Mali	1976	1.15	.36	.26	.20	.13	.11
Sierra Leone	1963	1.04	.28	.31	.48	.64	.75
Latin America		**5.45**	**.94**				
Cuba	1981	8.79	.99	.93	.85	.88	.81
Domin. Republic	1970	4.19	.95	.86	.81	.81	.81
Haiti	1971	2.06	.68	.53	.52	.56	.99
Jamaica	1960	5.21	1.11	1.08	1.06	1.06	1.05
Puerto Rico	1970	9.37	1.04	.98	.87	.85	.84
Trinidad/Tob.	1980	7.31	1.05	1.00	.94	.88	.84
Costa Rica	1973	6.29	1.02	.95	.97	.96	.98
El Salvador	1961	2.58	.88	.82	.72	.69	.68
Guatemala	1964	1.73	.84	.83	.81	.78	.75
Honduras	1974	3.25	.99	.91	.79	.77	.79
Nicaragua	1950	1.37	1.03	.93	.86	.81	.79
Panama	1980	8.21	1.03	1.00	.98	.98	.95
Argentina	1980	8.64	1.03	1.01	.98	.96	.95
Chile	1960	5.46	.99	.97	.95	.93	.90
Uruguay	1975	7.87	1.08	1.06	1.05	1.02	.99
Bolivia	1976	6.42	.69	.61	.55	.53	.14
Brazil	1980	6.30	1.02	1.00	.96	.94	.94
Colombia*	1973	5.18	.92	.92	.92	.92	.92
Ecuador	1974	5.56	.93	.86	.83	.80	.77
Paraguay	1972	5.15	.92	.92	.87	.81	.74
Peru	1972	6.43	.76	.69	.65	.62	.60
Venezuela	1950	2.50	.80	.66	.61	.66	.78
East Asia (excluding Japan)		**6.35**	**.83**				
Hong Kong	1981	8.79	.94	.89	.79	.56	.46
South Korea	1980	10.13	.87	.83	.69	.55	.42
Taiwan	1956	5.00	.58	.48	.33	.21	.16
Indonesia	1980	3.98	.75	.75	.70	.75	.88
Malaysia	1957	4.42	.44	.35	.23	.14	.10
Philippines	1975	7.56	1.05	1.00	.96	.91	.86
Singapore	1980	4.90	1.04	.83	.65	.47	.34
Thailand	1980	6.02	.93	.89	.82	.75	.66
South and West Asia		**4.62**	**.48**				
India	1971	4.29	.40	.32	.28	.23	.17
Iran	1966	3.33	.41	.35	.37	.28	.18
Nepal	1981	2.36	.25	.22	.20	.21	-
Pakistan	1961	2.20	.21	.20	.19	.17	.13
Sri Lanka	1981	6.84	.99	.95	.85	.75	.70
Jordan	1961	4.81	.30	.28	.26	.30	.30
Syria	1970	4.62	.38	.31	.24	.19	.16
Israel	1961	8.52	.90	.84	.84	.82	.75
High Income Countries		**9.13**	**1.00**				
Japan	1980	13.33	1.01	.98	.95	.95	.94
Australia	1966	9.49	1.01	.98	.96	.96	.97
New Zealand	1981	12.17	.99	1.01	.98	1.00	.87
Canada	1981	11.13	1.01	.97	.94	.96	.97
United States	1980	12.37	1.01	.98	.96	.97	.98
Bulgaria	1975	8.44	1.05	1.03	.95	.89	.84
Czechoslovakia	1980	11.46	.98	.96	.93	.89	.89
German Dem. Rep.	1971	9.97	1.00	.92	.78	.74	.72
Hungary	1970	8.68	1.07	.99	.92	.91	.92
Poland	1970	9.03	1.04	.99	.89	.89	.87
Romania	1966	7.91	.94	.90	.88	.89	.91
Finland	1970	9.88	1.07	1.04	1.05	1.02	1.01
Ireland	1966	6.65	1.11	1.03	1.03	1.03	1.04
Norway	1980	11.01	1.01	.96	.95	.95	.95
Sweden	1970	8.72	1.05	1.01	.95	.93	.91
Greece	1961	6.60	.90	.86	.82	.78	.77
Italy	1971	8.57	.90	.84	.81	.76	.77
Portugal	1970	5.89	1.01	1.01	.99	.96	.92
Spain	1970	6.78	1.00	1.00	1.02	1.01	1.02
Yugoslavia	1971	8.03	.89	.67	.61	.60	.81
Belgium	1970	10.03	.98	.96	.96	.95	.95
France	1975	8.20	1.09	1.05	1.02	.99	.66
Netherlands	1960	7.73	1.02	.97	.96	.96	.97
Switzerland	1960	7.07	.96	.94	.92	.92	.90

*Regional averages are unweighted and as noted South Africa is excluded from Africa and Japan is included in high income category.

Source: Estimated from census and survey tabulations of
populations.

Table A-2

Market Labor Supply Estimates for Women, Age 25 to 54: Thailand 1981[a]

Dependent Variable: Estimation Method:	Participation Probit	OLS	Hours per Week OLS	Sample Means[b]
Explanatory Variables				
Market Opportunity Wages: (Ln Baht/hour)				
Woman[c]	.467 (10.0)	.114 (11.9)	-1.13 (1.73)	.771 (.673)
Husband[c]	-.408 (10.6)	-.111 (13.7)	-6.83 (12.4)	.934 (.987)
Husband Present (-1)	.215 (2.75)	.0583 (3.83)	3.47 (3.36)	.699
Unearned Income: (Baht/month x 10^{-4})				
Woman	-3.11 (10.8)	-.580 (13.0)	-30.8 (10.2)	.0156 (.0856)
Husband	-.426 (1.82)	-.108 (1.81)	-4.20 (1.03)	.00987 (.0633)
Age of Woman	.131 (5.87)	.0267 (5.53)	2.78 (8.49)	36.1 (8.13)
Age squared (x 10^{-2})	-.174 (5.99)	.0353 (5.59)	-3.49 (8.15)	13.73 (6.18)
Residential Area:				
Bangkok	-.550 (12.2)	-.137 (13.4)	-8.08 (11.7)	.267
Municipal	-.751 (10.9)	-.174 (11.6)	-3.82 (3.75)	.364
Sanitary Dist.	-.425 (7.06)	-.0755 (5.92)	-2.29 (2.65)	.154
Northeast Region	-.261 (5.36)	-.0607 (6.20)	-2.94 (4.43)	.274
Intercept	-7.67 (1.89)	.467 (5.30)	3.35 (.56)	
R^2		.147	.145	
χ^2	1146.3			
Sample Size	8380	8380	8380	8380
Dependent Variable Mean (S.D.)	.834 (.372)	.834 (.372)	46.0 (25.2)	

Notes:

[a] t ratios are reported beneath ordinary least squares (OLS) regression coefficients in parentheses, and asymptotic t ratios are reported beneath probit coefficients in parentheses.

[b] Means of variables with the 1981 SES sample used for estimation, and standard deviations reported in parentheses.

[c] Endogenous wage variables imputated from wage equations corrected for two sample selection biases of persons participating in labor force and reporting a wage rate. See Tables A-7 and A-6.

Table A-3

Market Labor Supply Estimates for Men, Age 25 to 54: Thailand 1981[a]

Dependent Variable: Estimation Method:	Participation Probit	Participation OLS	Hours per Week OLS	Sample Means[b]
Explanatory Variables				
Market Opportunity Wages: (Ln Baht/hour)				
Man[c]	.124 (1.17)	.0056 (.81)	-9.75 (12.9)	1.39 (.938)
Wife[c]	-.160 (1.87)	.0042 (.81)	-2.94 (5.19)	.558 (.623)
Wife Present (−1)	1.03 (8.90)	.0672 (9.90)	7.70 (10.3)	.805
Unearned Income: (Baht/month x 10^{-4})				
Man	-1.27 (4.84)	-.185 7.17	-9.57 (3.40)	.0127 (.0727)
Wife	-.995 (1.86)	-.0147 (2.75)	.495 (.08)	.00342 (.0349)
Age of Man	.139 (3.49)	.00879 (3.64)	1.73 (6.53)	38.3 (8.41)
Age squared (x 10^{-2})	-.191 (3.77)	-.0116 (3.83)	-1.87 (5.63)	15.3 (6.57)
Residential Area:				
Bangkok	.101 (1.11)	-.0076 (1.37)	-.938 (1.55)	.268
Municipal	-.506 (2.89)	-.0331 (3.06)	11.3 (9.56)	.356
Sanitary Dist.	-.205 (1.50)	-.0102 (1.39)	4.90 (6.08)	.153
Northeast Region	.0638 (.58)	.0019 (.33)	-2.69 (4.21)	.273
Intercept	-.883 (1.21)	.769 (17.1)	23.9 (4.85)	
R^2		.0517	.1401	
χ^2	287.5			
Sample Size	7278	7278	7278	7278
Dependent Variable Mean (S.D.)	.973 (.162)	.973 (.162)	56.0 (18.7)	

Notes:
   [a] t ratios are reported beneath ordinary least squares (OLS) regression coefficients in parentheses, and asymptotic t ratios are reported beneath probit coefficients in parentheses.
   [b] Means of variables with the 1981 SES sample used for estimation, and standard deviations reported in parentheses.
   [c] Endogenous wage variables imputated from wage equations corrected for two sample selection biases of persons participating in labor force and reporting a wage rate. See Tables A-7 and A·8.

Table A-4

Likelihood That Spouse is Present in Household,
Women and Men, Age 25 to 54:
Thailand 1951[a]

Estimation Method:	Women Probit	Men Probit
Explanatory Variables:		
Wage (ln Baht/hour)[b]	-.310 (8.65)	-.271 (4.39)
Unearned Income (individual's) (Baht/month x 10^{-4})	-4.08 (15.1)	.8.61 (2.49)
Age	.310 (16.7)	.566 (25.3)
Age Squared (x 10^{-2})	-.406 (16.7)	-.653 (22.8)
Residential Area:		
Bangkok	-.0306 (.78)	-.0048 (.09)
Municipal	.0375 (.74)	.0176 (.17)
Sanitary Dist.	.0329 (.68)	.0727 (.98)
Northeast Region	.0214 (.58)	.0142 (.24)
Intercept	-4.79 (14.1)	-10.3 (24.7)
χ^2	887.4	1554.9
Sample Size	8380	7278
Dependent Variable Mean (S.D.)	.699	.805

[a] Asymptotic t ratios are reported beneath probit coefficients in parentheses.

[b] Endogenous wage variables imputed from wage equations corrected for two sample selection biases of persons in the labor force and in a wage job. See Tables A-7 and A-8.

Table A-5

Sectoral Shares of Female Workers and Share in Wage Employment by Sector and Region[a]

Sector of Employment:	Share of Female Workers Employed in Sector							Share of Female Workers Who Are Wage Earners						
	World	High[b] Income	Low[b] Income	Latin America	North Africa	East Asia	South & West Asia	World	High[b] Income	Low[b] Income	Latin America	North Africa	East Asia	South & West Asia
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Agriculture	.404	.121	.663	.205	.673	.609	.821	.275	.138	.297	.297	.075	.195	.344
	(.345)	(.149)	(.258)	(.158)	(.313)	(.166)	(.113)	(.211)	(.174)	(.207)	(.237)	(.167)	(.149)	(.207)
Mining	.003	.003	.002	.004	.001	.001	.003	.875	.966	.758	.831	.925	.535	.773
	(.003)	(.004)	(.002)	(.003)	(.003)	(.000)	(.001)	(.139)	(.023)	(.137)	(.164)	(.145)	(.222)	(.047)
Manufacturing	.158	.219	.103	.177	.076	.109	.080	.771	.925	.471	.723	.486	.532	.268
	(.088)	(.056)	(.075)	(.065)	(.112)	(.076)	(.059)	(.276)	(.077)	(.276)	(.200)	(.285)	(.240)	(.170)
Utilities	.003	.004	.001	.003	.002	.000	.002	.914	.995	.696	.946	.971	.918	.587
	(.002)	(.002)	(.002)	(.003)	(.003)	(.001)	(.001)	(.171)	(.005)	(.207)	(.062)	(.133)	(.159)	(.134)
Construction	.008	.013	.004	.005	.003	.003	.004	.808	.838	.716	.900	.883	.877	.595
	(.007)	(.008)	(.003)	(.003)	(.005)	(.003)	(.003)	(.133)	(.095)	(.179)	(.092)	(.162)	(.078)	(.117)
Commerce	.143	.218	.074	.128	.038	.158	.016	.627	.775	.231	.501	.342	.129	.155
	(.095)	(.043)	(.077)	(.062)	(.021)	(.054)	(.013)	(.307)	(.175)	(.223)	(.206)	(.243)	(.116)	(.183)
Transportation	.016	.029	.004	.011	.007	.003	.003	.952	.968	.850	.943	.963	.881)	.136
	(.014)	(.008)	(.006)	(.004)	(.010)	(.006)	(.003)	(.074)	(.026)	(.153)	(.074)	(.037)	(.136)	(.136)
Services	.265	.393	.148	.469	.200	.116	.072	.883	.927	.773	.824	.965	.811	.624
	(.190)	(.123)	(.162)	(.142)	(.222)	(.069)	(.059)	(.127)	(.056)	(.174)	(.084)	(.040)	(.098)	(.249)
NonAgriculture	.596	.879	.337	.795	.327	.391	.179	.793	.889	.561	.752	.780	.458	.427
	(.345)	(.149)	(.258)	(.158)	(.313)	(.166)	(.113)	(.207)	(.088)	(.223)	(.109)	(.198)	(.169)	(.208)
Total	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.583	.799	.385	.658	.306	.298	.359
								(.288)	(.186)	(.213)	(.167)	(.342)	(.142)	(.188)
Participation rate[c]	.349	.377	.326	.247	.124	.452	.328							
	(.135)	(.089)	(.158)	(.083)	(.143)	(.146)	(.145)							
Number of Countries	61	22	39	17	6	6	10	61	22	39	17	6	6	10
Employment Weight (in percent)	100	48	52	08	01	15	28	100	48	52	08	01	15	28

[a] Country means are weighted by female employment in sector or economy, and weighted standard deviation is reported in parentheses beneath mean.
[b] High income countries are synonymous with the "West" category in Table A-1 and includes Japan, Western Europe, Canada, USA, Australia and New Zealand, and low income countries include the remainder. See Table A-1 for a list including the regional breakdown of the "low income" countries.
[c] Female labor force participants for female age 15 or more.

Source: Schultz (1988: Table 2). Based on population weighted sample of 61 countries providing two or more censuses with the required tabulations of the labor force and GNP series.

Table A-6

Sectoral Shares of Male Workers and Share in Wage Employment by Sector and Region[a]

Sector of Employment:	Share of Male Workers Employed in Sector							Share of Male Workers Who Are Wage Earners						
	World	High[b] Income	Low[b] Income	Latin America	North Africa	East Asia	South & West Asia	World	High[b] Income	Low[b] Income	Latin America	North Africa	East Asia	South & West Asia
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Agriculture	.445 (.265)	.138 (.112)	.623 (.133)	.477 (.127)	.547 (.107)	.627 (.147)	.668 (.095)	.255 (.117)	.289 (.144)	.250 (.111)	.367 (.124)	.377 (.172)	.161 (.080)	.242 (.081)
Mining	.011 (.011)	.019 (.013)	.006 (.006)	.016 (.013)	.008 (.010)	.004 (.003)	.006 (.002)	.941 (.075)	.972 (.036)	.882 (.092)	.941 (.063)	.969 (.050)	.835 (.170)	.857 (.058)
Manufacturing	.174 (.098)	.286 (.058)	.109 (.042)	.164 (.036)	.105 (.029)	.082 (.059)	.101 (.019)	.808 (.193)	.928 (.059)	.623 (.180)	.825 (.082)	.785 (.116)	.702 (.135)	.501 (.109)
Utilities	.008 (.007)	.016 (.005)	.004 (.003)	.007 (.007)	.006 (.004)	.002 (.003)	.004 (.002)	.974 (.043)	.991 (.012)	.935 (.058)	.943 (.049)	.984 (.033)	.962 (.055)	.922 (.058)
Construction	.061 (.047)	.110 (.023)	.033 (.032)	.068 (.028)	.053 (.047)	.031 (.021)	.023 (.026)	.805 (.116)	.837 (.062)	.742 (.160)	.774 (.093)	.839 (.097)	.826 (.123)	.666 (.189)
Commerce	.103 (.051)	.155 (.041)	.073 (.027)	.091 (.026)	.082 (.014)	.092 (.035)	.061 (.017)	.543 (.254)	.735 (.139)	.305 (.135)	.483 (.089)	.343 (.071)	.234 (.134)	.256 (.077)
Transportation	.051 (.026)	.078 (.012)	.035 (.016)	.050 (.015)	.044 (.015)	.038 (.020)	.029 (.011)	.831 (.131)	.925 (.048)	.708 (.100)	.718 (.091)	.818 (.052)	.704 (.119)	.692 (.091)
Services	.149 (.063)	.201 (.061)	.118 (.040)	.137 (.058)	.155 (.026)	.123 (.031)	.109 (.032)	.816 (.107)	.872 (.031)	.759 (.123)	.758 (.115)	.902 (.046)	.855 (.053)	.714 (.119)
NonAgriculture	.555 (.265)	.862 (.112)	.377 (.133)	.523 (.127)	.453 (.107)	.373 (.147)	.332 (.095)	.767 (.146)	.870 (.054)	.630 (.114)	.734 (.044)	.760 (.056)	.651 (.083)	.564 (.099)
Total	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.539 (.228)	.790 (.113)	.393 (.130)	.559 (.101)	.551 (.150)	.344 (.118)	.349 (.084)
Participation rate[c]	.823 (.105)	.754 (.080)	.877 (.090)	.834 (.091)	.786 (.148)	.831 (.067)	.919 (.062)							
Number of Countries	61	22	39	17	6	6	10	61	22	39	17	6	6	10
Employment Weight (in percent)	100	37	36	11	3	11	39	100	37	36	11	3	11	39

a Country means are weighted by male employment in sector or economy, and weighted standard deviation is reported in parentheses beneath mean.
b High income countries are synonymous with the "West" category in Table A-1 and includes Japan, Western Europe, Canada, USA, Australia and New Zealand, and low income countries include the remainder. See Table A-1 for a list including the regional breakdown of the "low income" countries.
c Male labor force participants to males age 15 or more.

Source: (Schultz (1988: Table 1). See Table A-5 note for limitations of sample.

Table A-7
Sample Selection Corrected Wage Functions, Women, Age 25-54: Thailand, 1981[a]

Dependent Variable / Estimation Method	Participation Probit	Wage Earner Probit	Log of Wage Rate OLS	Log of Monthly Earnings OLS	Sample Means[b] (S.D.)
Explanatory Variables:					
Schooling in Years:					
Primary	.00068 (.06)	-.0248 (2.34)	.100 (5.00)	.0903 (4.56)	4.13 (1.75)
Secondary	.0982 (7.45)	.240 (20.7)	.247 (6.77)	.219 (6.09)	1.45 (2.45)
Higher	.163 (3.58)	.145 (4.05)	.108 (3.04)	.116 (3.32)	.232 (.925)
Post School Experience in years	.146[a] (7.36)	-.0046[a] (.26)	.0901 (6.54)	.0887 (6.53)	23.1 (9.99)
Experience Squared (x 10^{-2})	-.191 (7.49)	-.0171 (.73)	-.122 (4.73)	-.125 (4.88)	6.34 (5.11)
Residential Areas					
Bangkok	-.489 (11.9)	-.0152 (.39)	.242 (2.97)	.289 (3.59)	.304
Municipal	-.699 (16.3)	-.411 (10.4)	.742 (6.22)	.688 (5.84)	.384
Sanitary Dist.	-.364 (7.00)	-.0205 (.47)	.442 (5.76)	.400 (5.28)	.170
Northeast Region	-.166 (3.66)	-.271 (7.07)	-.107 (1.43)	-.0648 (.88)	.199
Unearned Income (x 10^{-4})	-1.33 (7.34)	-.657 (3.39)			.0153
Hectares at Land Owned:					
Irrigated Land	.0241 (5.46)	-.0158 (6.67)			1.94
Dry Land	.0187 (7.61)	-.0177 (10.5)			5.35
Participation λ			2.80 (9.26)	2.78 (9.29)	.285[b]
Wage Earner λ			-1.45 (7.69)	-1.35 (7.24)	1.05[b]
Intercept	-1.24 (3.33)	.0727 (.22)	-.818 (2.97)	4.51 (16.6)	
R^2/χ^2	1145.1	1278.3	.624	.597	
Sample Size	8816	8816	2419	2419	
Dependent Variable Means (Standard deviation)	.829	.380	.970 (1.81)	6.26 (1.72)	

[a] t ratios are reported beneath ordinary least squares (OLS) regression coefficients in parentheses, and asymptotic t ratios are reported beneath probit coefficients in parentheses.

[b] Means of variables with the 1981 SES sample used for estimation, and standard deviations reported in parentheses.

Table A-8
Sample Selection Corrected Wage Functions,
Men, Age 25-54: Thailand, 1981[a]

Dependent Variable Estimation Method	Participation Probit	Wage Earner Probit	Log of Wage Rate OLS	Log of Monthly Earnings OLS	Sample Means (S.D.)
Explanatory Variables:					
Schooling in Years:					
Primary	.0916 (3.78)	.0368 (3.16)	.143 (8.95)	.145 (9.22)	4.43 (1.49)
Secondary	-.0913 (4.64)	.115 (10.6)	.130 (9.04)	.0883 (6.24)	1.31 (2.25)
Higher	-.0126 (.31)	.0315 (1.06)	.0407 (1.66)	.0293 (1.22)	.159 (.774)
Post School Experience in years	.232[a] (6.22)	.0318[a] (1.84)	.0471 (4.02)	.0451 (3.93)	24.6 (9.71)
Experience Squared (x 10^{-2})	-.295[a] (6.17)	.0587[a] (2.64)	-.0292 (1.35)	-.0297 (1.40)	6.97 (5.08)
Residential Area					
Bangkok	-.0536 (.66)	.236 (6.05)	.371 (7.840	.370 (7.99)	.307
Municipal	-.333 (3.79)	-.231 (5.89)	1.28 (25.6)	1.27 (25.9)	.377
Sanitary Dist.	-.101 (.93)	.0889 (2.06)	.675 (13.5)	.655 (13.4)	.169
Northeast Region	.0040 (.04)	.0380 (1.07)	-.558 (13.3)	-.487 (11.9)	.257
Unearned Income (x 10^{-4})	-1.18 (4.55)	-.303 (1.43)			.0124
Hectares of Land Owned:					
Irrigated Land	.00728 (1.10)	-.0201 (9.54)			1.91
Dry Land	.00490 (1.29)	-.0179 (13.1)			5.21
Participation λ			.454 (.75)	.587 (.996)	.0546[b]
Wage Earner λ			-1.87 (13.6)	-1.83 (13.5)	.633[b]
Intercept	-2.36 (3.34)	-.272 (.83)	.286 (1.36)	5.68 (27.	
R^2/χ^2	153.3	875.3	.552	.528	
Sample Size	7986	7986	4525	4525	
Dependent Variable Means (standard deviation)	.978	.568	1.46 (1.68)	6.80 (1.60)	

[a] t ratios are reported beneath ordinary least squares (OLS) regression coefficients in parentheses, and asymptotic t ratios are reported beneath probit coefficients in parentheses.

[b] Means of variables with the 1981 SES sample used for estimation, and standard deviations reported in parentheses.

Appendix Table B
Estimates of Life Expectancy at Birth and Mortality for Women and Men from Africa and Asia

Country	Years	Life Expectation at Birth in Years		Ratio of Female to Male Life Expectation	Ratio of Age Specific Mortality Rates of Males to Females				
		Male	Female		Less Than One Year (infant)	Age 1 to 5	Age 5 to 10	Age 10 to 15	Age 15 to 35a
Africa									
Algeria	1948-51	44	49	1.11					
	1954-56	39	45	1.15					
	1969-70	50	54	1.08	1.00	.90	.52	.74	.89
	1970	53	54	1.02	1.01				
Egypt	1948-52	40	41	1.03	.97				
	1958-62	48	49	1.02	.97	.99	1.06	1.04	1.16
	1963-67	49	50	1.02	1.07				
Libya	1964-74	51	54	1.06	1.07				
	1968-73	52	55	1.06	1.25				
Morocco	1970	48	49	1.02					
Sudan	1968-73	43	44	1.02	1.00				
Tunisia	1968	52	50	.96	1.02	.85	1.14	1.14	.82
	1968-69	54	55	1.02					
Burundi	1965	39	42	1.08					
	1970-71	43	46	1.07	.99	.90	.94	1.08	1.22
Kenya	1969				1.40	1.18	1.19	1.21	1.06
Madagascar	1966								
Mauritius	1951-53	50	52	1.04					
	1961-63	59	62	1.05					
	1970-72	61	65	1.07	1.26	.88	.90	1.50	.81
Tanzania (mainland)	1967	39	42	1.08					
Central Africa Republic	1959-60	35	36	1.03					
Chad	1963-64	34	35	1.03					
Congo	1960-61	36	39	1.08					
Gabon	1960-61	40	42	1.05					
Botswana	1971	51	55	1.08					
Lesotho	1966	49	50	1.02					
Benin	1961	34	36	1.06					
Ghana	1968-69	46	48	1.04					
	1975	47	50	1.06					
Liberia	1962	36	39	1.08					
Mali	1960-61	31	33	1.06					
Niger	1960	36	37	1.03					
Sierra Leone	1973	31	35	1.13					
Togo	1961	37	39	1.05					
Asia									
China	1978	67	69	1.03					
Hong Kong	1961	64	71	1.11					
	1971	67	75	1.12					
Malaysia (Peninsular)	1956	56	58	1.04					
	1972	63	68	1.08	1.32	1.05			
Philippines	1948	49	53	1.08					
	1969-71	59	64	1.08					
South Korea	1961	54	61	1.13					
	1971-75	59	66	1.12	1.08	.85			
Singapore	1956-58	61	67	1.10					
	1969-71	66	72	1.09	1.21				
Indonesia	1971	45	48	1.07	1.12	1.13			
Malaysia Sabah	1970	49	45	.92					
Sarawak	1970	52	53	1.02					
Thailand	1947	49	51	1.04	1.19				
	1969-71	59	61	1.04	1.23	.95			
Taiwan	1956	60	65	1.08	1.10	.93	1.22	1.38	
	1975	67	73	1.09	1.36	1.21	1.55	1.56	2.01
Kuwait	1974-76	66	70	1.06	1.15				
Lebanon	1970	62	66	1.06					
Sri Lanka	1945-47	45	43	.96	1.09				
	1962-64	62	63	1.02					
	1970-72	64	67	1.05		.85			
Burma (urban)	1954	41	44	1.07		.91			
	1974	56	60	1.07	.91	.80			
Iran	1973-76	57	57	1.00	.91	.96			
Iraq	1974-75	57	59	1.04					
Afghanistan	1972-73	34	36	1.06					
Bangladesh	1974	46	47	1.02	1.10	1.04			
Dem. Yemen	1973	41	43	1.05					
India	1941-50	33	32	.97	1.09				
	1951-60	42	41	.98	1.11				
	1970-72	49	46	.94	1.01	.76			
Nepal	1952-54	32	29	.91					
	1974-76	45	42	.93	1.04				
Pakistan	1962-65	47	45	.96		.66			
Yemen	1975	38	39	1.03					

Note: ªUnweighted sum of age specific mortality rates from age 15 to 35, during which most childbearing occurs and thus the eff of maternal mortality may be apparent.

Sources: United Nations (1982) various tables; Taiwan 1956 figures from Keyfitz and Fluger (1968), and Taiwan 1975 figures from Demographic Yearbooks (1984).

WOMEN AND FORESTRY:
OPERATIONAL ISSUES

Draft for Discussion

PHRWD

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This document was prepared by Augusta Molnar.

PREFACE

Women are key actors in the forestry sector throughout the developing world. Ensuring their direct involvement in forestry projects, both as beneficiaries and as participants, can: (a) **ensure that projects achieve their immediate purposes and broader socio-economic goals**, and (b) **maximize returns on investments in this sector**. But successful involvement of women in forestry projects requires a **concerted and sustained effort** by project designers and implementers.

The objective of this document is operational: it is intended to be of practical use in designing and implementing forestry projects that successfully involve women. Since a number of useful guidelines are available that provide a comprehensive view of the current information base and theoretical foundation on women's roles in forestry (see Box 1), that material is not reproduced here.

This document intentionally takes a narrow focus to assist staff who need to know: (1) **why women should be included** in the design of forestry projects and of other projects containing substantial forestry components; and (2) **how women can be included**, given the existing political, social, administrative, managerial, financial and technical constraints.

It is hoped that the document will be useful both at headquarters during the preparatory stages of sector and/or project work and abroad as projects are identified, prepared, appraised, implemented, supervised and monitored.

Box 1: AVAILABLE GUIDELINES ON WOMEN AND FORESTRY

Food and Agriculture Organization of the UN and Swedish International Development Authority, Restoring the Balance: Women and Forest Resources. Rome: FAO, Forestry Department, 1987 (available upon request from PHRWD)

Forests, Trees and People, Rome: FAO, Forestry Department, 1985, Forestry Topics No. 2

Cecelski, Elizabeth, "The Rural Energy Crisis: Women's Work and Basic Needs, Perspectives and Approaches to Action," Geneva: ILO World Employment Programme Research, Rural Employment Policy Research Programme, 1985 (Sectoral Library)

Hoskins, Marilyn, "Rural Women, Forest Outputs, and Forest Products," discussion draft, Rome: FAO Forest Department, 1985 (Sectoral Library)

Hourihan, John, Guidelines for Women in Forestry Sector Projects, Manila: Asian Development Bank, 1988

Tropical Forestry Action Plan, World Resources Institute and FAO, 1987

Scott, Gloria, "Forestry Projects and Women," Washington, D.C.: World Bank, 1980

Fortmann, Louise, ed., Whose Trees, Westview Press, 1988

WOMEN AND FORESTRY: OPERATIONAL ISSUES

A. INTRODUCTION: BANK GROUP LENDING FOR FORESTRY

1.   Forestry activities make up a significant and increasing
portion of Bank Group lending. From 1978 through 1987, the Bank Group
financed 53 free-standing forestry projects, totaling US$ 1,293 million
in loan/credit commitments. Of these, 27 were categorized as "social"
(agro-forestry and community-based) and/or fuelwood generating projects;
they accounted for a total of US$ 724 million of Bank Group commitments.
A further US$ 160 million for forestry activities (excluding fodder
production) were provided in the context of other agricultural projects
(e.g., rural development, wasteland rehabilitation, watershed
development, resettlement, irrigation command area development).

2.   These projects cover the gamut of forestry activities intended
to meet the population's needs for forest products, stabilize the
environment, and promote sustainable land use and crop agriculture. The
project-specific objectives may include, for instance:

- protection and management of existing woodlands;
- afforestation/rehabilitation of degraded forests and wastelands;
- stabilization of sand dunes and watersheds by establishing
     vegetative cover;
- promotion of private tree planting (both tree crops and agro-
     forestry) on farms and common property wastelands;
- improvement of community forest and fodder resources;
- energy conservation; and
- fodder production for livestock and dairy development.

3.   In addition to these substantial direct investments in
forestry, projects appraised between 1983 and 1987 included US$ 1,492
million for tree crop production and processing components. Although
usually considered agricultural rather than forestry projects, tree crop
projects often are important for
supplying secondary forest
products (fuel, fodder, etc.) and
making sustainable productive use
of marginal and/or fragile lands.
(Agro-forestry projects themselves
increasingly include tree crop
species.)

4.   The Bank Group's
investments in forestry and
related activities continue to
increase. Proposed lending for
forestry and watershed management
programs in FY89 is US$ 285
million, and the average annual
commitment planned for free-
standing forestry projects for
FY88-FY92 is US$ 345 million.

> **Box 2: WOMEN IN BANK-AIDED
> FORESTRY PROJECTS**
>
> In the project documents for the 22 social
> forestry projects appraised by the Bank from
> 1984 through 1987, women are explicitly
> mentioned as intended project beneficiaries
> or participants in only a single case
> (Ethiopia). Similarly, project documents
> mention women in only 4 of the 33 agriculture
> and rural development projects with forestry
> components appraised during the same period.
> The vast majority of these projects neither
> included specific female-targeted programs
> that needed to be monitored nor required pre-
> specified accounting of women's participation
> in judging overall project achievements.

B. SECTORAL BACKGROUND

Women's Roles in Forestry

5.   Women are major actors in the forestry sector throughout the developing world. Most widely recognized is that women (and children) are the primary collectors of fuel and fodder for home consumption and for sale to urban markets. This alone gives women a major role in the management and conservation of these depletable forest resources. When convinced of the utility and practicality of a forestry improvement scheme, women can be a powerful lobby to persuade their entire household or community to invest the resources necessary to make the scheme work (see Case 1, Case 14 and Box 4).

> CASE 1
>
> Under a project in **Senegal**, in some villages both women and men were consulted regarding their species preferences. Women favored a mix of forage and shade species to go with the income-producing species most favored by men. Tree survival was much higher in these villages, since the women responsible for watering them under the traditional gender-specific division of labor were more diligent than where they had no influence on the choice of species (Kumar, 1988).

6.   Women's involvement in the forestry sector is not limited, however, to collecting fuel and fodder for household and subsistence farming needs. Because of their traditional reliance on forestry resources, women are often the chief repositories of knowledge concerning the use and management of trees and other forest plants. Women also comprise a large share of the labor force in forest industries -- nurseries, plantation establishment, logging and wood processing. Nor are women exclusively subsistence-oriented: their agro-forestry preferences include commercial fruits and (pole-generating) cash-crop trees as well as fuel and fodder species.

7.   In many countries and environments (not only in tropical rain forest areas), minor forest products (MFP) are a major source of income for the local people. Women often are the main collectors and users of these products -- plant fibers, medicinal plants and herbs, fruits and nuts, seeds used in condiments, both edible and industrially important oils and resins, and so forth. During agricultural crises -- such as drought or flooding -- women and children, particularly landless rural laborers deprived of wage work in crop agriculture, rely heavily on the gathering, processing and marketing of minor forest products to generate cash income. MFP-based activities can in fact contribute more to national income than wood-based industries: in India, MFP account for two fifths of the forest revenues and for about three fourths of net export earnings of forestry products (Kaur, 1988).

> **Box 3: PROJECTS WITH FORESTRY COMPONENTS REQUIRING ATTENTION TO WOMEN**
>
> - Social and Community Forestry
> - Production Forestry
> - Watershed Development/Management
> - Wasteland Rehabilitation/Stabilization
> - Irrigation Command Area Development
> - Integrated Rural Development
> - Resettlement/Transmigration
> - Agriculture/Livestock
>   with Agro-Forestry Components

8.   Until recently, recognition of women's involvement -- active and passive -- in the developing countries' forestry crisis has been incomplete and skewed. In many planners' minds, forest degradation has been equated with fuel and fodder shortages or with images of women walking ever farther in the search of fuelwood. The importance of other forest products to women and the very active role that women play in forest resource management have remained largely unrecognized and unspecified. Household fuel and fodder shortages are one result of forest degradation, but by no means the only one that affects women. Nor can women's critical concerns be satisfied by their passive involvement in forestry projects as mere "beneficiaries" -- recipients of fuel and fodder from male-initiated and -executed activities.

9.   Women's roles in forestry in developing countries are diverse, and women take active roles in a variety of non-politicized instances. Unfortunately, the information base on these various roles tends to be very poor. As a result, many recommendations for program interventions and reports on the forestry sector have overlooked a number of potential avenues for involving women. Moreover, there is a worrisome tendency to over-generalize about women's roles in forestry based on a few location-specific examples. Literature from aid agencies, environmentalists and NGO fora, for instance, focusses on such dramatic examples as the Chipko movement in northern India in which women became highly politicized over the issue of forest depletion (see Box 4). While Chipko is an important movement, it reveals only one facet of the dynamics of women's involvement in forestry worldwide. It would be unrealistic to expect women everywhere to attempt to protect trees and forests as the Chipko women have. Chipko is unique -- because of the importance of the forests in the farming systems of the Himalayan foothills, and because of the strong position of women in that society.

10.   Perhaps due to the poor data base on the economic roles women now play and could play in the forestry sector -- in forestry on public lands as well as in tree cropping within the farming system on private land -- women's issues have usually been regarded as welfare and equity concerns. As a

Box 4: **The Chipko Movement in India**

The Chipko movement began in the Gharwal Himalayas in northern Uttar Pradesh (India) when women, concerned over excessive timber logging in the forests adjacent to their villages, hugged trees to prevent contractors from felling them and effectively stopped logging in the area. Both women and men have since become active in tree planting, establishing plantations and lobbying for forest conservation in the area. Women's organizations have become active forest protectors and have even been issued identity cards by the Forest Department for this role. Under the movement, eco-development camps have been held in Uttar Pradesh, and this model for environmental consciousness raising has now been adopted by NGOs in other parts of India as well.

result, concrete programs have centered on easing women's fuel and fodder collecting workload in the interest of their health and welfare.

11.   Examples such as Chipko underline women's important, if not predominant, role as suppliers of fuel to their households and, hence, as managers and preservers of their forest environment. The equity concern, while important, obscures the point that involving women in forestry can be vital both to rural productivity and to achieving expected project returns. Improving women's quality of life (the equity or welfare concern) is certainly essential, but this argument for including women in forestry should not blind planners to the fact that women's active involvement can lead to sound forestry investment.

12.   Even with regard to fuel and fodder availability and prevailing supply and collection patterns, the information available to planners is usually quite weak, leading to inadequate program and project design. Casual field observations by visitors, including project planners and outside experts, often lead to very erroneous conclusions concerning product availability at the community and household level (see Case 1).

Moreover, there are conflicting and ambiguous theories and data about women and the fuel/fodder crisis. Data on time spent by women on collecting fuel and fodder vary widely even within regions and countries, and micro-level studies can be as misleading as macro-level generalizations. One study reports Indian women spending 18.2 hours per capita per week gathering fuel, another reports only 1.79 hrs/cap/wk (Cecelski, 1985). Some studies maintain that women in Nepal are increasingly burning cow dung due to the fuelwood scarcity, others dispute this claim, making it difficult for planners to draw program-applicable conclusions (Molnar, 1986).

> ### Case 2
>
> Where outsiders may perceive a surplus of wood, there may in fact be a serious shortage for the local community or individual household. In a village in **Africa**, where dead wood was visible all around, a woman potter was forced to abandon her craft because land rights forbade the collection of wood except from land owned by one's own family.
>
> In another part of **Africa**, there are shortages of wood in villages that to outsiders visiting during the dry season seem to be abundantly supplied. Since the main source of wood is inaccessible during the rainy season, women must collect large quantities for stockpiling prior to the rainy season, and the abundance apparent to outsiders visiting at the "wrong" time is illusory.

13.   Similarly, few solid data exist on the effects of the fuelwood and fodder shortage on women's (and household/farm) productivity, and generalizations derived from individual case studies may be wholly inappropriate. Are women preparing fewer warm meals as fuelwood supply diminishes? Are they burning more cow dung and crop residue to cope with the declining supply of fuelwood and, by reducing the application of manure and compost to their farm land, contributing to the decline in soil fertility and farm productivity? Are they abandoning income-generating activities because they require more time for fuel and fodder collection? Are they spending less time in agricultural production?

14.   For most areas of the world, fully satisfactory answers to these questions remain elusive.[1] Reports from parts of Africa, for example, that women have sharply reduced their cooking of beans due to their long cooking time and the associated high fuel consumption are confounded by studies suggesting that the decline in bean consumption in rural areas is in fact due to increased sales of beans for cash. Again, planners are limited to micro-level data that are inadequate to establish the crucial cause-effect linkages that would be more widely applicable in choosing among alternative project design options. Yet these issues are important. They may well affect population growth: where women rely on their children to help them cope with a work load that increases due to environmental degradation and resource depletion, population growth rates are unlikely to decline.

15.   The fuelwood and fodder shortage exists and is serious. But its effects on women are often hidden. It is known that women bear the brunt of general scarcity at the household level. In lean periods, women fast to make the food available to the family last longer. Yet the effect of such sacrifices is difficult to measure (Hoskins, 1983). Women who devote more time to collecting increasingly scarce resources may not visibly show reduced productivity. They may work longer hours and be ill more

> **Box 5: WHEN FUEL AND FODDER ARE SCARCE**
>
> - women have to walk further to collect fuelwood and fodder and spend their time less productively
> - children spend more time helping with fuel and fodder collection and less time in school
> - women cook with dung or agricultural residue, and less farmyard manure and compost goes to fertilize the fields and maintain soil fertility
> - women cook less often, and family members eat fewer warm meals (especially women and children)
> - women switch to foodstuffs and ingredients that require less cooking, and there may be negative nutrition effects (e.g., fewer high-protein beans and pulses in the family diet)
> - farm animals produce less dung because of their reduced and lower-quality diet, and less farmyard manure is available for fertilizing fields
> - poor rural women devote more time to collecting fuelwood from forest areas for sale in urban areas
> - fuelwood-dependent food processing and preservation activities decrease (e.g., smoking meats and fish, parboiling cereals or pulses, cooking animal diet supplements)
> - wood-based income generating activities decrease or become less profitable (charcoal manufacture, cloth dying, silk reeling, salt processing)
> - as total farm productivity decreases, men outmigrate and women have more work responsibilities and less time for their traditional income-generating activities, fuel collection, etc.

often -- but with improvements in health care, they are unlikely to die or to be sick continuously. Their weakening is therefore difficult to document or to link to environmental degradation and resource depletion. Women may reduce or abandon their involvement in cash-generating activities -- growing fewer garden crops or making fewer handicrafts -- and have less income to spend on their own and their children's needs. Children may be compelled to take on a greater work load and spend less time in school. Medicinal plants which women use for treating minor illnesses in their families may disappear (e.g., Smale, 1985).

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[1] One exception, concerning fuelwood, is based on surveys conducted as part of the UNDP/World Bank Energy Sector Management Assistance Program (ESMAP) support to project design in Africa and China.

16.   In areas close to urban markets, the collection and sale of fuelwood is a major source of income for the rural poor -- mainly women -- and much of the time spent in fuelwood collection therefore goes in fact for income-generating purposes. Fuelwood has increasingly become such an important cash-income source for poor women, simply because they have so few other options for employment (e.g., Kaur, 1988).

CASE 3

When trees were harvested from private lands in West Bengal, <u>India</u>, the lops and tops were expected to be retained for household fuel, while the timber would be sold by the village men for cash. The male smallholders cut trees in blocks, however, seeking to obtain a good price from a contractor and to receive a large lump sum of investible profits. Women obtained little fuel, since farms had limited storage space. Some lops and tops were stored, but most were given away or sold at minimal prices outside the farm.

<u>Key Information Requirements</u>

17.   A better understanding of fuel and fodder supply and demand under local conditions is essential for sound planning. To date, most forestry programs have been planned and operated under the assumption that the supply of these products to women would be increased by planting trees for subsistence needs on private land and fast-growing timber species in plantations on community and government land. This approach, experience has shown, was based on a poor understanding of the local fuel and fodder economies.

18.   Farmers, including women, have a limited and site-specific interest in establishing and maintaining trees on their own private land exclusively for obtaining supplies of subsistence products. In the Himalayan foothills, where fuel, fodder and compost are major elements of the farming systems, farmers are interested in growing trees for subsistence needs: they need to compensate for the diminishing community and public forest resources. In most other areas, trees are included in the farming system mainly to generate cash income (from the sale of poles, fruits, etc.); fuel and fodder are merely by-products of such "tree farming". Traditionally, fodder trees are simply the unplanned result of a "passive" land use practice which allows seedlings to take root, rather than a planned and planted "crop" in which farmers, and time-constrained women, are willing to invest their time. Men and women are willing to take up private forestry activities, but only if it can be done with the labor available to them and/or if the cash and subsistence returns are attractive enough for them to divert labor from other activities (e.g., World Bank, 1988).

CASE 4

A village woodlot in Gujarat, <u>India</u>, was intended to supply villagers with forest products for subsistence needs and cash income. Species planted included acacia for seed pods, fodder and fuel, some fruit trees, and pole species. Since women (and male smallholders) were left out of both planning and management, tree spacing was not appropriate for maximizing fruit production, most of the fuelwood produced was sold to outside markets, and seed pods were auctioned so that local women could not gather them to feed to their own cattle (Molnar, 1986).

---

19.   Public forests do not supply
fuelwood billets or logs for local
consumption. Such quality wood is
sold for cash -- while twigs and
leaves, lops and tops serve as the
home fuel. Few forestry plantations
provide women with fuel and fodder,
not because of a lack of demand, but
because they usually are timber-
oriented forest department
operations. When degraded forest
land is targeted for rehabilitation

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CASE 5

Traditional land rights in one region of
Kenya pose a serious constraint to tree
planting by women.   Women do not own
land.  Since ownership of trees on land
is taken as evidence of ownership of the
land, the men almost universally oppose
the planting of trees, by women for fear
that they will gain a claim to the land.
```

or plantation, attention is rarely paid to the pre-project supply of
traditional products to the local communities. Rather than seeking to
expand the range of products and, thus, the likelihood that women will
benefit, short-rotation timber species are usually given priority.
Women's lot is further aggravated where they lack legal access to land
on which trees are grown or traditional rights to the produce grown
(e.g., Fortmann, ed., 1988).

20.   In most rural societies, women are the exclusive depositories
of an extensive stock of essential knowledge concerning the range of
forest products available in their area, the seasonality of product

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Box 6:  WHAT WOMEN MAY KNOW ABOUT FORESTRY THAT MEN MAY NOT

• how much scarcity is there for products women traditionally collect (fodder, fuel,
  medicinal plants, resins and dyes, fruits and berries, nuts and mushrooms, roots
  and leaves, fibers for baskets and other handicrafts)

• what are the burning qualities of various species

• how much time can they devote to tree watering and protection if this is their
  responsibility rather than men's; how far away from the village can the plantation site
  be and still allow them to do the work required at home and in the plantation

• what planning is required to ensure fruit, seed pods, other minor forest produce can be
  harvested from a plantation at times when women have time for collection and processing

• what rotational, seasonal or permanent closure rules have been established for
  traditional forest resources that are utilized primarily by women for fuel, fodder and
  other forest product collection

• how are small animals reared by women fed from fodder sources unutilized by men with
  seasonality unknown to men

• what value is there in planting shade trees near the house and/or at selected locations
  in the fields to improve the quality of the living and working space and increase
  productivity

• what land-use (soil and water conservation) practices women carry out on land they are
  responsible for (subsistence food crop land, home gardens, fields close to the homestead)

• what labor or capital constraints exist for female-headed households trying to
  participate in farm forestry programs being introduced in a project area
```

availability, and the uses of such products. Since women are rarely, if ever, consulted during program design and preparation, planning is almost always based solely on the limited information base of men.

21.   The knowledge gap concerning women in forestry and forestry for women usually persists throughout the project's lifetime, since efforts to close it are rarely made during project implementation. Research to generate recommendations about alternative species, planting and management practices that would suit women's needs and constraints is hardly ever undertaken, be it by forest agencies or under broader agricultural research efforts. Data on sustained fodder yields from species regularly planted under social and agro-forestry programs, for instance, are scanty and inconclusive for most recommended spacings, because systematic trials and measurements have not been undertaken by the implementing agencies. As long as the lack of relevant forestry research hampers forestry programs in general, the planning and implementation of programs for women will remain especially ineffective.

22.   Issues concerning women in planning forestry interventions extend beyond the local fuelwood and fodder economy. Women provide a considerable portion of total labor in certain forest industries -- e.g., nursery work, tree planting, logging and wood processing -- but programs generating wage employment do not usually provide women with equitable wage rates, adequate working conditions, or important support services such as day care for children. Rarely is attention paid to the effects of pesticide use on plantation laborers, including women.

Box 7: TYPES OF MINOR FOREST PRODUCE COLLECTED BY WOMEN

Mauritania - Arid Region of Brakna (Smale, 1985)

Foods & fodder
gums, fruits, leaves and grasses, chemicals from trees and plants for butter preservatives, couscous seasonings, a wild grain (aze) used as animal fodder

Medicines, cosmetics, dyes, etc.
medicinal plants, henna and pods for cosmetic purposes, incense plants

Utensils, handicrafts, etc.
fronds, grasses, dyes, leather tannins, floormats

Papua New Guinea - Rainforests (IUCN, 1987)

Foods & fodder
condiments, grasses, fruits, nuts, gums, starch plants, salt yielding plants, alcoholic beverages, stimulants, oils

Medicines, Dyes, etc.
areca nuts, black paint glazes, resins, hunting poisons, fish intoxicants, insecticides, resins, bird bait, abortificants and contraceptives

Utensils, handicrafts, etc.
water containers, cooking and eating bowls, cooking tools, other tools, bows and arrows, rope, thatching materials, bark clothes, leaf capes, ceremonial masks & shields, jewelry, baskets, fiber net bags, necklaces, musical instruments

23.　　When interventions are implemented in forest areas which have traditionally supplied important minor forest products, little thought is given to the likelihood of increasing work loads for women (and children's) due to the need to travel farther to collect the same amount of produce. Plantations could include more MFP species along with timber species, even if these have longer growing cycles than is currently common in "reclamation" forestry. There is great scope to increase women's participation in MFP marketing; they could be provided with credit for processing and marketing, given training in processing, or helped to organize to break into markets dominated by male traders. The issue of women's legal access to land and forests may need attention.

> ### Case 6
>
> The development of better markets under a project in the **Dominican Republic** allowed men to sell palm trees planted on their farms for cash. Since men control land-use, women have little influence on decisions concerning the use of trees and tree products and failed to obtain fronds from these palms to sustain their traditional basket-making enterprises.

24.　　Paying more attention to income-generating opportunities for women in a forestry program is not frivolous. Raising the productivity of female farmers and farm laborers is essential for increasing farm and forestry productivity and output. The more time women spend in fuel and fodder collection, the less they will have available to adhere to environmentally sound resource management practices. As mentioned above, MFP is a major source of national income and often more important than timber and lumber, and sound planning in this area can greatly increase the economic return on forestry projects. In addition, women's strong interest in forest management, demonstrated by examples like Chipko, is often the most effective means of interesting men in sound and sustainable forest management (Kumar, 1988). Although commercial fuelwood contractors are major culprits, poor women's and men's sale of fuelwood to urban markets is an important causal factor in forest degradation in densely populated countries. The solution to the problem of forest degradation can only be found through the supply of alternative employment to such collectors as well as through sound resource management.

> ### CASE 7
>
> A project in **Honduras** failed to include women in credit programs for farmers to reforest and terrace lands destroyed by a hurricane. Women showed up to work anyway and proved more committed and successful than men. Only because of the women's initiative were men eventually encouraged to devote time to this project (Fortmann and Rocheleau, 1985).

25.　　Two central conclusions emerge from the above: (a) more resources must be devoted to creating a credible information base on women's issues in forestry, and (b) more research is needed on technologies that are relevant to women's roles. Since land and forest-product usage patterns and constraints are site-specific, this information will have to be gathered for a wide range of situations. For individual projects, information gathering about the project area itself must be a central component of design and implementation. For national or regional forest strategy formulation, a comprehensive

examination of the existing data base and the gaps that need to be filled to make long-range policy decisions is a pressing concern, particularly regarding land-use decisions.

C. WOMEN IN FORESTRY PROJECTS

26.   Forestry projects and forestry components in other projects are intended to meet a variety of objectives. These may include:

- increasing the production and supply of timber and wood products for internal consumption and/or export and for both commercial and industrial needs;

- improving agro-environmental conditions on degraded pasture lands and in watersheds through establishment of forest, tree and/or bush cover;

- improving the output and productivity of wood and minor forest produce processing industries;

- meeting subsistence needs for fuel, fodder, compost material and other forest products in the household economy through improved forest management and/or tree planting/farming;

- increasing rural incomes through farm- and agro-forestry; and

- improving the productivity of cultivated land by planting trees and tree crops on fields and/or field boundaries.

27.   Where women are recognized as the primary users of fuelwood, fodder and a variety of other forest products, they can be expected to benefit significantly from appropriately designed and implemented forestry programs. In some cases, where women's decision-making role in conserving forest resources through controlled or rotational harvesting has been recognized, project staff have attempted to consult women on afforestation or forest resource management decisions. Far too often, however, project designers have simply assumed that women would readily contribute their time and labor -- without being consulted on the design, scope and utility of planned project activities. Under a number of projects in Africa and India, for example, women have been expected to hand-harvest fodder and stall-feed their animals (so as to protect tree plantations against damage from freely foraging animals) even though they do not necessarily have the time or the resources to do so (e.g., AFTEN, 1988; Kaur, 1988).

Case 8

A Machakos-based agro-forestry project in Kenya required women to collect and transport water for seedlings in the nurseries. When a water shortage forced the women to fetch the water from a river 2.5 km away, they refused to go. Project planners had made no attempt to consider the impact of the project on women's work load.

28.   It is now increasingly recognized that forestry projects, especially those intended to supply fuelwood and other products needed primarily by women:

- will be considerably more effective, and have higher returns on investment, if women are more actively involved (see Box 8);

- may not achieve essential objectives unless adequate attention is paid to women's concerns and involvement (see Box 9);

- do not always and automatically benefit women (see Box 10); and

- can harm women if they are poorly planned (see Box 11).

29.   Involving women directly in forestry programs is not easy. Some Bank-aided projects have included specific measures aimed at involving women, such as use of female extension staff or motivators, coordination of activities with local women's organizations, and female-targeted media programs. Few have succeeded, however, in actively involving women as participants or in ensuring that women benefit equally with men from project activities.

CASE 9

In **Nepal**, women are traditionally responsible for watering trees and, at least near the homestead, protecting them against foraging livestock. In a village with a tree nursery, where women were not specially targeted to receive extension, mostly men took seedlings for planting around their homesteads. Most of the trees died -- because the women were not aware of the planting program.

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30.   There are many reasons. Few relevant data are available to project planners, in the country and in the Bank. Forest departments are traditionally more male-dominated and -oriented than other agencies with longer histories of extension service. Project officers tend to be preoccupied with many other pressing issues. Relatively few qualified women are available for crucial project planning and implementation tasks. Sometimes consideration of women is too peripheral to overall project objectives, or it comes too late in the project cycle. And there is a tendency to assume that addressing women's needs and evaluating women's involvement within a more general development context will be excessively time-consuming and costly.[1]

31.   There is, of course, no ready-made template for ensuring appropriate women's involvement. Project officers experienced in fuelwood, agro-forestry and community planting programs can attest to that. In large measure, the approach must be project-, institution- and site-specific. And unless specific resources are provided for this purpose, there is a real trade-off for project officers and team leaders in deciding what share of available resources should be allocated to women's issues and at the expense of which other important activity.

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[1] See Virginia Kearns, Reporting on Women and Men in FAO-Assisted Forestry Projects, FAO, Forestry Department, Rome, 1985.

KEY ISSUES CONCERNING THE INVOLVEMENT OF WOMEN IN FORESTRY PROJECTS

Box 8: HOW PROJECTS CAN MAXIMIZE RETURNS ON INVESTMENT BY INVOLVING WOMEN

- If women's species and product preferences are taken into consideration, they will be more likely to cooperate in pursuing overall project objectives (Case 1).

- Women are often a stronger lobby for the protection of common property resources, because they depend on them more heavily than men (Case 7, Case 14, Case 15).

- If activities are planned around women's schedules, they will have more time to devote to these (Case 8).

- Female-headed households (or households without adult males) may form a large percentage of households in the project area. If they can participate, project returns will increase (Case 10).

- Women can generate significant household income if raw materials for home-based industries are available (Case 17).

- Rural women have been shown to be better loan repayers than men. Ensuring for them access to institutional credit for planting or land improvement may have higher returns and may lead to more family income going directly to meeting subsistence needs and raising household living standards (Case 7).

Box 9: HOW PROJECT OBJECTIVES CAN FAIL TO BE ACHIEVED

- If women do not perceive project activities to be in their interest, they will not (or only reluctantly) provide labor for tree watering and tending and will not cooperate in recommended resource management practices such as rotational grazing, hand-cutting and stall-feeding, and restrictions on cutting (Case 8).

- If forest produce from plantations is not channeled to the women who need it, the pressure on existing forest resources from women gathering (and sometimes marketing) wood may increase rather than decrease (Case 4).

- If forest produce goes primarily to men's (cash-generating) enterprises and exacerbates shortages of products required by women for either subsistence needs or market-oriented activities, the net income accruing to the household may decline rather than increase (Case 3, Case 6).

- If women are responsible for key project activities such as nursery work, tree planting and tending, but do not receive the extension messages and requisite technical know-how, seedlings may not survive and thrive (Case 9).

Box 10: WHEN WOMEN PROBABLY FAIL TO BENEFIT

- When women's access to project activities and outputs is more limited than men's due to their inferior legal and/or traditional rights (Case 5, Case 6).

- When women are de facto heads of households in a patriarchal society and are confronting male-oriented public institutions (Case 10).

- When there is a conflict between the forest products and project benefits women need and want and those that men or the male-dominated communities prefer: e.g., fuelwood and fodder vs. lumber/cash, grazing areas vs. closed-canopy plantations (Case 16, Case 18).

Box 11: HOW WOMEN CAN BE HARMED

- If women are expected to provide their labor to an extent that conflicts in quantity and/or timing with their other work responsibilities (Case 8).

- If project activities interfere with women's supply of, or access to, formerly available facilities and/or products (Case 11).

13

32. Some important lessons have been learned, however. Available evidence strongly suggests that two basic conclusions can be drawn:

first, **involving women often makes the difference between achieving and not achieving project objectives,** and

second, **involving women need not be overly costly** in terms of Bank and project staff time and financial resources and will, in virtually all situations, **result in a project with higher returns on overall investment.**

D. PLANNING FOR WOMEN'S INVOLVEMENT

33. Taking women's needs, functions, responsibilities and constraints adequately into account must begin at the planning stage. The first requirement is to identify properly the short- and long-term needs and demands of different users -- including different categories of women -- on the existing and planned forest resources and project facilities. This includes assessing the differences between the knowledge base of men and women regarding: (a) various forest projects, their uses, and their seasonal availability; (b) fodder sources and their availability; and (c) different aspects of the local farming system as they are affected by forest production. It further includes assessing the potentially different utility accorded by men and women to different forest products and project components.

> **CASE 10**
>
> There are many female heads of households in the Kathama watershed in Kenya, and their agro-forestry preferences differ from those of men. While the men generally prefer fodder crops protected by live fencing, these women emphasize field and boundary planting of fuel/fodder species near their homes. They also more often intercrop subsistence and cash crops, in an effort to adjust to the labor scarcity in their households.

34. The second requirement is to identify the various categories of users, participants and beneficiaries and the current and future group-specific uses, functions and benefits. Those likely to lose benefits as a result of project-induced land-use changes will need to be adequately compensated by providing for them access to alternative resources or employment. This requires gathering adequate information on gender-specific labor and time allocations in the household and community, decision-making roles of different household members, and differential constraints on women's and men's access to services (e.g., extension, credit, training, etc.) that support proposed project activities. A serious shortcoming common to many projects is that, on the (very often faulty) assumption that women will automatically be major beneficiaries,

> **CASE 11**
>
> In Burkina Faso, an area of degraded shrubs was cleared for planting 'productive' trees. Inadvertently, women lost a valuable source of fuelwood, of shea nuts for cooking oil, and of medicinal plants (Hoskins, 1983).

particularly where fuelwood components are included, no mechanisms are provided to **monitor and evaluate** the extent to which women (and different categories of women) actually benefit from project activities nor, should this become necessary, to adjust activities to **target women more effectively** in the course of implementation.[1]

35.   An essential aspect of this second requirement is the need to identify feasible and cost-effective ways of improving women's access to project facilities, services and benefits. Involving existing women's groups and/or NGOs working with women at the grass-roots level has proven to be an effective approach in many instances. Where such groups do not exist, it may be possible to support the formation of women's groups in the community. If not, alternative strategies need to be explored for increasing women's access and to help women perform their forest resource management and their associated income-earning functions effectively. In many societies women are more easily reached by women, and deploying more female staff will therefore

> **Case 12**
>
> Experience under several forestry projects in **Nepal** has shown that it may be more realistic and effective in the short term to focus on adequately sensitizing and training male foresters to understand women's roles in forestry than to try to find qualified women to employ as forest extension workers. With proper orientation and training, male staff <u>can</u> effectively consider women's needs and contributions.

be advisable -- but may prove very difficult in the short run. Almost everywhere, it will be necessary to educating male staff about women's roles in forestry. In some instances, this may actually be more realistic and cost-effective in the short run than attempting a rapid increase in the number of female extension staff. With proper orientation and training, male staff **can** effectively consider women's needs and contributions and reach women directly in field work.

36.   A third major aspect of proper planning is identification of gender-specific functions and responsibilities in forest resource management. This concerns such questions as: who is responsible for controlling foraging livestock; who ensures that rotational grazing systems are adhered to; who knows how much fodder is needed for stall-feeding and where it should be cut; who enforces restrictions on cutting and felling on common property land; and who decides upon species selection for new plantations?

> **Case 13**
>
> A forestry project in Gujarat, **India**, included a component on fuel-efficient stoves. Stove popularization, dissemination and adaptation of the base model to different household sizes with different cooking needs required an extension effort that the Forest Department could not provide with its own staff. The NGO contracted for this purpose overextended itself and could not adequately monitor its program, and a number of stoves were poorly constructed by its female stove promoters. This project component has stalled and may be difficult to revive.

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[1] The example in Annex III provides a good illustration of this design weakness.

37.   Annex I (pp. 19-22) provides, in "checklist format", a more detailed listing of issues to be considered and information to be gathered and analyzed during project planning, preparation and appraisal. It suggests potential sources of information as well as methods and techniques to gather information. And it recommends a number of specific measures and approaches that are likely to help ensure that women are appropriately involved in project activities and benefit equitably from the planned interventions. (This Annex, as the others, is meant for use in the field.)

CASE 14

Local women's organizations (Mahila Mandals) and very strong in Himachal Pradesh, __India__. When a Bank-aided project began tree planting programs, these groups became very active in planting on both private and public land. Forest Department staff recognized their potential, and the Department now plans to increase greatly its employment of female village motivators, forest guards and higher-level officers.

E.   ENSURING WOMEN'S PARTICIPATION DURING IMPLEMENTATION

38.   Proper planning and project preparation are vital -- but they do not _ipso_ _facto_ guarantee successful involvement of women. Efforts to ensure this need to be sustained and, if necessary, further refined and focussed during implementation. Moreover, even with the best of efforts, certain key questions may not have been answered during preparation and appraisal. This requires continuing and expanding the gathering and analysis of relevant information that will facilitate judging success or failure in reaching women. This, in turn, should then be used to decide upon adjusting project activities in response to the dynamics of user/beneficiary interaction with their forest resource endowment, with the project, and with each other. It may concern the need to respond to unforeseen conflicts arising between men and women over project benefits, modifying project components to improve the access of women to project services and outputs, changing the mix of project outputs to match local women's evolving needs, etc.

39.   Considerable amounts of data are routinely and regularly collected during project implementation. To the extent they are relevant, these data need to be collected and analyzed on a gender-disaggregated basis; if necessary, the scope of such routine data collection should be expanded to meet the requirements of monitoring the involvement of women in the project. This will be far less costly in terms of staff time or finances than if

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Case 15

Women spontaneously formed a forest committee in a village in __Nepal__ to manage a forest planted under a Bank-aided project. The women were eager to construct a drinking water supply system in their village -- their highest priority, and an important means to free some of their time for forest management work. Due to budgetary and administrative inflexibility, project staff were unable to help them obtain the needed materials, even though the women were willing to contribute free labor to the forest project in exchange. The women are now disillusioned about the project's commitment to meeting strongly felt local development needs rather than merely the project staff's own targets.

this information has to be collected later through special surveys and studies. Examples of issues on which gender-specific data can and should be regularly collected are: project-induced employment; wages; work specializations and their causes; skill acquisition; recipients of project inputs and services; species preferences and selections; entrepreneurial initiatives; income effects and utilization; targeting, reach and effectiveness of extension and training; membership of forest committees and users' groups; and departmental staffing patterns.

40.   Some critical issues concerning women's participation and project impact on women cannot be adequately monitored and assessed on the basis of "normal" administrative data collection. Special surveys and studies will be required, and appropriate provisions for such assessments should be made under the project. This concerns in particular project impact on various categories of women and their own perceptions of project impact. Specific issues that need monitoring in this regard include: changes in women's work loads and time allocations; changes in fuelwood and fodder availability and use; changes in family diets and/or cooking habits; changes in children's time use (notably school vs. work); conflicts between men's and women's interests in project outputs; expected and actual benefits from plantations on community and government land; utilization of fuelwood, poles and other products from private plantings (subsistence use vs. market sales); amounts and utilization of sale proceeds; changes in supply and availability of wood and other forest products to local women's industries.

> **Case 16**
>
> A Ford Foundation pilot project in Andhra Pradesh, __India__, organized a group of women with dairy cattle in a fodder plantation scheme on community wasteland. When the plantation proved to be productive, men in the village began to file claims to this previously unwanted land, and the women are now hard pressed to protect their interests.

41.   A second area of concern likely to require special studies is the assessment of the extent and distribution of project "costs" and project-induced "losses" among various users and beneficiaries, notably between women and men (e.g., labor contributions to community activities, diminished supplies of traditional products, increased cash income for men at the expense of reduced availability of subsistence and/or income-generating products for women).

42.   A third requirement is the monitoring of the needs, demands and constraints of different groups of users over time: Were these correctly identified and determined during project preparation? Are the expected beneficiaries receiving project inputs and benefits in the quantities and at the times envisaged during project

> **CASE 17**
>
> Degraded forest land in the upper ranges of Sukomajri watershed in Haryana, __India__, was planted with widely spaced fodder, fuel and timber trees, intercropped with traditional thatch grass species, and protected by the villagers against cattle and cutting. Women were given loans to buy rope-making machines and are now harvesting these grasses regularly to generate significant cash income from rope-making.

planning and preparation? Are they participating in project activities
as envisaged? Are women and men continuing to request the same products
and services they did prior to project preparation/appraisal?

43.   Annex II (pp. 23-26) provides a detailed listing of issues to
be considered and information to be gathered and analyzed during project
implementation and supervision.

F. OPERATIONAL TOOLS

44.   Annexes I through V are conceived as operational tools. The
first two are presented in the form of "checklists". They are intended
to remind project planners, appraisers, implementors and evaluators of
important issues and essential information needs. They suggest
potential information sources. And they set out practical
recommendations on approaches and methods for obtaining relevant
information and for incorporating women's needs, constraints, concerns
and contributions in forestry operations. These reminders and
recommendations reflect the main
issues and concerns -- summarized
in Boxes 8, 9, 10 and 11 on pg. 12
-- regarding appropriate
involvement of women and women's
issues in forestry sector
operations. Annex I addresses
information requirements and
issues to be addressed during
project planning and appraisal.
Annex II deals with matters of
importance during implementation,
monitoring and supervision.

> ### Case 18
>
> A tree project in the Cameroons introduced
> fodder trees as an intercrop to stabilize
> soils on land previously under slash-and-burn
> cultivation. Men liked the new system: it
> increased maize yields and reduced the work
> required for land management. Women did not
> like it: their groundnut production declined
> and they had to provide more labor for
> pruning the trees (Tonge, 1988).

45.   Annex III provides a model approach to assessing project costs
and benefits which considers men and women as distinct and separate
categories of beneficiaries. Using a Bank- and USAID-aided social
forestry project in India, it: (a) demonstrates ways for incorporating
women as a distinct category of beneficiaries in project benefit and
cost analysis, (b) shows that overall project returns need not be
reduced through the incorporation of features that aim to ensure that
women receive project benefits, and (c) indicates that involving women
can increase the likelihood of achieving overall project objectives.

46.   Annex IV contains a set of "decision aids" to help project
staff identify different design features for various types of forestry
projects and/or components. Five types of forestry interventions are
specifically dealt with: private farm forestry; community woodlots;
watershed management/wasteland rehabilitation; improved wood-burning
devices; and forestry extension. For each of a number of aspects
relevant to the project, specific design considerations and features are
set out and potential sources of information are identified.

47.   Annex V provides generic terms of reference for the
investigation of gender issues in forestry. Deliberately wide-ranging
and detailed, managers and mission leaders can draw on them in preparing
project-specific terms of reference in each individual case.

48.   The Select Bibliography, finally, provides a listing of
literature of particular relevance and utility with respect to issues
concerning women and forestry.

ANNEX I

INFORMATION TO OBTAIN AND ISSUES TO ADDRESS
DURING PROJECT PREPARATION, PREAPPRAISAL AND APPRAISAL

A. Essential Information Requirements

1. Women's Roles in Forestry and Land Management

Identify and assess the functions and responsibilities of women in
forestry and related activities in the project area, taking care to
consider the various major categories of women (e.g., farm women in
land-owing households, landless laborers, women engaged in forest-based
formal and/or informal industries, female heads of households, school-
age girls, women of ethnic or religious minorities, etc.). Consider in
particular the roles of women:

- as **Collectors** of various types
of forest products: for meeting
subsistence needs (e.g., fuelwood,
fodder, thatching) as well as for
cash income generation through
marketing (e.g., fuelwood, minor
forest products) and market-
oriented processing (e.g., fibers,
fruits, other MFP);

- as **Producers/Entrepreneurs**: in
forest-based activities/industries
important to women for subsistence
and/or market-oriented production
(which activities, which products,
which uses and/or markets, what

> **Box 12:** **SOURCES OF INFORMATION**
>
> - Women's groups and organizations
>   at the grassroots level
>
> - Group interviews with village women
>
> - Local women leaders
>
> - Women nursery workers
>
> - Female staff of public agencies
>   posted or resident in the project area
>
> - Studies by NGOs or researchers on
>   women's situation in the project area

marketing channels, what technology, what income, what time
allocation?); in tree planting carried out at women's initiative
(which species, which locations, which management practices?); in
households they head due to widowhood, divorce, abandonment or
husbands' temporary or seasonal out-migration (which agro-forestry
preferences and practices, which special needs and constraints?); in
households where they traditionally have responsibility for agricul-
tural, livestock management and agro-forestry decisions;

- as **Laborers**: in nursery operations, in soil work and planting, in
watering seedlings and established trees and grasses, in managing
alley-crops and intercrops in agro-forestry systems, in other
agricultural operations, in protecting trees against foraging animals
and/or illicit lopping/felling, and in harvesting;

- as **Planners/Managers** deciding about a range of operations and
product utilizations: when to lop or cut a family tree, when to
harvest fruit, whether to harvest seed, whether to apply more compost

to fields, when to cut fodder grass, whether to preserve a common land resource by rotational cutting or grazing, etc.

2. Potential Gains and Losses to Women

Identify and, to the extent possible, quantify the potential gains that will accrue to women and the likely losses they may have to bear as a result of the planned intervention. Specific issues to be considered include:

- **pre-project benefits likely to be foregone** by women and their households, with special attention to households headed by women: e.g., when common land is to be utilized for tree plantations; when gathering and sale of wood from government forests is eliminated as a source of income for poor households; when the utilization of minor forest products is expected or likely to become commercialized; or when changing gender-specific economic interests and incentives induced by project interventions are likely to deprive women of access to previously accessible resources;

- **work load implications for women**: e.g., the extent of added labor required of women of various socio-economic groups for project activities (such as watering, weeding, protection); longer distances to be walked for gathering fuel, fodder and other products previously obtained from land now brought under a different production and management regime; the effect of such additional labor requirements on women's time and labor allocation and on women's and household welfare (e.g., curtailing of time allocated to other tasks, increasing reliance on child labor);

- **probable gains to women** from planned interventions: e.g., increased availability of forestry products (but check for potential conflicts arising between men and women, between commercial and subsistence

Box 13: FAO RECOMMENDATIONS
- Explore gender issues through two-way communication
- Investigate the customs, taboos and time constraints
- Promote the role that women do and can play in forestry activities
- Exchange information with individuals at every level
- Support women's groups and encourage the formation of new ones
- Work together to provide access to land and trees
- Collaborate to make credit and income available to women
- Consult with women before introducing new technology or species

users); availability of new products for subsistence and/or market-oriented income generation; introduction of new income-earning activities based on forest products not previously available; generation of wage-labor opportunities (but check for potential distortions in male-female competition for new employment);

- **differences and potential conflicts** between probable gains and losses for women and those anticipated for men, households in general or the community as a whole: e.g., men's strong preference for timber species crowding out women's need for fuel and fodder trees; men's preference for selling trees en bloc conflicting with women's need for the domestic or home-industry use of by-products; or men's interest in cash-cropping of trees and their command over the labor of women in their household forcing women to reduce their time allocations to other family-care and/or income-earning tasks.

B. Special Planning Issues

1. Specific Measures to Ensure Women's Involvement

Consider and implement specific project/program components, including innovative measures which may not yet have been tried, to ensure women's involvement, utilize women's special stock of knowledge, capitalize on women's potential contributions, safeguard women's interests, and increase benefits to women. Examples include:

- inclusion of species that meet subsistence/survival needs and provide non-wood income-generating forest products;

- programs to ensure women's active participation in land improvement activities and nursery management;

- provision of training, credit, inputs and marketing support to women to engaged in home-based forest product industries;

- support to existing and/or for the formation of new women's groups which can undertake project tasks and/or facilitate individual or group participation of women in project-induced activities;

- explicit recognition of women as key agents when introducing improved land-use practices and provision of appropriately targeted extension and training services for women;

- identification and provision of appropriate incentives to women's participation as required for project success;

- identification of gender-specific constraints to women's participation and implementation of specific measures aimed at eliminating these;

- training women to facilitate their operation of nurseries.

2. Institutional Channels for Involving Women

Identify institutional channels for informing women about and involving them in project activities, such as:

- local women's groups at the grass-roots level;

- female extension staff of forestry and other government agencies;

- NGOs working with women in the project area (see Box 12).

3. Skill Development

Determine what skills women should have acquired by the end of the project period? Specify how this is to be brought about? Identify training needed for women and means to provide such training? Ascertain what is needed to ensure that a certain number of trained women are available by the end of the project period to be employed at various levels in the forest service and/or in other agencies concerned with land management and soil and water conservation?

Box 14: IDENTIFYING CHANNELS TO INFORM AND INVOLVE WOMEN

- What NGOs in the project area work with women and what are their target groups? (Ask large NGOs in the country and local officials about local NGOs; check directories compiled by women's and environmental groups for NGOs working with local women and/or involved in environmental work.)

- What local-level women's organizations exist and what is their membership, coverage, expertise, participation in local decision-making?

- What forestry/environmental activities have women been involved with the project area?

- What institutional credit programs exist for women in the project area?

- How well are women represented in the administrative structures, at higher levels in various agencies, at the district and sub-district administrative level, on elected councils, etc.? In which areas of concern are these women active discussants or decision-makers, and in which areas do they remain silent or defer to men?

- Which women are trained in forestry, resource management, soil and water conservation, on-farm agricultural methods?

ANNEX II

INFORMATION TO OBTAIN AND ISSUES TO ADDRESS
DURING PROJECT SUPERVISION, MONITORING AND EVALUATION

1.   Efforts to ensure successful involvement of women need to be sustained and, if necessary, further refined and focussed during implementation. This requires continuing and expanding the collection and analysis of relevant information to facilitate monitoring and evaluating the degree of success or failure in reaching women. Information concerning certain important issues and developments will become available only in the course of project implementation. Information obtained prior to project start-up may become outdated, if only as a result of project interventions and will therefore need to be updated. Information needs that should have been met before project start-up may have been satisfied only partly or not at all. And finally, monitoring of project performance itself requires continuous collection and analysis of essential quantitative information.

2.   Key questions likely to require further and specific efforts at information gathering are those regarding women's roles in forestry, gender- and age-specific labor allocations within the household, and household decision-making patterns.

3.   The information obtained should then be used to decide upon adjusting project activities in response to the dynamics of user/beneficiary interaction with their forest resource endowment, with the project, and with each other. This may concern the need to respond to unforeseen conflicts arising between men and women over project benefits, modifying project components to improve the access of women to project services and outputs, changing the mix of project outputs to match local women's evolving needs, etc. Specifically, the information obtained should provide a basis, for example, for:

- discussions with men and women in the project communities regarding species selection and plantation establishment and management;

- facilitating adjustments in plantation models and harvesting patterns so as to safeguard women's requirements for fuel, fodder and other products needed to meet subsistence or cash-income needs;

- introducing additional species and/or credit and training programs to promote traditional or new forestry-based income-generating activities for women;

- identifying NGOs or women's groups that could be involved in tree planting, nursery operations, awareness campaigns, extension work, and other project activities; and

- curriculum development/modification for pre- and in-service forestry staff training and for farmers' and women's training.

4.   Two primary means are available to obtain further information during project implementation, and both may need to be utilized:

    (a) administrative data gathering routinely associated with project administration and monitoring, and

    (b) special surveys and studies commissioned under the project.

Concurrent Information Gathering

5.   A wide range of data is routinely and regularly collected during project implementation. To the extent they are relevant, these data need to be collected and analyzed on a gender-disaggregated basis. If necessary, the scope of such data collection should be expanded to facilitate monitoring women's project involvement and benefits. If properly planned for and organized, this will be considerably less costly in terms of staff time and finances than if this information has to be collected later through special surveys and studies.

6.   Issues on which gender-specific data can and should be regularly collected include:

- employment generated (men/women/boys/girls);

- wage rates;

- work preferences and specializations and their causes;

- contributors of labor and other inputs to, and recipients of benefits from, community plantations;

- laborers for different operations in nurseries, private plantings;

- skill acquisition;

- recipients of project inputs and services (seedlings, credit, extension advice, training, fertilizer, pesticides);

- species preferences and selections (fruit, fodder, timber, fuel), in private plantings and community operations;

- number and ownership of private nurseries established;

- number, ownership and type of forest-based industrial activities initiated; size, employment;

- amount and disposition of income from private nurseries, private tree farming operations, forest-based industrial enterprises;

- men and women regularly contacted by extension staff;

- participants in farmers' training programs;

- membership of forest committees and forest users' groups;

- number of forestry extension staff, and number of staff trained by gender at all levels.

Special Surveys and Studies

7.   Certain key issues concerning women's participation and project impact on women cannot be adequately monitored and assessed on the basis of "normal" administrative data collection. Special surveys and studies will be required, and appropriate provisions should be made for such studies and assessments under the project.

8.   This concerns in particular **project impact** on women as well as their own perceptions of project impact. Data should be collected separately for women and men with different social and economic characteristics so as to permit meaningful impact assessment. Issues that need monitoring include:

- changes in women's daily and seasonal work loads and time allocations;

- changes in fuelwood and fodder availability and use;

- changes in family diets and/or cooking habits;

- changes in children's time use (notably school vs. work);

- conflicts between men's and women's interests in project outputs;

- expected and actual benefits from plantations on community and government land in terms of forest products (including fruits, seed pods, medicinal plants, grasses, fodder, leaves);

- utilization of fuelwood, poles and other products from private plantings (e.g., how much fuelwood is consumed by the household and for what period of time? How much is sold, at what price, and what happens with the proceeds?);

- changes in supply/availability of wood and other forest products to local industries operated by women.

9.   A second area of concern likely to require special studies is the assessment of the extent and distribution of **project "costs"** and **project-induced "losses"** among various users and beneficiaries, notably between women and men. Examples are:

- labor contributions to community activities;

- diminished supplies or accessibility of forest products previously available from the project area;

- increases in work load and time required to obtain certain products needed by women;

- scaling back or abandonment of women's income-earning activities due to reduced input and/or time availability;

- increased cash income for men at the expense of reduced subsistence and/or income-generating products for women.

10.   A third requirement is the **monitoring of the needs, demands and constraints of different categories of users over time**:

- Were user needs and constraints correctly identified and determined during project preparation?

- Are the expected beneficiaries receiving project inputs?

- Are they participating in project activities as envisaged?

- Are women and men continuing to demand the same products and services that they requested prior to project preparation?

ANNEX III

COST-BENEFIT ANALYSIS WITH WOMEN'S NEEDS IN MIND
(A Case from a Bank/USAID Project in India)

Introduction

1.   Project planners often -- albeit falsely -- assume that involving women as direct beneficiaries or participants and devoting specific resources to achieve this is peripheral, if not detrimental, to the attainment of central project objectives and/or requires additional inputs at the expense of overall project focus and project returns. The case presented here refutes these assumptions by demonstrating that:

    (a) economic returns are not reduced in projects that specifically
        ensure benefits to women, and

    (b) directly involving women can improve the probability of projects
        meeting their essential objectives.

The Case

2.   The National Social Forestry Project is being implemented in four Indian states with IDA and USAID assistance. The project aims to increase the supply of forest products to the rural population in the project areas and to nearby commercial and urban markets, to generate forest products and employment for all segments of the rural population, and to improve environmental conditions in the project areas. Project activities include farm forestry/agro-forestry, nursery establishment and seedling production, measures to promote private sector initiative in nursery and seedling production, and tree planting on degraded community and governmental forest lands.

3.   Women are implicit target beneficiaries in the project -- as members of rural households and as individuals who play an essential role in the collection and/or use of forest products (e.g., fuelwood, minor forest produce, grasses and leaf fodder. Part of the aim of the project is to relieve the pressure on existing forest resources, by increasing the supply of needed subsistence forestry products to the local population from private and public non-forest lands.

Mid-Term Review and Evaluation

4.   A mid-term evaluation of the project was recently conducted. It found, inter alia, that private farm forestry activities had considerable potential for generating farm income and supplying timber and fuelwood products for industrial, commercial and local market needs and that most were indeed realizing much of this potential. By contrast, environmental benefits and equitable distribution of social benefits were not as readily achieved through private farm forestry as had been assumed at project preparation and appraisal.

5.   One problem concerning plantations on community land has been the lack of strong and broad-based community involvement in plantation planning and management. As a consequence, planting and management models have been overly timber oriented, and distribution/utilization systems have emphasized generating cash income for the local administrative body (the Panchayat), rather than helping to meet the varied subsistence needs of the community, particularly of the poor and women most dependent on community land resources.

6.   Although the central role of women in the use of forestry products and the management of the forest resource base has long been recognized, the project had not specifically targeted women in its extension or plantation efforts, be it to obtain information about differences between their interests and those of men (even within the same household) or to involve women in plantation planning and management. One key assumption underlying project preparation and appraisal was that project plantations on common property land would generate products needed to meet poor women's subsistence and income-earning requirements and thereby decrease the amount of wood taken by such women from protected public forests. This assumption has proved false -- largely due to the absence of a community consensus on species selection and plantation management and to the emphasis on timber production for cash sale.

Recommended Modification of Plantation Models

7.   In recognition of these weaknesses of the community plantation component and of the strong project performance in respect of those forest products now generated through private farm forestry activities, the mid-term review recommended a modified approach to community plantations. While continuing to produce the marketable timber and fuelwood that are of primary interest to the Panchayat, this modified planting and management model for plantations on common property and other public land specifically aims at meeting significant subsistence and cash income needs of the poorer members of the community (marginal farmers, landless households and women, i.e., those traditionally most dependent on the community land taken up for plantations). Women in particular are likely to derive considerably greater benefits from these community plantations in the form of grass, leaf fodder, fuel and minor forest products.

8.   At the same time, the modified model has the additional important advantage of directly addressing longer-term environmental resource management concerns -- specifically the preservation of soil fertility in the woodlot and, by inference, key soil and water conservation aspects in the watershed in which the woodlot is located.

Model Comparisons

9.   Table 1 compares three different planting and management models (species recommendations, management/harvesting regimes, and costs and benefits to different users/beneficiaries) for a "typical" community

woodlot in Rajasthan, one of the project states: first, as designed during project preparation and appraisal; second, as observed in the field during the mid-term review; and third, as recommended following the mid-term project review.

10.   At appraisal, expected benefits were estimated for all types of plantations planned under the project. The cost-benefit models for community woodlots in Rajasthan estimated the relative returns (a) for the plantation as such, (b) to the local Panchayat, and (c) to the traditional users of these common lands, including women.

11.   Similar cost-benefit analyses have now been carried out for the three scenarios set out in Table 1, using the costing and benefit estimation procedures applied at appraisal. This analysis was intended to demonstrate how women's needs can be specifically addressed in project design and factored into the cost-benefit analysis in a manner that will increase the flow of project benefits to them without jeopardizing overall project returns.

12.   The cost-benefit estimates (at a discount rate of 10% per annum) for the original design of such a community woodlot were then compared, first, with the probable benefits as estimated on the basis of recent field impressions of actual experience and, second, with the expected benefits under the proposed new planting and management model. Figure 1 graphs the results. As the graph illustrates, the expected benefits to local users and women from the proposed alternative planting and management model exceed those they were expected to receive under the original project design as well as those they actually receive according to recent field observations -- yet the proposed new design will neither significantly reduce benefits to the Panchayat nor the returns to the plantation project as such.

Table 1: COMPARISON OF BENEFITS FROM A 1-HECTARE COMMUNITY WOODLOT IN RAJASTHAN (INDIA) OVER A THIRTY-YEAR CYCLE

	ORIGINAL DESIGN (Project Documents)	FIELD ASSESSMENT OF ACTUAL SITUATION	RECOMMENDED NEW MODEL (to improve environmental benefits and ensure continuous supply of benefits to users)
PLANTING AND MANAGEMENT MODEL	Community woodlot; Rainfed; 1,600 stems/ha	Community woodlot; Rainfed; 1,600 stems/ha	Community woodlot; Rainfed
SPECIES	Acacia nilotica; Acacia tortilis; Dalbergia sissoo; Fruit species.	Acacia nilotica; Acacia tortilis; Dalbergia sissoo; Fruit species.	Acacia nilotica; Acacia leucopholea or A. senegalensis (higher yield of good-quality fodder and of higher-value seed pods than A. nilotica); Dalbergia sissoo; Fruit species; Intercrops of leguminous herbs or castor seeds; Intercrops of Prosopis juliflora or Cineraria shrubs for fuel and fodder; Preserving of different grass species for higher fodder production.
BENEFITS TO INDIVIDUAL USERS	Fallen wood: 1.5 mt over 11 years; Grass: 0.2 mt/year from year 2 onward; Lops and tops: 2.4 mt at harvest in year 11; Acacia seed pods: 5 mt total over 11 years; Fruits: 0.4 mt/year from year 10 onward.	Fallen wood: 1.5 mt over 11 years; Grass: 0.5-1.0 mt/year from year 2, declining to 0.2 mt/year after year 5 due to closing of tree canopy; Lops and tops: 2.4 mt at harvest in year 11.	Fallen wood: 1.5 mt over 11 years; Lops: regular lopping of Prosopis for fuel and fodder; lopping of Acacia for pods (once per year) and for fodder (two more times per year); Grass: harvested regularly during growing season; Fruits: 0.4 mt/year from year 10 onward.
BENEFITS TO PANCHAYAT	Fuelwood: 24 mt in year 11; Small timber: 3 mt in year 11.	Fuelwood: 24 mt in year 11; Small timber: 3 mt in year 11; Acacia seed pods: 5 mt total over 11 years, auctioned annually with fodder loppings; Fruits: 0.4 mt/year from year 10 onward, auctioned.	Fuelwood: 24 mt in year 11; Small timber: 3 mt in year 11; D. sissoo harvested in year 31 for higher-quality timber; Fruit: 0.4 mt/year from year 10 onward (if auctioned).

COMMENTS

Villagers would collect fallen wood, seed pods, fruits and grasses, all free of charge. Panchayat would harvest wood and sell it, at concessional rate, in years 11, 21 and 31 (quantity in years 21 and 31 same as in year 11, except that final harvest in year 31 includes additional harvest of D. sissoo.

Tree survival estimated at 70%.

Under community management, villagers would organize periodic cutting of seed pods and fodder from Acacia nilotica for stall-feeding; work would be done by village women.

EXPECTED OUTCOMES

Without community management, poor users (including women) are not likely to have much influence on Panchayat decisions. To ease product disposition and revenue generation (given potential conflicts of interest), the Panchayat is likely to auction both seed pods and fruits and use the proceeds for Panchayat activities. Women are unlikely to favor this, but without direct involvement in community decision-making, they are not likely to be able to suggest or insist upon an alternative method.

In some cases, the Panchayat even auctions the grass (or 50% of it, the other half remaining for villagers' use) to generate more income.

Closure of the area results in more grass production, but lack of community management and Panchayat preference for convenient revenue realization may prevent the poor and women from benefitting: grass is harvested at fixed times and in larger quantities, with more participation of wealthier villagers. Denied daily access to this land for grazing their cattle, villagers have to change their livestock management practices. This can increase the pressure on nearby degraded forest areas to compensate for the loss of access to traditional grazing land and increase the time women spend in collecting fuel and fodder.

With closure to grazing, poor women lose an important source of fuel: cattle no longer graze in this area, and poor women (who own few or no cattle) can customarily only collect dung from common property land.

Benefits depend upon the extent of community management -- but even without strong community management far more intermediate yields are generated in the form of loppings of D. sissoo and Acacia sps. Increased loppings of Prosopis and other inter-crops also yield a continuous supply of fuel and/or fodder.

If consulted by the community and by forestry staff, women will probably argue for maximizing the continuous flow of products as well as the final timber returns. If women are active members of the community decision-making body, it is likely that such continuous harvesting will be a higher priority of the Panchayat as well.

Poor villagers benefit significantly more, since wider spacing and regular lopping of trees prevents canopy closing, and grass continues to be produced even when the trees mature.

Environmental benefits are greater: productivity will be improved and soil fertility maintained.

An issue to consider is the frequency of lopping Acacia: lopping only once per year maximizes pod yield; lopped three times per year, trees will produce fewer pods but more fodder. Preferences are likely to differ between men and women and between the poor and the better-off. This issue is important in determining benefits to women vs. other beneficiaries. Solid data on forest product utilization and on women's roles in forestry and in household and village decision-making are needed to carry out this analysis.

Figure 1:
COMPARISON OF PROJECT BENEFITS:
COMMUNITY WOODLOT (RAJASTHAN)

Net Present Value ('000 Rs),
at 10% Discount Rate
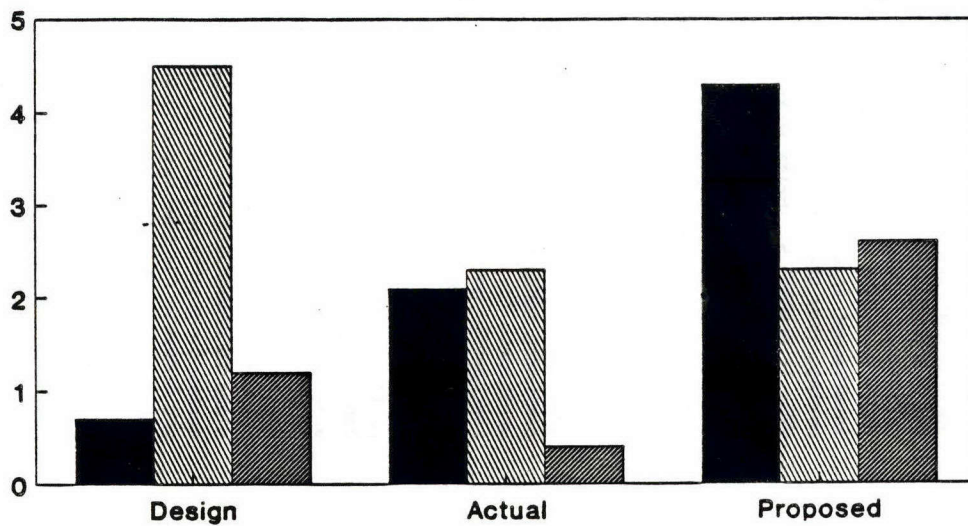
■ Village Users
▨ Community Administration (Panchayat)
▨ Woodlot Project

Design   ▪ Original project design
Actual   ▪ Current actual situation
Proposed ▪ Proposed modified project design

ANNEX IV

DESIGN GUIDELINES FOR SPECIFIC FORESTRY INTERVENTIONS

1. Private Tree Planting/Farm Forestry/Agro-Forestry
2. Community Woodlots/Plantations
3. Watershed Improvement/Wasteland Management
4. Improved Wood-Burning Devices
5. Forestry Extension

DOES YOUR PROJECT INVOLVE:

- **PRIVATE TREE PLANTING, FARM FORESTRY, AGRO-FORESTRY?**
- **FOREST NURSERIES (PUBLIC, PRIVATE)?**
- **SEEDLING DISTRIBUTION?**
- **ALLOCATION/REALLOCATION OF TREE TENURE, LAND OWNERSHIP OR USUFRUCT?**

PLANNING ISSUES TO CONSIDER	INFORMATION NEEDS AND POSSIBLE DESIGN FEATURES

Are women or men responsible for decisions concerning financial and labor investments in, and management and utilization of, trees, of family livestock? Are women or men responsible for family fuel supply, for livestock fodder, for grazing animals?

→ Collect data on men's, women's, boys' and girls' time allocation in the household and on the farm.

Are women expected to water, tend and protect seedlings that men raise in private nurseries and trees that men have planted? Are women convinced of the utility of these species, of their labor input into this work, of the program as a whole? Are women's work loads likely to increase or are other women's tasks likely to be curtailed or abandoned due to increased time needed for forestry work?

→ Ensure targeted extension for women, and advise them on ways to reallocate their time.

→ Collect information on men's and women's species preferences and on their tree/forest product uses by species and season, and consult with men and women about the species to be raised for distribution/sale/planting.

Do women want to plant different species (and at different locations) than men? Do they have the right to decide what to plant where (especially around/near the homestead)?

Do seedlings of the species women want (e.g. fodder, fuel and fruit species) cost more to produce than those men want?

→ Can project nurseries produce sufficient quantities of the species wanted by men and women?

→ If species wanted by women in large numbers have high production costs, not enough of these are likely to be raised in nurseries for free or subsidized distribution. Hence, seedlings should be priced to cover production costs, or private nurseries should be set up to produce the desired species.

Do women have rights to certain products, in certain quantities, at certain times, from multi-purpose species where men prefer other products?

→ Investigate women's rights to tree products.

→ Research tree management and harvesting practices that maximize yields of different products from multi-purpose species.

→ Investigate the economics of species mixtures to accommodate men's and women's needs.

Are there trade-offs in selecting products to be obtained from species planted, and are some products more desired by men than by women and vice versa?

→ Design extension messages accordingly.

→ Employ female motivators/extension staff.

→ Train male extension staff regarding women's roles, needs and potential contributions.

Are there women's groups in the project area that could be utilized as facilitators? ———→ Involve women's groups in organizing planting and nursery establishment, seedling distribution, extension and credit programs.

Are there traditional women's work groups or ———→ Utilize women's work groups for cooperative women's labor pooling/sharing arrangements in the targeted communities? planting efforts so the women can share the labor burden.

Are there female nursery workers? ———→ Can they be provided with access to land, water, training and inputs to establish and operate private/cooperative nurseries?

Do women have access to land for establishing private/cooperative nurseries? <

If yes, can they be trained in nursery work and management and supported in setting up private/cooperative nurseries?

If no, can the project arrange for leasing of land?

Do women have access to water for operating ———→ If not, can the project provide or arrange private/cooperative nurseries? for a reliable source of water?

OBTAINING INFORMATION

AVAILABLE DATA:

- Types of trees preferred and raised, at which locations, and tree/forest products desired, by different members of the household.

- Access of men and women to extension media and extension services.

QUICK SURVEYS:

- Relative decision-making roles and responsibilities for farm and household activities.

- Sources of cash income to household and how women and men's earnings are spent.

- Knowledge and skills men and women have concerning tree and fodder growing/collection.

SPECIAL STUDIES:

- Relative time allocation in household and farm activities by men, women, and children.

- Number/percentage of households without adult males (permanently, seasonally) in the project area.

- Fuel and fodder collection patterns and impact on local forest and rangeland resource base.

- Sources of cash income to project area households of different socio-economic characteristics, and spending patterns for men's and women's cash incomes.

- Gender-specific differences in existing land rights.

DOES YOUR PROJECT INVOLVE:

- **COMMUNITY WOODLOTS?**
- **COMMUNITY FOREST PLANTATIONS?**

PLANNING ISSUES TO CONSIDER	INFORMATION NEEDS AND POSSIBLE DESIGN FEATURES

Ascertain which products women collect? In which quantities? When? What these products used are for? What income is generated? Which women depend on these products?

Do women collect products that are important to them (nuts, fruits, fuel shrubs, fibers for local industries, grass) from the common property land that is to be cleared and/or planted and will they lose access to it?

Plan for management systems that yield benefits regularly (e.g., annual harvesting; understory of shrubs or legumes that can be cut more often; wider spacing of trees).

Two years before plantation establishment, plant live hedge fences that women can lop for fodder and fuelwood.

Do women rely on this land as an important foraging area for their animals?

Plant and harvest the area in blocks so women retain access to some of the area at any given time.

Will women have to spend more time on fodder collection for stall-feeding or on grazing their livestock at more distant locations?

Provide targeted extension advice explaining the advantages of the new planting and management system, so that women do not refuse to cooperate because they perceive it to be too labor-intensive and/or impractical.

Are women expected to switch to stall-feeding with fodder raised in initial plantation years?

Will children have to help their mothers cope with their a work load increased by having to switch to stall-feeding of livestock and will this affect their attendance at school?

Introduce labor-saving devices for other household activities that ease demand for children's labor.

Do women and men differ on species to be grown in community plantations?

Include a range of species that will meet the requirements of both men and women.

Are women likely to be the main laborers in plantation establishment?
  What tools are comfortable and efficient to use for women?

Plan for tools for pitting/land preparation work that can be used by women.

  What is women's time availability over the seasons?
  Does tree planting conflict with women's time requirements for other essential activities?

Adjust planting techniques and schedules to meet labor constraints or choose models that most easily fit these constraints.

Are women's groups active in the area?

Mobilize such groups to take an active role in community management decision-making.

Do women/women's groups express strong interest in first obtaining other critical services/facilities (e.g., drinking water) before providing their labor or otherwise cooperating in project operations?

Can project resources be allocated for providing such services/facilities in return for obtaining the community's or women's groups' voluntary labor and cooperation?

OBTAINING INFORMATION

AVAILABLE DATA:

- Reports and monitoring data from other ongoing projects in the target area may describe women's current roles.

- Survey data on division of labor within the family farm/household and on school enrollment rates by age and gender.

QUICK SURVEYS:

- Visit local NGOs and research institutes which have focused on these issues or know of relevant studies.

- Interview, at their job sites, groups of female plantation workers and/or female nursery workers about their household responsibilities and practices and their time/labor allocation.

- Assemble a group of women who have come to attend, or listen to, a community meeting afterwards and talk to them about their activities.

- Interview women "leaders" of the community in their homes.
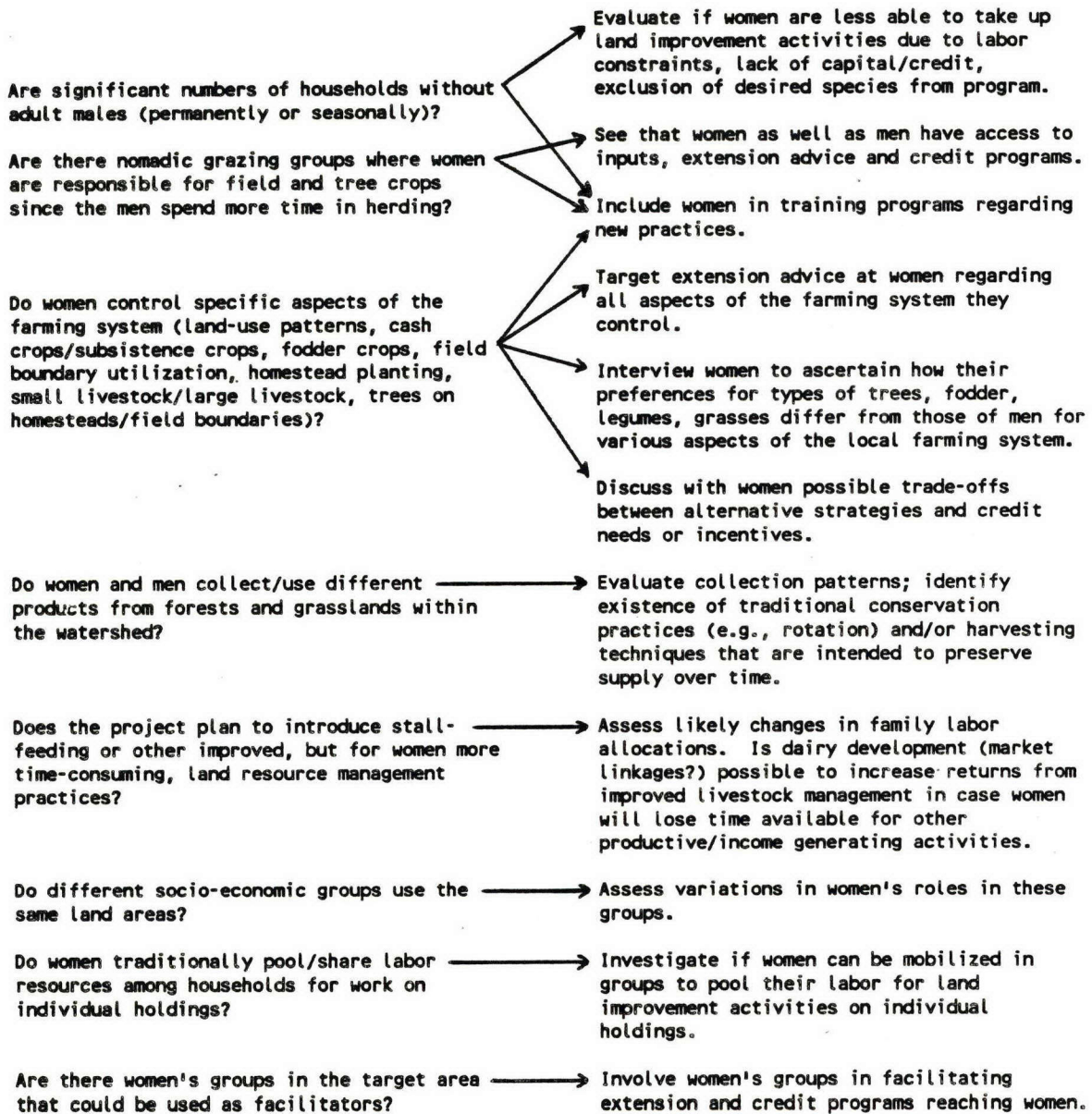
SPECIAL STUDIES:

- Monitor project benefits going to women, to facilitate design adjustments as needed.

- Conduct special studies on forestry sector and women, on forest-based industries, on rural energy, on livestock management and on issues where information is scarce and a problem may exist.

DOES YOUR PROJECT INVOLVE:

- **WATERSHED IMPROVEMENT/MANAGEMENT MEASURES ON DEGRADED PRIVATE LAND?**
- **PRIVATE WASTELAND REHABILITATION/MANAGEMENT?**

PLANNING ISSUES TO CONSIDER	INFORMATION NEEDS AND POSSIBLE DESIGN FEATURES

Are significant numbers of households without adult males (permanently or seasonally)?

Are there nomadic grazing groups where women are responsible for field and tree crops since the men spend more time in herding?

Evaluate if women are less able to take up land improvement activities due to labor constraints, lack of capital/credit, exclusion of desired species from program.

See that women as well as men have access to inputs, extension advice and credit programs.

Include women in training programs regarding new practices.

Do women control specific aspects of the farming system (land-use patterns, cash crops/subsistence crops, fodder crops, field boundary utilization, homestead planting, small livestock/large livestock, trees on homesteads/field boundaries)?

Target extension advice at women regarding all aspects of the farming system they control.

Interview women to ascertain how their preferences for types of trees, fodder, legumes, grasses differ from those of men for various aspects of the local farming system.

Discuss with women possible trade-offs between alternative strategies and credit needs or incentives.

Do women and men collect/use different products from forests and grasslands within the watershed?

Evaluate collection patterns; identify existence of traditional conservation practices (e.g., rotation) and/or harvesting techniques that are intended to preserve supply over time.

Does the project plan to introduce stall-feeding or other improved, but for women more time-consuming, land resource management practices?

Assess likely changes in family labor allocations. Is dairy development (market linkages?) possible to increase returns from improved livestock management in case women will lose time available for other productive/income generating activities.

Do different socio-economic groups use the same land areas?

Assess variations in women's roles in these groups.

Do women traditionally pool/share labor resources among households for work on individual holdings?

Investigate if women can be mobilized in groups to pool their labor for land improvement activities on individual holdings.

Are there women's groups in the target area that could be used as facilitators?

Involve women's groups in facilitating extension and credit programs reaching women.

OBTAINING INFORMATION

Available Data:

- Reports and monitoring data from other ongoing projects in the target area may describe women's current roles.

- Survey data on division of labor within the family farm/household and on school enrollment rates by age and gender.

Quick Surveys:

- Labor availability (male and female separately) in households of different socio-economic status, including specifically female-headed households and migrant households, with special regard to labor required for recommended land management practices.

Special Studies:

- Economics of land-use interventions from farmer's perspective, with site-specific economic analysis of farmer's perceived opportunity cost of labor, underemployment and farmer's perception of returns

- Prevailing uses of private and common lands for grazing, for fuel/fodder supply, supply of minor forest products, exercising ground for cattle, etc.

- Access to credit facilities and capital for men and women of different socio-economic status.

DOES YOUR PROJECT INVOLVE:

- IMPROVED WOOD-BURNING DEVICES, COOKSTOVES OR CHARCOAL BURNERS?

PLANNING ISSUES TO CONSIDER	INFORMATION NEEDS AND POSSIBLE DESIGN FEATURES

Make sure the improved models are adapted to local conditions of use and maintenance capabilities.

How often do women cook meals and for what periods of time during day and evening?

Make sure stove size, height and capacity are appropriate to women's cooking patterns and other activities that are carried out at the same time.

What other activities do women undertake at the same time?

What fuels are used? What mixtures of fuels? How are these prepared?

Evaluate cost efficiency of the improved device under local conditions--with women cooking with available fuels in usual mixture for normal types of meals and for different sizes of household.

Are stoves used for heating, for cooking, or for heating and cooking?

What kinds of food are prepared, and what are the cooking conditions required for their preparation?

Budget for adequate training and follow-up, including required number of trained promoters.

Do women perceive cooking fuel to have a "cost" in terms of labor or cash and do they, therefore, perceive a value in the "savings" from an improved stove?

Prepare to modify designs if and as project monitoring reveals unexpected problems.

Make sure stove can be easily cleaned up by women if this is necessary.

Is the time required to cook with the new device acceptable to women users? → Investigate cooking pattern changes that lead to fuel saving without disrupting women's schedules.

What artisans or entrepreneurs are in the project area that could reproduce the model device? → Make sure program includes attention to a continuous supply of the device, including replacement parts, adequate raw materials. (If the device is low-cost and of local materials, it may have a short lifespan.)

What variation is there in the quality of raw materials (clay, mud, bricks, etc.) used to make the new devices? Develop plans at the onset to make the intervention sustainable. Provide extension and training to potential private producers and marketers of the device.

Evaluate the marketability of the device.

OBTAINING INFORMATION

AVAILABLE DATA:

• Experience with other stove programs.

• Studies on the experience with other programs in the project area.

• Government agencies or NGOs with experience in these areas.

QUICK SURVEYS:

• Cost efficiency of the improved stoves under local conditions -- with women preparing their usual meals with commonly available and used fuels -- for different socio-economic groups and household sizes.

• Time required to cook traditional meals with the new stoves.

SPECIAL STUDIES:

• Research on better kitchen management techniques.

• Research on fuel savings using different (including traditional as well as newly recommended) mixtures/combinations of various traditionally and newly available fuels.

DOES YOUR PROJECT INVOLVE:

- FORESTRY EXTENSION ACTIVITIES?

PLANNING ISSUES TO CONSIDER	INFORMATION NEEDS AND POSSIBLE DESIGN FEATURES

Do the executing agencies have an interest in, or awareness of, women's issues?

Does the project provide for additional staff, and does the executing agency have budgetary resources for this?

→ Carry out a study of women's roles in the prevailing household and farming economy, of the time and labor contribution of each family member, and of gender roles in forestry activities.

→ Use this study as basis for training courses for male (and female) extension staff on ways to address women's needs, mobilize female resources, and include women's perspectives in planning.

Is there a willingness to make a concerted effort to involve women, but there are no women in upper levels of management?

→ If project includes training camps for farmers, hold special training camps for groups of women.

→ Recruit cadre of female motivators and design a concrete program of specific messages they are expected to convey.

Are project staff interested in, and experienced with, involving women?

→ Recruit women at professional levels in the implementing agency and the extension service to help design programs and supervise other female staff.

→ Recruit/employ female extension staff at all field levels.

Is women's mobility limited/constrained in the societies included in the project?

→ Give female motivators appropriate transport facilities (or travel funds) to cover their extension area as effectively as male staff.

→ Deploy female extension staff in pairs if socially necessary.

→ Assign female staff working areas that they can realistically cover with their degree of mobility.

Are there differences in the public fora that men and women can attend and differences in their leisure time? → Ensure that extension activities -- film showings, group discussions, etc. -- are held at times women can attend and in fora where it is socially acceptable for women to come (local markets are one possibility).

Are there women's groups in the project area? → Involve women's groups in extension delivery.

OBTAINING INFORMATION

AVAILABLE DATA:

- Other projects in country or project area (e.g., M&E reports, studies and background documents)

- Ethnographic studies of project area that identify kinds of women with influence and mobility in society and gender-linked patterns of local decision making.

QUICK SURVEYS:

- Local women leaders, and members of local women's organizations, political fora for women.

- NGOs in the project area with experience working with women.

SPECIAL STUDIES:

- Review of informal women's work groups or organizations that could be mobilized in project.

ANNEX V

GENERIC TERMS OF REFERENCE:
STUDY OF GENDER ROLES IN FORESTRY

A. Objectives

1.   Determine present systems of utilization of forest products
within the community and the household by men, women and children.

2.   Identify legal, social, cultural, physical, administrative,
institutional and economic constraints on women's access to forest
resources, forest products and/or proposed forestry interventions.

3.   Identify appropriate means to incorporate women and women's
concerns into project activities -- including, if warranted, by means of
involving local NGOs and women's groups and organizations, targeting
extension and training at women, or using public media to reach women.

B. Recommended Methodologies

1.   Discussions with community leaders, village women, all adult
members of individual households, local women's organizations, and
extension staff of development programs targeted specifically at women
as well as men.

2.   Interviews with judges/magistrates, NGOs working in the area,
and local officials (forestry and others) about women's access to forest
products and recent conflicts over access to forest resources on public
and community lands.

3.   Semi-structured interviews with male and female members of a
random sample of households in the project area.

4.   Case studies of the situation in individual villages, using
partipant observation techniques over a period of one to three months.

5.   Mapping of village lands, both public and private, and of the
type and quantity of products that men, women and children collect from
these areas by season and over time. This permits interactive
discussion of these resource maps with village men and women and
identification of particular problems each of these user groups faces.

6.   Small random surveys to obtain quantitative, statistically
significant, information on a limited number of topics that can be
rapidly analysed for project use.

C. Information To Be Collected

1. Collect data on prevailing patterns of collection and utilization of fuel, fodder, timber, fibers, resins, oils, fruits, nuts, medicinal plants, herbs (including cooking condiments) and other forest products by men, women and children of different socio-economic characteristics. This should include: categories and numbers of collectors, processors and users; product types; product sources (both private and public lands); quantitative and seasonal availability; perceived change over time in availability; frequency of collection; time required for collection.

2. Collect information regarding the end-use of these products. Are they gathered exclusively or predominantly for home use, or are they sold for cash income, either locally or in outside markets? If these products are becoming scarcer, are the users/collectors forced to find more expensive substitutes or to forego income and/or other benefits previously generated by collecting and processing of these products? Does women's perception of scarcity differ from men's for certain products? If so, for which products?

1. Men, and forest officials, often lack full knowledge of the range of forest products collected from different types of forests, from "wastelands", from community range- and grasslands, and from trees and shrubs on field boundaries. These may be collected only by certain categories of households, and middle-income farm families in the community may not be fully aware of the utility and importance of some products collected for home use or sale by poorer families.

2. Even in areas of apparent degradation, products that are important to women and their households may be found/collected on private and public land; this may have significant implications for planners considering the introduction of tree plantations or the rehabilitation of degraded forests and/or grasslands in terms of species choices and/or plantation and management models that will maximize the output of particular products and affect the distribution of project benefits among users. If women are more concerned than men about the scarcity of fuelwood, they will be the more important target group for extension messages regarding the need for plantations and their protection.

INFORMATION OF INTEREST	REASONS FOR INQUIRY
3. Collect information regarding customary and formal rights of men and women of different socio-economic groups to products available from different categories of land: privately owned, community-owned, state-owned, etc. How do the customary and formal rights to land access and product utilization compare to the actual collection and utilization of these products by men and women? Do conflicts arise over their collection? How are such conflicts resolved? Are there discernible trends towards women's increased or decreased legal access to these products?	3. Utilization rights for trees on private land may be allocated differently than for field crops. Where tree ownership is reserved for men (or where ownership of trees implies claims on the ownership of land) women may not have any authority concerning the disposal of some tree products. Women's and men's access to the products of public and community land may differ. Increasing scarcity may be changing the way conflicts over the use of forest products are resolved by the village leadership and/or by administrative or judicial authorities. Plantations on community land may not, therefore, provide women with the products and benefits they need.
4. Determine what local systems of management exist and are used for non-private land. Do villagers, male or female, regulate the use of forests and grass-lands? For all products, or only for particular ones? What form does such community-level regula-tory action take: harvesting restrictions; permanent, seasonal or rotational closure of areas to cutting and/or grazing; restrictions on tool use?	4. Since there may be no formal decision-making groups or regular meetings, local management systems may be difficult for outsiders to detect and understand. This may necessitate the use of open-ended interviews to discover whether such systems exist or not (or have existed in the past). If they exist and are well understood, they can be easily (and with beneficial effect for the project) incorporated into the project.
5. Ascertain which, if any, local women's groups and/or NGOs can be utilized for channelling extension to women, operating nurseries, organizing planting and plantation management/protection activities. What legal constraints exist to utilizing such groups (e.g., lack of legal rights for women to common property resources, women's lack of influence in village decision-making processes) that the project should address?	5. When women become involved in planting on degraded areas, they may come into conflict with more influential men in the community as these areas become productive and there is competition for the products of these now productive areas. Women's groups may provide an effective means of channeling extension without requiring special resources for project implementing agencies and staff.

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AN ANNOTATED BIBLIOGRAPHY ON WOMEN IN BOLIVIA

WOMEN - GENERAL

1. Arellano, Bambi Eddy de. "Experiences of the Appropriate Technology for Rural Women Project of the Inter-American Commission of Women (OAS)." Paper prepared for the International Center for Research on Women's panel on "Design and Implementation of Development Projects: Accounting for Women," Nairobi, Kenya, July 1985.

The paper describes the experiences of a pilot appropriate technology project for women in Bolivia and Ecuador and uses it to address some issues raised about the balance of productive and social goals in women's projects in Mayra Buvinic's paper "The Design and Implementation of Development Projects: Accounting for Women."

"The outstanding elements of the project are that: the limited inclusion of men in the project helps achieve recognition of women's contributions to development; social _and_ productive goals are important to the participation of women in development; food hand-out projects create an attitude of dependence and passivity in women which subsequent projects must overcome.

2. Arellano, Sonia L. "Evaluacion del Programa de Promocion de la Mujer." Mimeographed report, no date.

This is an evaluation of the Program for the Advancement of Women carried out by the Bolivian government's regional development corporations, supported by UNICEF and in coordination with the Inter-American Commission of Women. The program embodies the attempt to expand the successful experiences of the OAS project described in Bambi Arellano's paper (above) to government agencies to increase the participation of women. The evaluation covers the experiences of the program in the Regional Development Corporation (RDC's) of Oruro, Potosi, Chuquisaca, and Tarija. It documents the problems of continuity with changes in staff and policy; the need for more and better trained field staff; the creation of women's groups in conflict with men's organizations; the determination of program objectives by resources provided
instead of by community need; and the RDC's reluctance to work closely with the OAS women's group.

3. Blanes, Jose. Cambios Socio-economicos y sus Incidencias en la Familia, la Mujer y la Ninez Boliviana. La Paz: UNICEF AND CERES, 1983.

An analytical paper that discusses the problems of the family and children in the context of a slow-growing, dependent economy with a highly unequal income distribution. One problem is that the family in Bolivia must rely almost completely on its own survival strategies to provide health, housing, and other vital services for its members even though it is a productive unit, because the priorities of the government are elsewhere.

He also sees a "closed circle," a self-perpetuating cycle, for women and children in poor urban and rural areas, because they continue to suffer worse living conditions and less education than men. He suggests that any action oriented toward children must be aimed at changing the situation of families, and that this must be done on two levels; long term, the model of development must change; and in the meantime appropriate actions must be taken to strengthen the family's survival capabilities.

4. Centro Chitakolla. La Mujer en el Mundo Andino. La Paz: Ediciones Chitakolla, 1986.

Brief and extremely interesting articles from presentations made at a conference, "A Meeting on Women in the Andean World," on the role of indigenous women in Bolivia today. Topics covered include new organizations for indigenous women; their role in fighting discrimination against their people; the uneasy and often exploitative relationship between mestiza and indigenous women; the complementary yet distinct roles of Aymara men and women; how colonization and development have upset the traditional balance between men and women in indigenous societies by offering privileges only to men; and indigenous women's traditions of herbal medicine and healing that are labeled witchcraft, among others.

5. Chungara, Domitila Barrios de. "La Mujer y la Organizacion." Publication of UNITAS, CIDOB, and CIPCA. La Paz, 1980.

This booklet provides a working-class perspective on women's problems, describes the Comite de Amas de Casa de Siglo XX (the Siglo XX Housewives' Committee) and working women's struggles. Domitila is an activist from the mining community of Siglo XX and the author of two other, autobiographical books. Here she distinguishes between middle-class feminism and a working-class struggle for women's rights, which she says must take place with the help of men of the same class against the capitalist system. She describes the importance of organization to women's protest, and gives examples of successes and failures from her experience.

6. CODEX, Mujer, Clase y Discriminacion Social. La Paz: Editorial El Siglo, 1982.

An enormous report, sponsored by the Ministry of Planning and Coordination and USAID/BOLIVIA, that has five very complete parts: "The Social Participation of Peasant Women in Bolivia; Women's Problems in the Marginal Areas of La Paz; Women in the City: A Study of the Structure and Social Practice in Cochabamba; Women and the City; A Study of Grassroots Participation in Santa Cruz; Women's Participation in National Society: A Comparative Study." The analysis of women's roles and situations are carried out in light of class issues, productive processes, and other factors. With a great emphasis on methodology and many relevant statistics.

7. Dandler, Jorge and Medeiros, Carmen. "La Migracion Temporal de Cochabamba (Bolivia) a la Argentina: Trayectorias e Impacto del Lugar de Origen." La Paz: CERES, 1985.

The authors analyze the importance of temporary migrations of urban and rural populations coming from the central valleys of Cochabamba to Argentina. Chapter 6 contains a good elaboration of migrants' wives and migrant women, in which women's roles as daughter, wife, and mother are illustrated with several case histories. Also several cases of Bolivian women who have migrated to Argentina are presented, as well as figures comparing Bolivian women to other migrant women from Paraguay and poor areas of Argentina.

8. Feminismo y Politica 1st in Cuaderno de Trabajo Series published by the Coordinadora de la Mujer. La Paz: Imprenta Papiro, 1986.

Summaries of discussions and complete presentations made at a day of reflection and analysis on the theme "Feminism and Politics" sponsored by the Coordinadora de la Mujer in August 1986. Issues discussed include women's representation in male-dominated political bodies, such as parties and unions; the role of women-only political organizations in recent years in Bolivia; and feminism as an expression of Western society and its inappropriateness as a concept for indigenous women. Except for one presentation, the collection represents middle-class rather than grassroots women's opinions.

9. Flores C., Gonzalo. "Economia, Organizacion y Politicas sobre la Mujer en Bolivia." Paper presented at the Congreso sobre Investigacion Acerca de la Mujer en la Region Andina, Lima, June 1982.

A complete overview of findings, themes, hypotheses, and subjects for further research in the field of women in Bolivia. Includes a discussion of rural and urban women's participation in the economy and a good description of women's involvement in organizations, from unions to mothers' clubs. It also covers recent policies and their effect on women in different sectors.

10. Healy, Kevin. "The Boom within the Crisis: Some Recent Effects of the Foreign Cocaine Markets on Bolivian Rural Society and the Economy," Cultural Survival (Journal).

This article focuses on some of the recent effects of the cocaine trade on rural society and the economy in Bolivia, and includes some information pertaining directly to women. The cocaine trade has created employment opportunities for thousands of women, who trade in ordinary materials that go into the processing of cocaine. The higher prices in the Chapare region due to the cocaine trade have attracted many female intermediaries, who transport products from other regions of the country to make a higher profit. Young peasant women are attracted to the region by the relatively

high pay for work as cooks for the coca leaf harvesters and cocaine-processing work force. However, prostitution and rape have both increased, and many traditions related to agriculture, in which women play a major role, are falling out of practice.

11. Leon, Rosario. <u>Minera, Campesina y Comerciante: Tres Dimensiones de Participacion de la Mujer en Cochabamba.</u> La Paz: CERES, 1984.

This article develops some preliminary ideas on grassroots women's participation in Bolivia, specifically in the department of Cochabamba, by covering three specific cases of women in mining, agriculture, and commerce. Leon emphasizes the need to recognize the different interests of women in each occupation and criticizes the practice of assuming the uniformity of all "grassroots" women's needs. She discusses each woman's participation in organizations that are related to their economic interests but which make no demands for them specifically as women. She notes that it is through cultural and social links rather than work-related organizations that women join together to work out problems, civic matters, or entertainment. She calls for more research on the dimensions of women's participation in different contexts. Includes a comprehensive, comparative chart on the social, familial, and work characteristics of miners, vendors and peasant women.

12. Maguire, Murdo J. "The Aymara of the Bolivian Andes: A Review of Six Films," <u>Latin American Research Review</u>, vol. xi, no. 1 (1976).

The article reviews six documentary films about Aymara society in the Altiplano of Bolivia. All take place in the small towns of Ayata and Vitocota, northwest of La Paz. They deal with relations between mestizos and Indian campesinos, rural education, division of labor between men and women, the importance of potato cultivation, and other aspects of Aymara culture.

13. Mejia, Lucila; Garcia, Irma; et. al. <u>Las Hijas de Bartolina Sisa.</u> La Paz; Hisbol, 1984

This book describes the creation and activities of the Federacion Nacional de Mujeres Campesinas de Bolivia Bartolina Sisa, a group representing peasant women for political, social, and economic change during the period 1978-1984. The story of the organization is told by its participants through first person narratives punctuated with excerpts from speeches. It documents the peasant women's collaboration as well as differences with the Confederacion Sindical Unica de Trabajadores Campesinos de Bolivia, the male peasants' union, which is an affiliate of the Central Obrera Boliviana. The book is a primary source of the views and demands of some peasant women, including quite a bit of political rhetoric.

14. Morales A., Rolando. "Mujer y Crisis Economica." Paper presented at the Simposio Nacional Sobre Mujer y Necesidades Basicas, La Paz, June 1987.

A discussion of the effects of the economic crisis on women in Bolivia. Includes a description of Bolivia's development process over the last 30 years, the crisis and measures taken to stem it, and their results. The paper covers basic facts about women's access to health, education, and other social services. It concludes that despite the insufficient development registered until the end of the 1970's, Bolivian women had shown great dynamism in education and employment. However, the crisis has provoked an important backslide in school attendance that may herald an important slow-down in women's development in other fields.

15. "Mujer Joven en Bolivia: Identidad y Participacion," in <u>Mujeres Jovenes en America Latina: Aportes para una Discusion.</u> Montevideo: Arca Editorial, 1985, pp.132-147.

Overview of social conditions of young women in Bolivia differentiated by class and location. Covers participation in social organizations, access to education, role in the work force, and reproductive behavior.

16. Aliaga, Nancy Romero de. "The Legal Situation of Bolivian Women." Mimeograph, La Paz, 1975.

A paper that covers the legal status of Bolivian women from the Constitution of 1825 to the time of writing, with recommendations for changes. Some of the more important protections and laws currently pertaining to women are: the right to vote; the right to administer family property equally with a husband; legal divorce; illegal abortion; and mandatory provision of maternity leave with half salary and rest periods for breast feeding. The author points out that many laws are not enforced, and that women fail to take advantage of them because of tradition, ignorance, or lack of resources. This paper is more useful for listing of laws than its commentary, which is often impressionistic and not rigorously supported.

17. "UNICEF Cooperation in Bolivia." La Paz: UNICEF, 1987.

This booklet contains a concise description of the state of children in Bolivia, with details on infant mortality and child morbidity, malnutrition, child development, environmental conditions, and other relevant social statistics. It also describes the different programs currently implemented by UNICEF in Bolivia: child survival, food and nutrition, ancillary health programs, goiter control, education, etc.

<u>WOMEN IN AGRICULTURE AND RURAL AREAS</u>

18. Arellano, Bambi Eddy de, "Grassroots Programs as a Strategy to Promote the Role of Women in Socio-economic Development: Experiences in Rural Bolivia," La Paz, 1976.

This presentation discusses attempts to integrate women into agricultural cooperatives via the government's Rural Women's Division after the implementation of a new plan by the Bolivian National Community Development Service. It also describes the female agricultural labor force in Bolivia generally, and the variety in the sexual division of labor in five different rural areas. The paper discusses the obstacles to the incorporation of women into cooperatives on three levels: within the cooperative movement, at the program management level, and at the community level.

19. Bourque, Susan C. and Warren, Kay Barbara. <u>Women of the Andes: Patriarchy and Social Change in Two Peruvian Towns.</u> Ann Arbor: University of Michigan Press, 1981.

This is a study of two rural Andean districts which the authors feel illustrate processes of change that may apply to other Andean communities. Sexual hierarchy is evident in this region, and is exemplified by women's unequal access to important resources, low rates of literacy and schooling, and their limited political role. The authors note that outside forces of change, such as the educational system, have not shown any effect in changing attitudes and in fact may reinforce male dominance or have their own, even more restricted view of women's roles; policy initiatives that challenge patterns of male domination in these areas have been met with resistance.

20. Durand, Maria, and Sostres, Fernanda. "Incorporacion de la Mujer al Proceso de Desarrollo Rural Integrado: Estudio de Caso: Chuquisaca-Tarija." La Paz:UNICEF and CIDOB, 1979.

This is an evaluation of a UNICEF-sponsored project for the Incorporation of Women into Development, which was implemented by the Chuquisaca-Tarija Development Corporation. It describes the conditions of rural women and the projects themselves, including health, education, social development, and productive components. The major finding is that too much emphasis was put on handicrafts, and that other productive activities such as agriculture or food processing should be encouraged.

21. Leon, Rosario. "Mujer Campesina: Identidad y Ciudadania. Una Reflexion Preliminar." Paper presented at the IV Encuentro de Estudios Bolivianos, Cochabamba, 1986.

This paper analyzes the Federacion de Mujeres Campesinas "Bartolina Sisa" (the Bartolina Sisa Peasant Women's Federation). The author believes that this organization reflects the existence of new tendencies within the movement for social change. She contends that these women have a multi-dimensional character because of the economic roles they play and because of their different ethnic and cultural traditions. The union is thus a contradictory organization for them because it challenges the traditional roles of indigenous women simply by being a women-only group that is not

subordinated to a male organization. Yet women participate because the union is the only instrument they have for political participation, by which they seek to change the conditions under which they carry out their other roles.

22. Munoz, Blanca. "La Participacion de la Mujer Campesina en Bolivia: Un Estudio del Altiplano" in Bolivia: La Fuerza Historica del Campesinado. Fernando Calderon and Jorge Dandler, eds. United Nations Research Institute for Social Development and CERES, 1986.

This excellent chapter describes the political awakening and participation of rural women from the Altiplano between 1978 and 1980. It brings out several aspects of the participation of peasant women in the national economic structure, especially as members of small family production units and as migrants and domestic employees. It describes the experience of peasant women in organizing and creating the Federacion Nacional de Mujeres Campesinas (National Federation of Peasant Women), as well as their participation in other political processes, such as elections and protests against economic policies. Also included is a document from the first National Congress of Peasant Women, with statements and demands for social, economic and politicAL CHANGES.

23. OEA-CIM. Proyecto de Tecnologia Apropiada para la Mujer Campesina. Organization of American States, Inter-American Commission on Women, no date.

A two volume manual developed during a pilot project of appropriate technology for peasant women in Bolivia and Ecuador. Volume I includes a much-praised methodology for working with women and communities, training promotors, and selecting technologies. Volume two is a how-to manual for the various technologies.

24. Rubio Pinillos, Guadalupe and Duran Bejarano, Jesus. Investigacion: Tecnologia Apropiada para la Mujer Campesina de Comunidades del Altiplano, Valle y Yungas Pacenos. La Paz: Servicios Multiples de Tecnologia Apropiada, 1980.

A very complete study of the tasks of rural women in three agricultural zones. Includes a calendar of agricultural tasks for each area, as well as a diagnosis of needs. "The methodology was popular research," that is participatory research in which the objects of the study are involved in the survey process. The main overall conclusion is that women's and men's work in these rural areas are not clearly separate, except for housework, so that any assistance with appropriate technology would have to involve both sexes if it were to enhance agricultural production.

25. La Situacion del Rol Social de la Mujer Rural en Bolivia. La Paz: CODEX, 1975.

A very thorough analysis of the role of rural women in terms of social structure and class stratification, the country-city relationship, and the agrarian structure in Bolivia. It also discusses the contradiction between the important productive role played by rural women and their lack of status. Included are studies of three rural zones, with their general characteristics and the role women play there. (Part of Mujer, Clase y Discriminacion Social)

26. Wasserstrom, Robert. "la Libertad: A Women's Cooperative in Highland Bolivia" in
Grassroots Development Journal of the Inter-American Foundation, vol. 6, no. 1 (1982): 7-10.

A brief article with interviews that describes Inter-American Foundation assistance to a savings and loan cooperative in Cochabamba. The interviews with project beneficiaries illustrate the way of life of vendors in "La Cancha," the open-air market in Cochabamba, as well as the significance of the project to their standard of living.

27. Wheeler,...?. "Draft for Case Study of Ulla Ulla Development Project: Implications for Women," World Bank document, July 1981.

A case study that describes an integrated rural development project funded by the World Bank to stimulate wool and handicraft production and improve basic services northeast of Lake Titicaca. It outlines in some detail the inadequacies of the initial plan for the inclusion of women, who by virtue of their traditional roles should have been included in the animal husbandry component of the project.

WOMEN AND ENTREPRENEURSHIP

28. Albo, Xavier; Greaves, Tomas; and Sandoval, Godofredo. Chukiyawu: La Cara Aymara de La Paz, Parts 1 and 2, "El Paso a la Ciudad" and "Una Odisea: Buscar 'Pega.'" La Paz: Cuadernos de Investigacion CIPCA, 1981.

A study of Altiplano migrants in La Paz whose major information about women is that they end up in such a narrow variety of occupations that they are not as interesting to study as male migrants! For that reason, the sample includes only 29% women. These ex-peasant women limit their occupations mainly to housewives, household servants, vendors, and artesans (mostly seamstresses and cooks). Given its limited focus, this study is of limited value for those interested mainly in women.

29. Ardaya, Gloria. "La Mujer en el Sector Informal Urbano" in El Sector Informal en Bolivia, La Paz, no date.

Discusses the importance of the informal sector as a means for women to earn money to support their families either as heads of household or to complement their spouses' inadequate earnings. The author analyzes the

informal sector's special importance during a period of economic crisis, when it is able to absorb to some extent the population that cannot find work in the informal sector. She also describes the characteristics of the informal sector that make it possible for women to carry out both work for the home and the market. The chapter provides important statistics on the economically active population.

30. Arteaga, Vivian. "La Crisis Economica y sus Efectos sobre la Mujer en Bolivia: El Caso del Comercio Ambulante." Paper presented at the Simposio Nacional Sobre Mujer y Necesidades Basicas. La Paz, June 1987.

Discusses the effects of the economic crisis on employment and points out the greater effect the loss of formal employment has on men. Documents women's major participation in the urban informal economy, and how the economic crisis has influenced women's entry into it. Describes the advantages to women of selling in the informal sector, and the varying earnings according to product. The overall effect of the crisis is to make women's work loads much heavier, yet it also provides an opportunity for them to appreciate their working potential and thus re-define their social identity and role within the family.

31. Bolton, Charlene and Bolton, Ralph. "Trabajo de Ninos en la Sociedad Andina." Paper prepared for the Congreso de Investigacion Acerca de la Mujer en la Region Andina, Lima, June 1982.

This paper describes the various types of work carried out by rural children in Peru and the ways they learn from their parents. It discusses the role of age and sex in the type of task carried out, and the division of work among children in a family. There is also a brief discussion of the relationship between work and personality development.

32. Buechler, Judith-Maria. "Women in Petty Commodity Production in La Paz, Bolivia" in Women and Change in Latin America. June Nash and Helen Safa, eds

The author uses case studies from a sample of 196 women producers in La Paz to test several models of female labor-force participation. Interesting as one of the only descriptions of women artesans and their working conditions and strategies.

33. Calderon, Fernando and Rivera, Alberto. La Cancha: Una Gran Feria Campesina en la Ciudad de Cochabamba. Cochabamba:CERES, 1984.

A very complete and fascinating study of the market in Cochabamba known as "La Cancha," as well as the system of markets in the surrounding region. It provides a thorough view of an occupation filled almost entirely by women. Based on a survey, participatory observation, previous studies, and case studies, the book offers a complete picture of market vendors operations, their differentiation by age, status, and stability, and their

relationship to the countryside. It also analyzes family survival strategies and the division of labor. One very interesting conclusion is the prediction that trade at this level is becoming saturated and will not be able to provide the same social stability and mobility to young families entering the occupation as it did in the past.

34. Cisneros, Antonio; Koch, Carlos; and La Fuente, German. La Mujer Trabajadora: Sus Necesidades y Criterios sobre la Vida Familiar. La Paz: CIS, 1984.

This study offers the results of a survey of 600 women who work outside the home in various economic activities. Its objective is to measure the level of knowledge and practices related to a series of factors on family life. The paper covers a description of the social and work context in Bolivia in which women's economic activity takes place. It includes statistics on health, the use of health facilities, contraceptive use, men's attitude on women's work, and women's participation in various economic sectors. There is also an interesting description of how labor laws differ for men and women, and how these differences discourage employers from hiring women.

35. Fucaraccio, Angel. "El Trabajo Femenino en Bolivia." Santiago de Chile: CELADE, 1974.

Even though the title of this paper indicates its emphasis on women, most of it deals with labor in general; only three pages out of sixty-four are related to women's work. All work is based on the 1950 census.

36. Perlov, Diane Catherine. "Women's Work, Power, and Access to Educational Mobility: An Investigation of the Beer-Makers of Highland Bolivia." Unpublished paper submitted in partial satisfaction of the requirements for the Masters of Arts, Department of Anthropology, University of California at Los Angeles.

This paper is based on field work carried out in 1978 in a village in the Cochabamba Valley. The author uses the data to show that women beer makers give preference to sons in paying for education because daughters are needed in the production process of "chicha" (beer), not because they want to increase their power and status through their son's education. The paper also describes the independence from husbands and increased social status derived from beer production.

37. Torrez, Hugo. "La Mujer Boliviana y sus Caracteristicas Demograficas en la Fuerza de Trabajo 1975." La Paz: C.I.S., 1977.

The author analyzes demographic figures on women from the National Demographic Survey taken by the Instituto Nacional de Estadistica in 1975. The report includes an analysis of women's levels of participation in economic activities by age, level of urbanization, fertility, educational level, and migration. The main finding is that the rate of women's

participation in the economy is one of the highest in Latin America. Some interpretations of this having to do with higher economic participation of rural than urban women should be examined for possible underestimation of women's work in urban areas.

38. UNICEF. "Estudio de Oportunidades para el Desarrollo de Proyectos Productivos para la Mujer Campesina." La Paz, 1984.

This UNICEF document consists of a list of communities and a catalogue of projects which could be implemented in order to improve the economic alternatives for women living there. The projects are briefly described by their objectives, production process, and equipment requirements. Descriptions also include the training, community organization, and technical aid necessary.

39. Wainerman, Catalina H. "The Mythic Image of Human Resources: The case of Female Economic Participation in Latin America," Paper prepared for presentation in the meeting on "Household, gender, and age" held in Rome, April 23-25, 1982.

Discusses the various types of work performed by women and why traditional methods of gathering data on labor measure them poorly. Also covers new methods with different conceptions of work which better reflect women's participation.

40. Wainerman, Catalina; Sautu, Ruth and Lattes, Zulma Recchini de. "The Participation of Women in Economic Activity in Argentina, Bolivia, and Paraguay: A Comparative Study," Latin American Research Review vol. xv no. 2: pp.143-151.

A comparative study based on 1950 census data and the National Demographic Survey in 1975 that analyzes the intensity and direction of changes in the labor force that has occurred since the post-war period, as well as some of the sociological factors that account for differences in current levels of female participation. The main findings on Bolivia are that women's participation in rural areas is much greater than in the the two other countries, possibly because of the importance of indigenous cultural traditions and/or subsistence; that women are more likely to find employment, the simpler the technology and the size of firm; that family situation appears to influence women's participation more than level of education; and that the poorer the family, the more agricultural work female members do.

WOMEN AND MINING

41. Acebey, David. Aqui Tambien Domitila. La Paz, 1984.

This is the second testimony of Domitila Barrios de Chungara (See entry for Let Me Speak), an activist from the mining community of Siglo XX. She

continues her story and that of the miners by describing the hunger strike of 1979 in support of a general amnesty, her candidacy for vice president of Bolivia, and her disillusionment with party politics and subsequent return to mining concerns. Her European tour to explain the miners situation took her to Brazil on her return, where the Brazilians heard her story and said, "Here, too, Domitila."

42. Ardaya Salinas, Gloria. "The Barzolas and the Housewives Committee," in Women and Change in Latin America June Nash and Helen Safa, eds.

This chapter describes the activities and roles of two women's political and social organizations. The "Barzolas" were the female arm of the M.N.R. (Revolutionary Nationalist Movement), the political party that came to power in the 1952 revolution in Bolivia. They were mostly urban, lower-class housewives who promoted and defended the party, and gained special privileges in return. The housewives Committee is an organization of miners wives that grew out of a protest against the detention of militant miners in the early 1960's and that later demanded improved living conditions for miners families. The chapter also documents the long history of Bolivian women's political activism.

43. Chungara, Domitila Barrios de, and Viezzer, Moema. Let Me Speak: Testimony of Domitila, a Woman of the Bolivian Mines. New York: Monthly Review Press, 1978.

Domitila Chungara's testimony is a vivid account of her political activities as a miner's wife in Siglo XX, the biggest tin mine in Bolivia. In the first part she describes her people, the living and working conditions of the men and women of the mining community, and their integration into the organized worker's movement. She then narrates her life in relation to historical events her community has lived through, and finally describes the mines in 1976, especially after a two-month-long miners strike. A special element is her account of the creation in 1961 of the housewives' Committee of Siglo XX, an important example of Bolivian women's organizations.

44. CIDRE. "La Diaspora Minera," Boletin Informativo Regional: Datos Sobre el Desarrollo de Cochabamba. Ano iv, no. 12.

Issue includes a study of laid-off ("relocated") mine workers who have migrated to Cochabamba. This is very recent, and possibly the only such study. Topics include social conditions and problems encountered by miners' families since the lay-off.

45. Viezzer, Moema. "El Comite de Amas de Casa de Siglo XX: An Organizational Experience of Bolivian Women," Joan Dietz and Paula Tuchman, translators, Latin American Perspectives vol.6, No. 3 (1979):80-86.

This article recounts the history and activities of the Housewives'
Committee of Siglo XX, an organization of miners' wives begun in the early
1960's to free activist miners who had been imprisoned by the government.
Members have made demands for better living conditions, demonstrated
against governmental economic policies, and attempted to find paid work for
women. The article also describes women's domestic roles, the opposition
to their political activity they face from male miners, and their views of
women's liberation as part of a popular movement of the working class.

46. Nash, June. We Eat the Mines and the Mines Eat Us. New York: Columbia
University Press, 1979. An excellent description of work, social
conditions, religious beliefs, and family relations in a Bolivian mining-
town. Also includes and economic analysis of the mining industry and
covers labor conflict and unionization.

WOMEN AND EDUCATION

47. CEBIAE. "Proyecto: Busqueda de Alternativas a la Desercion Escolar del
Ciclo Basico en Bolivia." La Paz, May 1987.

A preliminary report or research intended to identify the causes and
remedies of school leaving, especially at the primary level. It describes
the usual conditions in the school system as well as effects of the
economic crisis on education, such as the decrease in government spending
and the flight of teachers. Includes a great deal of data on school
attendance broken down by age, sex, and area between 1976 and 1984.

48. Cosio Romero, Orlando. "La Mujer en la Educacion." Paper presented at
the National Symposium on Women and Basic Needs sponsored by UNICEF and the
Ministry of Planning and Coordination, La Paz, June 1987.

Report discusses the problem with the education system that affect all
school children and the special discrimination women and girls face.
Provides some statistics on the differences between male and female school
attendance in formal and non-formal education.

49. Doria Medina, Samuel, and Escobar, Flavio. "Bolivia: El Impacto de la
Crisis Economica en la Educacion de la Mujer Campesina." Report prepared
for UNICEF. La Paz, May 1987.

This report examines the current educational situation in Bolivia in the
context of the economic crisis, recent economic stabilization measures, and
the development style of the country. It notes the problems of loss of
school days to protests, the abandonment of the profession by teachers, and
the lack of basic equipment. It includes a brief overview of the history
of education and policy, as well as UNICEF's efforts in education, health,
and integrated rural development. Also describes briefly the government's
literacy and non-formal education program.

50. Heyneman, S. "Preliminary Education in Bolivia: What's Wrong?" Source unknown. March 1979.

This paper describes the inequality between the rural and urban school systems in Bolivia. It blames the lack of teaching materials on the high percentage of the education budget that goes toward recurring costs, principally teachers'salaries. Offers six strategies for improving the rural system.

51. Villca T., Simon, and Orozco L., Carlos. "Documento Informe Sobre Educacion Inicial y Educacion Primaria." Report presented at the Seminario Regional de UPEL (Universalizacion de la Educacion Primaria y Alfabetizacion) sponsored by the Ministry of Education and Culture. Sucre, May 1987.

The report describes a new project to improve pre-school and primary education. The project uses materials that allow children to go at their own pace and should enable some rural schools to increase the number of grades they offer. The report also provides a useful description of the rural school system and its current problems.

WOMEN AND HEALTH

52. Carafa, Carlos; Gonzalez, Gerardo; Ramirez, Valeria, et. al. Luz y Sombra de la Vida. La Paz: U.N. Fund for Population Activities and the Ministry of Planning, 1983.

This book presents much of the same information on the Bolivian population and socio-economic differences in fertility and infant mortality as Salto al Futuro. In addition, it relates these data to an analysis of the economic structure and social differentiation.

53. CEPROLAI. "Situacion de la Salud en Bolivia." La Paz: 1986.

This is the report from one of a series of workshops, this one on health. Included are many statistics on various health indicators and diseases, a comparison of Bolivia with other countries, as well as a brief review of development plans and health policies in Bolivia. There is also a description of the historical evolution of the concept of health and illness in Bolivia from the pre-colonial era till the present. The technical analyses are peppered with religious interpretations of society's responsibility for health care.

54. Daroca, Maria del Carmen O. "Mujer y Salud." Paper presented at the National Symposium on Women and Basic Needs sponsored by UNICEF and the Ministry of Planning and Coordination, La Paz, June 1987.

This paper focuses on the nutritional problems that affect the poorer sectors of the Bolivian population, and women and children in particular.

Covers women's role in food production and nutrition within the family, on the farm, and in the market place.

55. Maure, Gaston R., and Cisneros C., Antonio J. <u>La Influencia Socio Cultural en la Fecundidad y Roles de la Mujer Boliviana</u> La Paz: Ediciones CIS, 1978.

This study of socio-cultural influence on the roles and fertility of Bolivian women details the differences among cultural groups in terms of attitude, practice, and beliefs. It includes some statistics about fertility rates, number of pregnancies, attitudes toward birth control, and work-related questions for each socio-cultural group studied; it contains few surprises. The validity of the study may be limited, since the population consisted of women who had participated in a health workshop, and the sample is therefore not random. The analysis also suffers somewhat from cultural bias.

56. Morales Anaya, Rolando, <u>Desarrollo y Pobreza en Bolivia</u>: <u>Analisis de la Situacion del Nino y la Mujer</u>. La Paz: UNICEF, 1984.

A very thorough coverage of the health and social conditions of women and children, as well as their roles as producers and, in the case of women, reproducers. The book includes a great deal of data on mortality and morbidity in women and children. Along with the symptoms is a description of related environmental and economic conditions and the inadequacies of health and other services. Included also is a description of Bolivia's political structure, resource base, and cultural characteristics.

57. Morales Anaya, Rolando. <u>La Crisis Economica en Bolivia y su Impacto en la Condiciones de Vida de los Ninos</u>. La Paz: UNICEF, 1985.

Describes the components of the economic crisis in great detail and discusses their effect on income, food and other consumption, the provision of social services, and health indicators such as infant mortality and malnutrition. Discusses various policies to protect children during the austerity period and describes government
and private programs to assist them.

58. Programa Mundial de Alimentos. <u>Clubes de Madres y Desarrollo Sanitario Rural.</u> La Paz, 1980.

The evaluation of a project to finance productive projects for women through the sale of food by Mother's Clubs. Describes all elements of the project, including training, assistance provided, the non-food costs to the government, improvements in nutritional and health status of beneficiaries, and increases in income among participants. The evaluation recognizes the increased consciousness among participants and the formation of cooperative organizations. It recommends a continuation of the project with increased technical assistance to improve its productive component.

59. Romero Pitari, Salvador. "Evaluacion del Programa Warmi-Wawantin: Participacion Activa de la Mujer Campesina y su Familia en Salud." November 1982.

The evaluation of the Warmi Wawantin primary health project (see later entry for description). Its overall finding is that participants' visions of the project match its proposed objectives. Covers a description of the project goals, methodology, and implementation, as well as the results, of a survey of participants. Also explains the need for a qualitative evaluation, given the nature of the project.

60. Salto al Futuro: La Poblacion Objeto y Sujeto del Desarrollo U.N. Fund for Population Policy Project and Ministerio de Planeamiento y Coordinacion. La Paz, June 1980.

A very through analysis of the 1975 Bolivian census that covers recent population trends and future projections, as well as possibilities for governmental population policy. The most relevant section for issues of women and development covers differences in fertility and mortality by social group.

61. "Warmi Wawantin: Un Compromiso con la Vida." Author, institution and date unknown.

This report describes the origins, methodology, and implementation of Warmi Wawantin, a highly acclaimed and innovative community health project that was begun in Bolivia in 1979 under the sponsorship of the Ministry of Health and the U.N. The projecti emphasizes an active, participatory edducational methodology based on the work of Paulo Freire. It emphasizes the training of community health workers and the teaching of maternal and child health. Its capacity to organize women's groups and its high rate of community participation have made it a model for projects in other areas, such as income generation.

WOMEN AND FOOD AID

62. CEPROLAI. "Alimentos, Crisis y Nueva Politica Economica." La Paz, 1986.

These are the proceedings of the Second Research Workshop on the National Reality, held in La Paz in August 1986. This document contains data related to local political and economic processes. Although it does not contain information dealing specifically with women, there are interesting facts which are related indirectly to them, such as general information and very elaborate statistics on food consumption, retail commerce, food costs, etc.

63. CIDEM. "La Donacion de Alimentos: Una Cuestion de Mujeres." La Paz, 1986.

This pamphlet is the result of proceedings from a Day of Reflection on Women and Food Aid, held in La Paz in August 1986. It discusses the procedures of agencies that are involved in food donations and their effects on women beneficiaries. Although the authors make it clear that this is not a scientific publication, they point out the importance of taking women recipients's opinions and perceptions into account when evaluating the uses of food aid. It includes three main papers: "The impact of the Economic Crisis on the Social Situation of Grassroots Women," "Food aid in Bolivia," and "Some Effects of Food Aid on Grassroots Organizations."

64. Montano, Sonia. "Mujer y Asistencia Alimentaria." Paper presented at the Simposio Nacional Sobre la Mujer y Necesidades Basicas. La Paz, June 1987.

The author criticizes food donations programs for women in Bolivia for several reasons. She points out that this type of program is the only long-term one that the Bolivian government offers women, and that is because policy makers only consider women's domestic role as a family care taker and provider of food; because of this lack of recognition of their productive roles, the government does not support productive projects for women. She also criticizes the attitudes of dependence and passivity that food programs engender in women. Another problem is that continuous imports of donated food change the populations eating habits and create a national dependency on food imports.

WOMEN - REFERENCE

65. Agramont Virreira, Miriam: Alzerreca Barbery, Enriqueta; Calle Alvarez, Lidia; et. al. Bibliografia de la Mujer Boliviana (1920-1985). La Paz: Ediciones CIDEM, 1986.

66. CIDEM. Directorio de Instituciones Femeninas: La Paz, Sucre, Cochabamba, Potosi, Santa Cruz y Oruro. La Paz, 1986.

ACRONYMS OF ORGANIZATIONS MENTIONED

CEBIAE: Centro Boliviano de Investigacion y Accion Educativas
CELADE; Centro Latinoamericano de Demografia
CERES;   Centro de Estudios de la Realidad Economica y Social
CIDOB: Centro de Informacion y Documentacion de Bolivia
CIDRE: Centro de Informacion y Documentacion para el Desarrollo Regional
CIS: Centro de Investigaciones Sociales
UNICEF: United Nations Children's Emergency Fund

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DISCUSSION DRAFT

WOMEN AND STRUCTURAL ADJUSTMENT

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Contents

Women and Structural Adjustment

1. Introduction

Is structural adjustment a "women's issue"? At present the standard literature on structural adjustment, which is gender unspecific, coexists with a women-focused literature the thrust of which is often to present women as victims of structural adjustment. The focus of this paper is on women as participants in, rather than as victims of, adjustment. It is argued that just as our understanding of the macroeconomics of adjustment has gained from the disaggregation of goods markets by their tradability, so our understanding of the microeconomics of adjustment can benefit from a disaggregation by gender. Structural adjustment is essentially about inducing inter-sectoral mobility. It is argued that due to a variety of biases in private and public resource allocation women are likely to have less capacity for mobility and yet adjustment may place greater demands for mobility upon them. Hence the constraints which reduce women's mobility can frustrate structural adjustment. Further, they curtail the income security strategies which households might adopt to mitigate the short-run social costs of involuntary job loss.

Section 2 is a 'five-finger-exercise' on the inter-sectoral resource reallocation implications of structural adjustment and stabilisation. Section 3 develops the argument that gender disaggregation is important to our understanding of the microeconomics of the mobility which this reallocation entails.

2. Structural Adjustment and Inter-Sectoral Resource Reallocation

It is useful to make a clear distinction between stabilisation and structural adjustment, for stabilisation will lower living standards while structural adjustment will raise them. Stabilisation refers to the elimination of an initial unviable payments deficit (which might, for example, have been induced by a debt shock). Stabilisation is not optional and it often must be implemented with urgency. It is then quite likely that the

government adopts a policy which achieves stabilisation in a more costly way than might have been achieved. In this case there are two types of loss: the unavoidable loss involved in least—cost stabilisation, and the avoidable loss involved in inefficient policies. Structural adjustment is the process whereby the economy recoups this second loss as the government undoes its policy errors. The key instance of this is that many governments initially choose to stabilise their economies by means of tightened import quotas. Structural adjustment programs in such economies thus start from an external equilibrium in which binding import quotas give rise to allocative inefficiency. A key purpose of adjustment is thus to convert this quota—attained payments equilibrium into an exchange—rate—maintained payments equilibrium. That is, its objective is not to improve the balance of payments but rather to reduce trade restrictions. The rationale for this policy change is that trade restrictions, and especially quotas, give rise to deadweight inefficiencies which are avoided by appropriate use of the exchange rate. Hence, the policy switch should generate gains in living standards as these inefficiencies are removed.

The policy switch changes relative prices and thereby encourages resources to shift between sectors and also redistributes incomes. Figure 1 illustrates the effects of a "debt shock" followed by structural adjustment. The space in which the figure is developed is defined on two relative prices: the domestic price of exports relative to importables on the vertical axis (world prices being given), and that of non—tradables to importables on the horizontal axis. The N—N locus shows equilibrium in the non—tradables sector. Its derivation is explained in Dornbusch (1974). The C—C locus depicts monetary equilibrium, for a given nominal exhange rate. If some importable goods receive no protection prior to structural adjustment then their domestic price will be altered in the same way as export goods. Hence the export sector should be thought of so as to include all unprotected import substitute activities. The central analytic distinction within the set of tradable goods is not between importables and exportables but between protected and unprotected.

The need for stabilisation is assumed to arise from a "debt shock": the economy has less disposable foreign exchange and so the non—tradables equilibrium locus shifts to the left. As disposable incomes fall, the demand for money falls, shifting the C—C locus downwards. The government now has a choice between policies which further shift the schedules and policies which accommodate to the new schedules. The policy of accommodation is to tighten trade restrictions until domestic relative prices change to those at E2. At this point balance of payments equilibrium is restored. This was the most common policy response to the negative shocks of the early 1980s prior to structural adjustment. A structural adjustment program aims to shift the economy from E2 to E3 by a combination of trade liberalisation, reductions in money supply (reducing the fiscal deficit) and raising money demand (devaluation). It thereby undoes the sub—optimality of the initial response. Table 1 sets out the inter—sectoral resource shifts distinguishing between three time periods; that between E1 and E2, that between E2 and E3, and that between E2 and E3.

Table 1: Price Changes and Resource Shifts during Stabilisation and Structural Adjustment

Relative Price	During Stabilisation	During Structural Adjustment	Net
P_n/P_m	DOWN	UP	DOWN
	N -> M	M -> N	N -> M
P_x/P_n	AMBIGUOUS	UP	UP
		N -> X	N -> X
P_x/P_m	DOWN	UP	No CHANGE
	X -> M	M -> X	

Note: N = non—tradable

M = protected importables

X = exports and unprotected importables

Arrows indicate direction of inter—sectoral resource shift.

The price changes which occur as a result of structural adjustment are clear: the price of exportables rises relative to both other sectors and that of importables falls relative to both other sectors. The resource reallocations which should be induced during the structural adjustment period are not, however, quite so straightforward. If the program occurs soon after the debt shock then the economy will not have fully adjusted to the price changes of the stabilisation phase. This is particularly important with respect to the allocation of resources between the non—tradables and import—substitute sectors. If the economy has fully adjusted to the stabilisation phase, resources should shift from import—substitutes to non—tradables. If it has not adjusted at all, resources should shift in the other direction.

For some purposes it is important to distinguish within the non—tradable sector between consumer and capital goods. Whereas the demand for consumer goods falls, the change in the demand for capital goods is ambiguous. There is likely to be some fall in the savings propensity, but since investment is the main mechanism for capital mobility, the change in relative prices raises the marginal efficiency of investment. Hence, it is quite possible that whereas structural adjustment will involve the contraction of the non—tradable consumer goods sector it may induce expansion in the non—tradable capital goods sector.

The consequences of these price changes for income distribution depend upon whether there are any inflexibilities in either prices or quantities. These will be central to our subsequent discussion, however, in this section we consider only what would happen given complete flexibility. The change in relative prices will redistribute welfare through

four routes: the squeezing of rents, the associated rise in government revenue, income generation and the costs of expenditure. Those agents who prior to structural adjustment received the rents on foreign exchange entitlements at below the market—clearing exchange rate will lose. These agents will include politically well—connected importers, but some of the rents may have been passed on to the consumers of importable products. The rise in the price which the government charges for foreign exchange increases its revenue. This enables the government to maintain a higher level of expenditure than it otherwise would have done (although the counterfactual may have been rapid decline). The beneficiaries depend upon which expenditures the government would have treated as marginal, and may therefore be either the users of health programs or public employees, for example. The redistribution of incomes through the change in marginal revenue products even with complete factor mobility depends upon which factors are used in which sectors but if all factors are used in each sector then the effect on factor prices is likely to involve a rise in the price of the factor used intensively in the export sector and a fall in that used intensively in the import sector. The fourth route by which a SAP will redistribute welfare is through the effect of relative price changes upon the costs of expenditure. The market—clearing price on importables relative to non—tradables will fall, benefiting those whose consumption is skewed towards importables (though note that this effect must be taken in combination with the distribution of the loss of rents discussed above). The net effect of these four routes must be positive, in the sense that allocative efficiency has been improved. However, even in the absence of inflexibilities the effects of a structural advice program on living standards of various groups can be complex.

Many programs have had disappointing results to date. A common complaint is that contraction of some sectors gives rise to unemployment rather than the expansion of other sectors. The problems associated with adjustment center around two types of inflexibility: quantity and price. Quantity inflexibility, upon which we focus here, occurs to the extent that the allocation of factors between sectors at post—adjustment relative

prices is not independent of their pre—adjustment allocation (so that there is some inertia). If all factors are completely immobile between sectors there is nothing to be gained from adjustment except a transfer from rents to government revenue: there can be no improvement in allocative efficiency. (The N—N locus is vertical.) Hence, the extent of factor mobility between sectors is central to the rationale for SAPs. Price inflexibility both removes a principal mechanism for inducing voluntary mobility and replaces it with an ultimately greater amount of and socially more costly involuntary mobility.

3. Constraints upon Women as Obstacles to Structural Adjustment:

3.1 An Introduction to Gender Differences in Mobility

Women face different constraints upon economic activity from men. An obvious indication of this is that female—controlled resources are usually distributed between sectors very differently from male—controlled resources. The important consequences of these differential constraints are that women and men will usually have systematically different capacities to be mobile and systematically different requirements to be mobile. Programs designed to assist structural adjustment which fail to distinguish between the genders use a framework which is too highly aggregated for the problem: it is the same type of design error as treating exportables and importables as if they were a composite tradable commodity.

Let us take an example of how the inter—sectoral immobility of women can substantially impede structural adjustment. From Table 1 recall that the sector which must unambiguously attract resources is the export sector. In much of Africa this is predominantly a component of smallholder agriculture, consisting primarily of tree crops such as cocoa, coffee and tea. Hence, structural adjustment depends upon the entry of new resources into tree crops. Recent work on the adoption of tea in tea—growing parts of Kenya during 1975—82 (Bevan et al (1989)) enables male and female—headed households to be compared. Tea is arguably the most important export activity with potential for

expansion in Kenya, since unlike coffee it is not subject to international quotas. Hence, in investigating the determinants of tea adoption we are at the heart of impediments to appropriate resource mobility. The study found that female—headed households had only half the propensity of male—headed households to adopt tea. Since in Kenya around a third of rural households are female—headed this diminished propensity is in aggregate substantial. Further, the case of Kenyan tea is particularly revealing because most of the labour of tea picking is done by females. This is reflected in the effects of the household labour endowment on the propensity to adopt tea. Holding other household characteristic constant, extra male labour has no effect upon the propensity to adopt tea whereas extra female labour leads to a statistically significant increase. An additional female adult in an otherwise average household raises the propensity to adopt by around a quarter. Thus, in Kenya the key sector of tea is characterised by three apparently incompatible facts. Women do most of the work on tea, households with more women are more likely to adopt the crop, yet households headed by women are far less likely to do so.

The question raised by this example is why are women at a disadvantage in taking up the economic opportunities which structural adjustment creates in the export sector? Although the example concerns the problems of female—headed households, we will see that there are also serious intra—household problems in male—headed households.

3.2   Differential Constraints upon Women

Four distinct processes account for why women face differential constraints upon economic activity. First, women may encounter discrimination outside the household. In developed countries the most emphasised example has probably been differential wage rates. In developing countries, however, discrimination in the labour market appears more to take the form of differential access to wage employment. For example, in rural Tanzania (where formal sector employment is an elite occupation) men with secondary education had a 3—in—4 chance of such a job whereas women with the same education had

only half that chance[1]. Often a more important instance of discrimination is the credit market. Because usually women do not own marketable land rights and as subordinates in the household cannot establish reputations for credit—worthiness, they tend to have markedly worse access to credit. This is especially severe in economies subject to financial repression, since the more acutely rationed by risk—bearing ability is the credit market the more disadvantaged are women.

The second process, which also operates outside the household, is the different directions in which the tendency to imitate or copy role models attracts men and women. The tendency to let decisions be influenced by what other similar or admired agents have chosen is a universal feature of human behavior. It is a key way in which innovations spread over the population. There is now evidence that role models are gender—specific: girls copy women, boys copy men. For example, in urban Cote d'Ivoire people were much more likely to enter formal wage employment if their parents had been so occupied (controlling for other characteristics), but females were not influenced by their father's occupation and boys not by their mother's. Each only copied the parent of their own gender. An implication of this is that if some new economic opportunity is initially taken up by men it may automatically be diffused over the male population by a mechanism which will not transmit it to the female population.

The third process is that within the household there are asymmetric rights and obligations. For example, in rural Africa women incur obligations to grow food crops for subsistence, to gather fuel and water, to cook, and to rear children. In return, men meet certain cash needs of the household and usually are responsible for the allocation of land. This pattern of reciprocal obligations is often unequal. In rural Africa women work for considerably longer hours than men. Part of this work is on holdings the output of which is controlled by men. This gives rise to a classic "principal—agent" problem: the women has

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[1] See Collier et al. (1986).

little incentive to work well. For example, a recent survey of Kenya (Ongaro, (1988)) compared the effectiveness of weeding (a female obligation) on maize yields in male and female—headed households. In both types of households there were two weedings per season and each weeding significantly raised yields. However, whereas in female—headed households these weedings raised yields by 56 per cent, in male—headed households the increase in yield was only 15 per cent. Since other differences were controlled for, the most likely explanation is a systematic difference in effort due to differential incentives. Thus the "incentives" argument, now so familiar in the World Bank, does not stop at the door of the household. To put this in perspective, if Ongaro's sample is representative of rural Kenya, the national maize loss from this disincentive effect is about equal to the maize gain from the application of phosphate and nitrogen fertilisers.

The fourth process is the burden of reproduction. Because there is a phase during mid—life in which women's time is pre—committed, certain activities are precluded. Skills decumulate, and long term contracts such as are common in the labour market are terminated. The physical demands of child bearing and breast feeding strain health: recent studies (Bevan et al (1989)) show that female health relative to male health goes through a trough in the child rearing years. This health deterioration rebounds upon income earning opportunities, especially due to the uncertain discontinuities in the availability of labour. Women become confined to a range of economic activities in which such discontinuities are relatively unimportant.

Between them, these four differences from men tend to skew female labour allocation to different sectors from men, and to impair female mobility between sectors. Note that these consequences are distinct: if female labour is skewed between sectors differently from men, then the sectoral reallocations required for structual adjustment to succeed will impact differentially upon men and women. Even if capacities to be mobile are no different between the sexes the requirements for mobility will differ, so that immobility might be a more serious problem for female than for male labour. Second, even

households would have a lower propensity to enter those sectors in which they were initially under-represented. In much of Africa the export crops have traditionally been under male control so that female-headed households are indeed likely to be under-represented. Hence, the expectation should be that biases in the private process of information transmission would reduce the capacity of female-headed households to enter the agricultural export sector relative to male-headed households.

In order to offset this bias in the private process of information transmission there is therefore a case for the public process to have an offsetting bias in favor of women. Yet in much of Africa the public extension service has been heavily skewed towards contact with men. This is partly because the extension service is usually overwhelmingly staffed by men and partly because it is largely targeted upon existing growers rather than potential entrants (relying upon the imitation effect to take care of this key group). Structural adjustment thus has three policy implications for the extension service. First, as an instrument of resource mobility, the extension service may need to be expanded even if in general other public services are being reduced. Second, the service may need to be reoriented towards the adoption process rather than the improvement of the practices of existing growers. Third, within the group of potential adopters, the extension service needs to be targeted on women whereas it is presently likely to be targeted on men.

The above analysis as to why women might have a lower propensity than men to enter the export sector in response to structural adjustment concerned differences between female-headed and male-headed households. Intra-household asymmetries might also tend to have the same effect. It was noted earlier that disincentive effects appeared to be powerful: women's weeding of maize appeared to be markedly less well done in male-headed households. This disincentive effect is likely to be more powerful for export crops than on food crops because the receipts from export crop sales tend to accrue to the male household head even though, as we shall see, the bulk of the work is often done by females. This tendency for males to control the receipts of cash crops is partly the result of

there are few informal deposit—taking agencies[3].

Women are likely to be at a disadvantage in both the private savings and the private credit routes to the financing of investment. The acquisition of financial assets other than cash is subject to certain economies of scale: for example, minimum transaction levels in banks and fixed travel costs of transactions. Given that women's income is usually lower than men, this implies that unless they have an offsetting higher savings propensity women will face higher unit costs of saving. Further, to the extent that women in male—headed households have less autonomy than men they run the risk that they may be forced into parting with their savings, particularly if it is in the form of cash.

Nevertheless, female disadvantage in the private savings market is probably far less marked than in the private credit market. Access to credit requires the collateral of either assets or reputation. Women's limited autonomy implies that they control far fewer marketable assets and may lack the opportunity to acquire independent reputations for credit—worthiness. A symptom of female disadvantage in private savings and credit processes is that informal savings clubs (collusive arrangements between agents to make regular deposits into a common fund which lends in rotation) seem to be predominantly female. Such clubs are likely to be a response to female—specific problems.

Public interventions in financial markets are partly by way of the provision of services which compete with the private sector, and partly by way of the regulation and taxation of the private sector. Again there is a case for these public interventions to offset the male bias inherent in private financial markets. The public sector indeed often provides the cheapest and most accessible deposit—taking agencies in rural areas through the post office network. However, the public credit program, like the extension service to which it is often formally connected, is heavily biased towards male heads of household.

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[3]Binswanger and McIntryre (1987) provide a convincing explanation of why private money lenders do not also act as deposit takers, namely that local risks of deposit withdrawals are likely to be highly covariant, leading to default.

even more skewed against women than is the private formal service sector. The constraints which keep women out of wage employment mean that the labour market cannot be the mechanism which reallocates their labour. Instead, women as self—employed agents must change activities. Hence, the main impediments to female labour reallocation are the informational, credit and land market constraints which prevent them, as entrepreneurs, combining their labour with complementary factors in new activities. However, in the longer term, greater female participation in the wage labour market may be an easier means of increasing inter—sectoral mobility than relaxing the constraints upon entry into new activities as entrepreneurs.

In this section we have discussed why the differential constraints upon women may make them less mobile inter—sectorally than men, and how public policies often tend to exacerbate this bias instead of offsetting it. Finally, we discuss briefly why such immobility is likely to constitute a significant policy problem. Since mobility is the essence of structural adjustment, constraints upon the mobility of female labour are directly damaging. Further, the incentive for capital mobility is reduced by labour immobility. If labour is able to move into the export sector then the marginal physical product of the capital stock in the sector is increased (and is reduced in those sectors from which labour has moved). These changes in marginal physical products of capital enhance the incentive to redirect capital (mainly through investment) into the export sector. Hence, the damaging consequences of constraints upon female labour mobility are geared up by this induced reduction in capital mobility. Further, in conditions of financial repression there will be less intermediation and so investment will tend to be undertaken by the agent who does the saving. This puts a premium on the inter—sectoral mobility of the agent: if the agent is immobile investment cannot be reallocated between sectors and, since the returns to investment may be negative for agents in contracting sectors, savings by these agents will be discouraged.

3.4. Consequences for Skewness in Male and Female Labour Allocation between Sectors

The constraints which tend to make women less mobile than men also tend to concentrate their labour into distinct sectors. This is because the constraints are often of the form of barriers to entry to an activity. Women are usually concentrated in two activities, food production and the provision of non-tradable services such as marketing. They are markedly under-represented in the public sector, private formal employment, and formal export agriculture. Although there are variations between countries, Kenya serves as a good illustration, the extent of skewness being shown in Table 2.

Table 2: Labour Allocation by Sector and Gender in Kenya, 1982

		Males	Females
Export Agriculture	estates	76%	24%
	smallholder	42%	58%
Food Agriculture		37%	63%
Public Sector		81%	19%
Import Substitute Sector		88%	12%
Non-tradable capital goods		96%	4%
Private Service Wage Employment		79%	21%

Notes and Sources:

Export agriculture: Estates is coffee, tea and sisal Employment and Earnings Survey (EES) 1981 T.8. Smallholder is from a rural household survey of 1982, see Bevan, Collier and Gunning (1989). Crops are coffee, teas and pyrethrum
Food agriculture: smallholder only, source 1982 survey
Public Sector: source EES 1981 Table 1
Import Substitute Sector: proxy is manufacturing, source is EES 1981, Table 8
Non-tradable capital goods: proxy is construction, source as above
Private Service Wage employment: proxy is residual of formal sector wage employment

Why are the sexes so differently allocated in Kenya? First take the most straightforward feature of skewness, the under-representation of women in the private

formal sector wage labour market. There are several reasons for this:

First, women have lower educational qualifications and therefore have worse access to many types of job. Second, they have asymmetric obligations within the household and therefore are less able to supply labour time on the basis which firms prefer. Third, due to the burden of reproduction women will have an interrupted career pattern and so skills invested in them by one firm will tend to be transferred to another firm. This externality is a loss to the initial firm. Finally, firms discriminate against women over and above these economic reasons.

If the private sector contains these biases against women, one might expect public recruitment policies to be offsetting. In fact, as the Kenyan example shows, public sector recruitment policies appear to reinforce labour market skewness. In aggregate, public sector recruitment is probably more intelligible in terms of a patronage system rather than with reference to the analogy of a private, profit maximising firm. Hence, the processes which bring this skewness about are probably different. Women's lower social status and hence bargaining power within a patronage system may be a more important cause.

Now consider women's underrepresentation in export agriculture. Within the smallholder sector the extent of skewness is fairly modest: women provide most of the labour on both food crops and export crops, but differentially more on food crops. This differential reflects either higher entry barriers or lower capacities to surmount common entry barriers. In much of Africa the export crops tend to be tree crops: tea, coffee, cocoa, rubber. The entry requirements for these crops are considerable because of the gestation periods involved, they are substantial investments. Further, at least in some countries they tend to be relatively recent crops so that the level of information about their cultivation is inferior (relative to best practice techniques) to that of the food crops.

As discussed above, within smallholder agriculture the major skewness may be not labour time but ownership of the output. If men differentially control the output of export crops then the principal—agent problem will be more pronounced there than in the food

crops (where we have seen there is reason to believe it is still severe).

3.5 Consequences of Skewness

In Section 3.3 we argued that women tended to have a lower capacity for inter—sectoral mobility than men. In Section 3.4 we argued that male and female labour is differentially skewed between sectors. Why does this gender skewness matter for structural adjustment? First, it implies a differential requirement for the genders to be mobile. If, for example, female labour happened to be skewed away from the export sector (as it is in some countries) then the labour mobility into that sector which structural adjustment requires will place a higher requirement upon the mobility of women than of men. In such a case structural adjustment would be doubly impaired: the agents whose mobility is most required would be those who were the least mobile.

How likely is it that structural adjustment requires greater mobility on the part of women? Recall from our discussion of the mobility requirements of structural adjustment that the protected import substitute sector may contract or expand (depending upon the duration of prior protection) whereas the non—tradable sector must unambiguously contract. The protected import substitute sector is usually broadly coincident with the manufacturing sector, the labourforce of which is generally heavily skewed towards males (see Table 2). The non—tradable sector may, however, be similarly skewed towards women. First, recall that within the non—tradable sector the capital goods industry might behave differently from the consumer goods sector: the premium on investment as a mechanism of mobility might well prevent contraction in the capital goods industry. Invariably, whereas the labourforce in the non—tradables sector overall may be predominantly female, that in the non—tradable capital goods sector is overwhelmingly male (in Kenya as shown in Table 2 it is 96% male). Whether the non—tradable consumer goods sector is skewed towards women critically depends upon the degree of tradability of food, the production of which is generally dominated by women. If food is part of the unprotected tradable sector, then

women are likely already to be disproportionately located in the sector which must expand. labour relocation is then a problem directly concentrated among males, whereas capital relocation requires that women increase their access to credit at the expense of the sectors in which men predominate. Hence, the central women–in–structural adjustment issue in such economies would be in the credit market rather than the labour markets. Conversely, if food is part of the non–traded sector then the key resource relocation required in the economy is likely to be women's labour. As we have suggested above, since most agricultural labour is not allocated through the market, this relocation is likely to involve women as entrepreneurs entering new activities, so that the key constraints upon their labour mobility will largely lie outside the labour market.

In any particular economy it is generally straightforward to assign food to one or other of the three macroeconomic sectors, but this is not possible a priori. Food is sometimes part of the non–tradable sector, sometimes part of the protected import–substitute sector and sometimes part of the unprotected tradable sector. For example, some staples, such as yams, are intrinsically non–tradable. Although for the major grains there is an active world market, internal transport and storage costs mean that within the rural economy food is largely internationally non–tradable (while being tradable as far as much urban food supply is concerned: it is probably cheaper to transport food from Chicago to Lagos than from Kano). Thus in many countries part of food production is import substitute. However, recall that the key analytic distinction within the set of tradable goods is whether they are protected or not. During the stabilisation policies in Nigeria food imports were banned. Hence that part of Nigerian food production which substitutes for imports is protected and a structural adjustment program will result in its contraction. However, in some countries, such as Zambia, although food production is an import substitute, it is not protected. Hence, as a result of structural adjustment the sector should expand just as the export sector. To summarise, there are three possibilities:

1) Food is non—tradable and/or protected import substitute: Its production should therefore contract as a result of structural adjustment. This can only occur if women are able to reallocate their resources into those non—food sectors which should expand. If women face entry barriers to these sectors then adjustment is impaired.

2) Food is an unprotected import substitute or export: Its production should therefore expand. However, for this to happen either male labour must shift into the activity, or female labour supply must increase (a diversion of time from other activities), or females must be able to increase their labour productivity by investment.

3) Food is a non—tradable (rural consumption) and unprotected import—substitute (urban consumption): The net effect of structural adjustment on production is ambiguous, but there should be a reallocation of consumption from rural (often subsistence) to urban areas. Thus, the sector which must unambiguously expand is the food marketing sector. This is commonly a largely female sector, which will require more resources.

Because of this variability in the classification of food, the skewness of male and female labour between the three analytically important sectors can be expected to differ radically between countries: sometimes successful structural adjustment will predominantly require women to reallocate their labour, sometimes it will predominantly require that land and capital be reallocated to the sector in which women are already concentrated.

That skewness gives rise to diffferential requirements for mobility between the genders is the first reason why it is significant. However, there is a further important reason why skewness matters: it interacts with differential capacities to be mobile to generate potentially powerful distributional and allocative inefficiency consequences. How skewness and immobility interact depends upon the specific pattern in which factors are skewed and a full taxonomy of possibilities is not developed here. Table 3 depicts a pertinent example in which skewness is stylised by considering its extreme form which is if

some factors are not used in all sectors.

Table 3: <u>An Example of Structural Adjustment with Gender–Specificity</u>

	Sector		
	N	X	M
Female labour	* ¦		
Male labour		* <—	*
Land	* —>	*	

In the example of Table 3, male labour is located in the import substitute and export sectors, and is mobile. Female labour is located in the non–tradable sector and is immobile. Land can be used in either the non–tradable or the export sector and can be reallocated between the two. Recall that structural adjustment will involve a rise in Px/Pn and a rise in Px/Pm. In this scenario the former induces a reallocation of land from N to X and the latter induces a reallocation of male labour from M to X. The reallocation of land lowers the returns on female labour and raises the returns on male labour. The reallocation of male labour raises the returns to land deployed in the X sector. The latter induces a further reallocation of land from N to X. This further raises the returns to male labour and lowers the returns to female labour.

The above example has illustrated that in countries where women are concentrated in the non–tradable sector and are less inter–sectorally mobile than male labour or other factors the returns to women's labour will fall as a result of structural adjustment despite the overall gains to the economy. This is simply the application of a standard result that a factor specific to a sector the relative price of which declines will suffer absolute losses of

income in excess of the price decline[4].

Such distributional effects may be important if the household is not an adequate inter-gender redistributional device (which, of course, is likely to be the case in female-headed households and may be the case more generally). However, even were changes in the inter-gender functional distribution of income to have no consequences for the personal distribution of income, the interaction of skewness and immobility would still be of significance because of the implications for allocative efficiency. Suppose that prior to structural adjustment there were no differences in the returns to male and female labour so that the gender division of labour had no costs. Post-adjustment the marginal product of male labour will be above that of female labour so that specialisation by gender now gives rise to allocative inefficiency. It is indeed plausible that the social conventions which have given rise to gender specialisation and female immobility become increasingly costly as prices (and hence opportunities) diverge further from those which prevailed at the times when the conventions were formed.

3.6   Gender Differences in Price Inflexibility and Interactions with Immobility

Price inflexibilities, nominal or real, can occur either because of long term contracts or because of bargaining power which creates reservation prices at certain levels. Such price inflexibilities are unlikely to be directly gender-specific. However, because of the gender skewness between sectors and between self and wage employment, sector-specific price and formal labour market wage rigidities are liable to have gender-specific consequences.

Generally in Africa prices have proved markedly more flexible than in developed

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[4]For example, taking tradables as the numeraire, if non-tradables fall in price by x% then factors specific to the non-tradables sector will suffer a loss of income in excess of x%. A good exposition and development of the Ricardo-Viner model which underlies this is Neary (1978).

economies. However, there are significant differences between Francophone and Anglophone Africa (the former probably having more real price rigidities due to fixed exchange rates), and many markets display short—term nominal rigidities. Where these rigidities bind the market will not clear and so involuntary non—fulfillment of the plans of some agents takes place. The main instance of this is in the formal wage labour market: real wages do not decline with sufficient speed for all quits to be voluntary and so redundancies occur. A sector subject to such a rigidity will contract more than if wages in the sector were fully flexible. Hence, wage rigidity in the import substitute and non—traded sectors will accentuate their contraction. Further, whereas with price flexibility and induced voluntary quits income losses are spread evenly among those who stay and those who relocate, with price inflexibility, large losses are concentrated upon those who involuntarily relocate. This in turn can create powerful opposition to relocation.

An economy with price inflexibilities will require greater (involuntary) quantity mobility. If there are some barriers to mobility, these barriers are therefore more likely to bind if the economy encounters binding price rigidities. Conversely, in an economy with binding quantity immobilities, the changes in relative goods prices which constitute structural adjustment will generate larger falls in the real incomes of those in declining price sectors. Hence, reservation wage rigidities are more likely to become binding. Thus the damaging consequences of either type of inflexibility can include those of the other.

Because the allocation of women's labour is heavily skewed against the manufacturing and public sectors (see Table 2) they are disproportionately in the flex—price part of the economy. The involuntary quits which are the consequence of price inflexibility will therefore be suffered directly by men. However, the short—term welfare consequences of such involuntary quits, and hence the intensity of opposition to them, will depend upon the capacity of the household to redeploy its resources so as to offset the income loss suffered by a male wage—earner member. To a significant extent the redeployment of women's labour represents the best opportunity for households to generate

such offsetting increases in income. This is because the allocation of women's labour time between income generation and household activities is known to be considerably more sensitive to the income level of the household than is male labor. Thus, we would expect female labor supply to the market to increase in those households in which male wage earners lost their jobs. The scope for this income security strategy to reduce the short—term social costs of adjustment then depends upon the opportunities for women to earn incomes from this increase in labor supply. To date, public interventions to mitigate the social costs of adjustment have ignored the household as being the natural unit of income security and have instead concentrated directly upon attempting to redeploy those who have lost their jobs through targeted credit and training. Often this has proved both costly and ineffective (see Collier (1988) for a survey). An alternative, or at least complementary intervention, would be to assist the household security strategy. But this amounts to easing the constraints which, we have argued, currently impede women from entering activities where their income might be enhanced: we are back, for example, to the credit market bias against women.

4.   Conclusion

The price changes which constitute structural adjustment are designed to achieve reallocation of factors. Hence, factor immobility is a direct, central constraint. Price and wage rigidities both increase the magnitude of required resource mobility and convert it from a voluntary to an involuntary process with potentially high short term social costs borne by those households whose members lose their jobs. The macroeconomics of structural adjustment can only be understood by a more disaggregated model than that which had previously been used for most macroeconomic analysis: output must be disaggregated at least into three sectors. Analogously, the microeconomics of structural adjustment can benefit considerably from disaggregation of agents by gender. We have argued that the capacity to be mobile, the requirement to be mobile, and the capacity to provide a household income security strategy are all likely to differ systematically by gender.
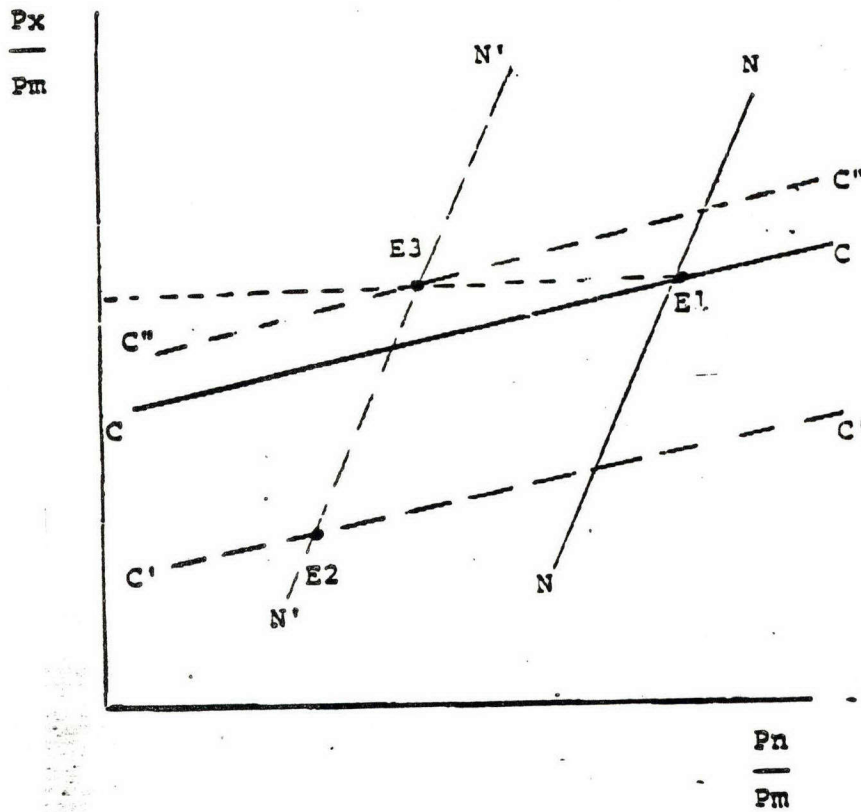
Figure 1: Response of Relative Prices to a Debt Shock.

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COUNTRY WID ASSESSMENT AND ACTION PROGRAM

<u>Objectives</u>:

(1)   assess development role of women, current and potential;

(2)   identify the constraints women face, particularly in access
      to information, resources, and human capital (education and
      training; health, nutrition and family planning services);

(3)   assess promising approaches for overcoming the constraints
      and <u>select 3-4 things the Bank should focus on</u>.   Find
      a practical set of measures involving policies, programs,
      and projects to open up opportunities for women -- to
      assist not just women but families, economies, and other
      efforts (e.g. population, environment).   Two categories:

      (a)   <u>Actions with shorter term results</u>: policies, programs,
            and projects that can expand opportunities for the
            current generation of women -- e.g. through
            agricultural extension, credit, marketing/purchasing
            arrangements, improved water supplies, better feeder
            roads, electrification, provision of labor-saving
            household technology, changes in laws/regulations;

      (b)   <u>Actions with longer term results</u>: policies, programs,
            and projects that build the capacity of women to
            respond to economic incentives, improve productivity,
            and broaden their options -- through improvements in
            edcuation, nutrition, health, family planning, etc.
            Also basic changes in the legal system.

<u>Procedure</u>: The level of analysis typically used in Bank sector
work, if it incorporates some gender-disaggregated information,
will generally also work to develop an action program to address
women. Don't let the perfect be the enemy of the good.
Extensive household-level research may be ideal, but it seldom
exists. A basic understanding can be developed quite fast from
whatever gender-disaggregated data exist (usually more in health
and education); literature reviews; program and project
experience; and discussions with women themselves (in government,
NGOs, professions, and communities). This will usually suffice
to identify some immediate next steps -- and will suggest further
analysis to pave the way for other activities.

<u>Key Points for Analysis</u>:

I.   <u>WOMEN in the FAMILY</u>.   Quick look. Since women are usually
     in a subordinate position, it may be difficult to channel
     information and resources to women without some understanding
     of their family role. Maybe disaggregate by income,
     rural/urban location, etc.   Main points:

-- <u>what responsibilities and constraints</u> women usually have;
-- <u>how women's "family work" contributes</u> to development objectives such as improved child health or efficient management of resources;
-- <u>who decides what</u> in the family;
-- how many <u>households are headed by women</u> (and what types of households they tend to head);
-- and what the <u>scope is for providing additional information and resources</u> to women (and avoiding compensatory reallocation away from them).

<u>Core family responsibilities</u>: In most societies, women are traditionally expected to have many children and to take primary responsibility for: child care and care of the elderly; food preparation and storage; and health/sanitation. They also often fetch household fuelwood and water and do other chores. This work is conventionally excluded from GNP, though it would usually have to be paid for if women in the family did not do it. The time requirements for such work may constrain women's options for other work (or, in principle, for leisure). As women's schooling and earning capacity outside the home improve, the opportunity cost of sticking to traditional options rises. Women start to shift toward more labor force participation, smaller families, and less home-based work. What is the opportunity cost, or implicit price, of women's family work -- how much must women earn in other pursuits before they will shift away from traditional responsibilities? How do shifts in women's occupations, increased incomes, better education and other "modernizing" affect family size? Family welfare? (Probably on balcne positively.)

NB: Unlikely to have much quantitative data on some aspects.

II. <u>PRODUCTIVE SECTORS</u> (Agriculture, SSE/informal usually offer most obvious possibilities; "growth fields" vary.)

  A. <u>Women's economic participation</u>. Women usually do more in agriculture, industry, and services than the official data capture. What work do women do at present -- and where do they actually manage the resources? How does women's work (and resulting income) affect broader development objectives such as economic performance, reduction in poverty, or population growth?

    1. <u>Types of products</u> -- often women are largely responsible for food for home consumption, some cash crops, small livestock, processed food, rugs, etc. For women farmers: do they control their "own" land on a de facto if not de jure basis? Do they control income from some crops but not others?

    2. <u>Types of tasks</u> -- e.g., planting, weeding, harvesting, processing of food, marketing,

weaving, labor in export-oriented labor-intensive industry, teaching, providing health care, etc. Are there any that particularly affect other development objectives -- e.g. agricultural expansion may be constrained by requirements for labor that women supply (using outmoded technology).

3. True <u>labor force participation</u> -- comparisons of official labor force data and more detailed surveys usually show that official estimates considerably underestimate female labor force participation.

4. <u>Determinants of women's occupation/earnings</u>: Education, control over land or capital, law, and other factors influence women's occupational choice. Which matter most? Is there evidence of discrimination or just disadvantage in education etc.? What are the the growth fields?

B. <u>Women's Responsiveness to Economic Incentives</u>

1. What does the evidence (if any) suggest about women's responsiveness to economic incentives (as compared to men with similar education and resource endowments)?

2. <u>If women appear to respond differently, why?</u> Cultural or other constraints often inhibit their interest or capacity to respond, with obvious implications for economic adjustment. What are the cultural, legal, or economic sources of these constraints? These affect tradeoffs among firm-based work, home-based work, childbearing, and childcare or other family responsibilities. Who decides about women's economic participation?

C. <u>Women's Access to Information and Resources</u>: Increasing the Supply-Response Capacity for Women. Often, because of culture, childbearing, and so on, women have much more restricted access to information, technology, resources, and sometimes markets. This may inhibit their capacity to respond to economic incentives (and at times possibly also their willingness.) It may thus restrict their economic mobility and depress their productivity. But practical ways can usually be found to adjust current programs or plan future ones to reach women more effectively. Particularly important are agricultural extension, small-scale credit, and productive inputs; vocational training may be too. For each field, these points may be worth considering:

1. <u>Diagnosis</u>: What is women's actual access/use compared to men (ideally with similar education and resource endowments)? What are the

main constraints on women -- cultural, legal, economic, etc. How does the situation generally differ by income level, location, culture, etc.? (For the poorest?)

2. Finding key pressure points: What do women in major occupation groups (e.g. small-scale farmers or urban entrepreneurs) appear to need most, given cultural and other constraints and some idea of where change may be likely to pay off? What about women breaking into new fields? What kinds of information, technology (for home or other work), credit, etc.? What do women think?

3. Reaching women: What kinds of delivery systems seem most effective in reaching many women, considering culture, cost, etc.: private commercial sector (usually does not reach the poor or the distant rural areas), NGOs (usually do not reach many), public sector (usual issues). Is it more promising to integrate women more effectively in mainstream development programs (the usual case) or to develop women-only programs? What will women contribute financially to such programs?

III. HUMAN CAPITAL: EDUCATION AND TRAINING; HEALTH, NUTRITION, AND FAMILY PLANNING. Education is probably the single most important way to open up opportunities for women in the longer run -- with highest payoff in economic productivity, family welfare, slower population growth, and broader options for women themselves. Closely related is the capacity to control pregnancy and safeguard basic health. Maternal health problems often account for one-fourth or more of deaths of women of child-bearing age; nutritional stress (especially anemia) is more prevalent among women, especially those who are pregnant. Practical adjustments in programs -- particularly basic service delivery at the local level -- can often considerably improve women's education and health and encourage family planning.

A. What are women's (and girls') current patterns of access and consumption/use, compared to men? For example, in Africa and South Asia, women lag particularly in educational attainment and may have less access.

B. What are the economic, cultural, or other explanations? What are the main constraints facing women and girls? Parents often want less education for their daughters, for reasons related to social expectations, daughters "marrying out" of their own families, etc. -- even though the economic return to girls' education is generally not less than for boys, and girls' education has more impact on their own children's health and on family size. But parents don't capture all these

returns. So girls may be withdrawn from school first;
girls may also receive less food and health care.

C. <u>To increase female access and use</u>:

1. What are the <u>key needs</u> -- and the preferences
    of women? Are these peculiar to women?

2. How can <u>delivery systems reach women and girls</u> more
    effectively and at an affordable cost? May argue
    for having more basic services (such as "one room
    schoolhouses" or health posts) closer to home,
    more women teachers or service-providers, more
    flexibility in the timing of classes or clinic
    hours, etc. Role of government, private commercial
    sector, NGOs (same issues as above).

3. <u>How much would parents contribute to services</u>
    that they regarded as more useful or appropriate
    for their daugthers -- "demand for what?"

4. Is there a case for more subsidies to encourage
    female education, since parents don't capture
    all the benefits but the social benefits for
    girls actually seem greater? Are there relatively
    low-cost possibilities such as uniforms for girls?

IV. <u>OTHER FIELDS</u> -- Infrastructure (Transport, Water, Urban) and
     Energy. Investments here may especially help save women's
     time in household chores.

A. What is women's access now?
B. What are their main constraints?
C. What are the most promising practical possibilities for
    expanding access? Public, private commercial, NGOs?
    The cost/administrative burden?

V. <u>IMPLICATIONS FOR THE BANK</u> -- based on this analysis:

A. What should the main focus be for the Bank in this
    country -- e.g. secondary education, agricultural
    extension, credit? Perhaps select 2-3 fields.

1. <u>What is currently being done</u> to address the main
    issues facing women in the Bank's policy dialogue
    and lending program? In ESW or other analysis?

2. <u>What could be done</u> through economic, legal,
    or other policy changes at the macro or
    sectoral levels? Through adjustment or other
    efforts focused on basic economic policy?
    What are the implications for investment (public and
    private) and for projects planned or now under
    supervision?

a. Mainstream vs. women-only approaches
b. Institutional/Implementation issues:
    1.) Private commercial sector: often
        does not reach the poor but can be
        useful complement.
    2.) NGOs: often do not reach many but
        are good at "pathbreaking".
    3.) Governments: usually have the
        main service responsiblity, e.g.
        in education, so should not ignore;
        usual problems.

3. What is the Bank's comparative advantage vis a vis
   other donors?

4. What are the 3-4 key things that the Bank should try
   to accomplish to improve women's opportunities over
   the next year? The next five years?

Th ld Bank/IFC/MIGA
O ┡ ⌐CE MEMORANDUM

DATE: 23-Mar-1989 02:19pm

  TO: Marianne Haug   (MARIANNE HAUG)

FROM: Katherine Marshall, LA3C1   (KATHERINE MARSHALL)

EXT.: 30133

SUBJECT: Assessments of Women-in-Development Work

Marianne:

        Barbara and I have conferred and come up with what we see as a
dual, "high road, low road" approach. The first part is a draft
note on assessments which might be circulated by the President,
under cover of the note you described (draft attached). The
attachment starts from the assumption that work on women in
development is a priority and focus of the Bank's work, and does not
include any effort to justify or defend it. Some kind of
reiteration of the rationale might nonetheless be useful in the
President's covering memorandum. This memorandum might also
underline that the idea is to propose an approach and a strategy,
and probably not separate programs or projects unless special
country circumstances justify them. This issue should be seen as
part of the mainstream of the Banks's country strategy and
operations. The outline could be refined, and would benefit from
some other eyes, but should give considerable flexibility, and
should be quite doable in most departments where someone has given
thought to such issues.

        The second piece, which Barbara is sending to you directly, is
a much more detailed listing of issues, with some guided
conclusions. I suggest that this be circulated separately to give
people guidance on what is meant and ideas on avenues to pursue. It
is quite far-ranging, and might raise concerns given the short
time-frame, so a clear introduction is needed.

        Please let us know if you would like us to discuss or carry
this further. We both emerged thinking that this could be a very
useful exercise, although the clamor of cries of conflicting
priorities will be loud.

                        Katherine

CC: Barbara Herz   (BARBARA HERZ)

Th ld Bank/IFC/MIGA
O F I C E   M E M O R A N D U M

DATE: 23-Mar-1989 05:21pm

  TO: Marianne Haug   (MARIANNE HAUG)

FROM: Barbara Herz, PHRWD   (BARBARA HERZ)

EXT.: 33483

SUBJECT: <u>WID Country Strategies</u>

Marianne -- Just to round things out, you should have by now:

1) Katherine's EM including her draft note. On reflection, I wonder whether it's realistic to expect completion of the country papers by June 30. To get good ones -- and to defuse some of the resentment about a short time frame -- we might consider asking for them by September. That way they could still go into the Board Report, which is due to Raj October 1.

2) My outline, the WID "black book", and the three source papers (Schultz, Collier, and Forestry Guidelines) sent separately.

It may be important to get something like my outline and the black book around, so all these guys don't feel too much at sea on what to do. Otherwise they will all land on us, and we can't take them all on. Our experience thus far suggests that these are the basic points that lead to operational activity.

Raj called -- he's on leave this week as his son's getting married. He asked what was new, so I told him about the Italian Bank and your broader concern re the $400 K. Also told him you were interested in seeing more action at the CD level on women in development and had asked me for a rough outline of what a country issues paper might look like. He told me to go ahead and send you whatever I wanted and thought it was a good idea.... Raj was supportive even in the Old Days.

Also asked Women's World Banking to submit a brief proposal for $250,000 focused on actual provision of credit to poor women -- by Wednesday. If everybody thinks it's on target, then we can ask them to do a more complete job.

Cheers --

      Barbara

CC: Katherine Marshall   (KATHERINE MARSHALL)

Assessment of Issues for Women's Role in Development and Proposed Bank Strategy and Plan of Action

Objective

1.   The objective is to prepare a concise assessment of the Bank's current and proposed approach to support for women's role in development in the country concerned. This assessment should address specifically how the Bank's operational strategy for the country takes into account this topic of special emphasis, and how the country strategy could be modified to enhance understanding of and direct support for the development role of women. It would, in most countries, represent a first systematic effort to articulate the Bank's definition of issues specifically pertaining to women, and should thus be seen as a first step. In those countries where systematic work has been undertaken, the review would represent a summary and assessment of experience to date, some additional analysis on major issues, and setting out of priorities and directions for future activities. The primary purpose of the assessments will be to enrich the country strategy and assist future work planning. They will also provide the basis for a report to the Executive Directors on Women in Development activities in FY90.

Scope of Work

2. Assessments should be prepared for at least one country per Country Department, before the end of this fiscal year. The scope of each memorandum should thus be focused on assessment of available information and analysis, with additional work in limited areas. In some cases discussion with Government officials of issues and strategy may be an appropriate part of the preliminary review exercise.   However, the intent is to develop an internal strategy document, so formal discussion of the document with Government representatives at this stage is not required. Since it is likely that the memoranda will recommend additional work and discussion with Government officials and entities, a strategy for handling such dialogue should be proposed.   Likewise, the exercise should not entail a full scale analytic effort but should identify areas where analysis is needed, establish priorities among them, and propose a work program for the future. The work involved should therefore represent between 10 and 20 staffweeks in total, depending on advancement of work to date and complexity of country issues, and should in all cases reflect a joint effort of experienced country staff with support from consultants and, to the extent feasible, from PHRWD.

Outline

3.   The suggested outline for a memorandum of 10-15 pages is as follows:

(a) Statement of objectives and context; relate to other strategic exercises (CSP, PFP etc) and, in relevant cases, aid coordination efforts underway. Brief outline of main lines of country strategy.

(b) Previous and ongoing work on issues related to the role of women in the country's development, through country economic and sector work, Bank research, and in the context of adjustment lending and investment projects. Comment on country dialogue, status and issues, as these pertain to the role of women in the country's development strategy.

(c) Summary status and data on women's economic and social role; focus on pattern and trends specific to country. Information on women's economic role and other contributions, key constraints facing women (e.g. access to information and resources; special impact of poverty problems), education system policy or actual access; and status of health services and indicators and family planning); generally promising approaches for improving opportunities for women should be summarized and assessed. Comments on legal issues, Government policy, and political aspects of women's organizations, NGO activities, and other relevant issues affecting an understanding of the issues and approach on strategy should be included.   Analysis should comment on adequacy and accuracy of information available, and any plans for improvement (eg household surveys).   Data on families should also be covered as an integral part of this discussion; a separate, related issue is the role of women as heads of families. Where appropriate analysis is available, a brief discussion of the economic role of women in key economic sectors should be included.

(d) Assessment of status of analysis and information on these issues, based both on direct Bank work and analysis and experience of other institutions.

(e) Current Bank strategy: how has the matter of women's role in economic development been handled in country strategy, work program? Review (quantitative and qualitative) or work undertaken to date and assessment of experience.

(f) Government Strategy on issues relevant for women's role in economic development and poverty alleviation. Summary of policy statements and actual practice.

(g) Issues: Focus on 4-5 issues for development which emerge from analysis of economic and social role of women; might include (for example) education policy and its implementation, focus on women and families in specific poverty programs, delivery of social services, special problems linked to economic adjustment programs, focus of agricultural research and extension systems, credit access, and special issues for population and family planning policy. Comments on issues should be country specific and linked to overall country objectives and strategy.

(h) Proposed policy stance on issues affecting women in economic development vis-a-vis Government and additional analysis required to pursue this stance. Comment on strategy for dialogue with Government on policy ramifications of issues for women. The discussion should suggest an overall approach for effective handling

of this issue in medium term (can include both direct and indirect approaches). The discussion should link overall proposed policy approach to the major issues defined for women's role in development, and relate is explicitly to the broader country development and Bank operational strategy;

(i) Information gaps and requirements for analytic work, by Bank, other agencies. Relevant proposals for CESW program, research, and project financed analytic work.

(j) Possible investment activities and technical assistance, under ongoing and proposed operations. Note any specific links to lending in support of policy reform.

(k) Plan of action and resource implications for next steps for the next two-three years. This plan should include both short-term measures (by the Government and the Bank) and longer term approaches and programs. Explicit discussion of costs and tradeoffs should be included.

March 23, 1989

THE WORLD BANK/INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

DATE: August 12, 1988

TO: See Distribution Below

FROM: Katherine Marshall, Division Chief, LA3C1

EXTENSION: 30133

SUBJECT: COLOMBIA: Community Child Nutrition Project - IEPS

1.   Attached is the IEPS for this project. It is not currently in the lending program, but an official request to finance the project was received from DNP on July 8, 1988. The recent programming mission discussed the content of the possible project with the economic authorities. The project seeks to support the expansion of a successful ongoing program, which is assessed in our recent Bank's Poverty report. The IEPS was prepared by Ms. Kazuko Uchimura.

2.   Mr. Loh will chair a meeting to review the IEPS on Friday, September 2, 1988 at 10:00 a.m. in Room I-5-020. Your comments in advance will be most welcome. This project clearly fits squarely in the country strategy. Therefore suggest that the meeting review the following more project specific issues:

(a) The Colombian Government has requested rapid processing of this proposed operation, given the need to fill an anticipated financial gap for the HBI program starting in 1989. Are we prepared to commit the required staff to process this project during FY89?

(b) The Bank loan would represent only about 10% of the overall cost of the program expansion. Given the uncertainties regarding the overall program financing, what kind of assurances should we seek from the Government.

(c) The tightness of the schedule requires that the project be kept as simple as possible. Would this, i.e. exclusion of related components like house improvement credit, undermine the probability of reaching basic project objectives?

(d) In the interest of project simplicity we propose to exclude complementary components such as house improvement credit and essential services. However, these components are clearly important for the overall welfare of the targetted children. How can we ensure that these related programs will be pursued.

(e) ICBF is currently running a limited HBI program, with success. However a dramatic expansion of its coverage is likely to put a difficult toll on ICBF administrative and logistic capacities. What actions are required on ICBF to permit it expand the program efficiently?

Distribution:

Messrs./Mmes.: Loh, Flood, LA3DR; Culagovski, Ramirez, Uchimura, Hwa (o/r),
            Miovic, LA3C1; Drysdale, Coll, LA3HR; Collell, Abbott,
            LEGLC; Selowsky, Dolenc, Quijano, LACVP; Psacharopoulos,
            LATHR; Goodland, LATEN; Hari Prasad, LA3CO;

JCulagovski:vv

August 9, 1988

INITIAL EXECUTIVE PROJECT SUMMARY

Country: Colombia

Project Name: Community Child Nutrition Project

Implementing Agency: Colombian Institute for Family Welfare
                         (ICBF)/Ministry of Health

Probable Cost: US$550 million

Proposed Financing Plan: IBRD US$55 million
                              ICBF US$485 million

Tentative Appraisal: March 1989

Tentative Board Date: July 1989

1.   <u>Background</u>. Despite steady economic growth achieved over the past
two to three decades, poverty remains an intractable problem in Colombia.
As part of its campaign to reduce poverty, the Government has initiated
several short-term social programs targetted to address specific social
groups and problems. Among the Government's interventions for the poor,
the most effective is the "Hogares de Bienestar Infantil" program (HBI)
administered by the Colombian Institute for Family Welfare (ICBF).

2.   The HBI program combines supplemental feeding of pre-school age
children in poor neighborhoods with community-based day care. Mothers in
poor communities agree to run day care in their own homes for neighborhood
children. These mothers must undergo basic training in nutrition and
childcare and get loans to upgrade their houses to a minimum acceptable
standard for operating day care. ICBF supplies food and Bienestarina (a
nutritional supplement) for the children as well as equipment and materials
(furniture, toys, teaching materials, plates and cutlery) to run day care,
and pays the mothers' stipends. Supplementary feeding under HBI is
designed to meet 80% of each child's daily nutritional requirement.   The
program has been in place since February 1987 and now reaches nearly
400,000 children. By 1992, the Government hopes to extend its coverage to
the estimated 1.5 million children of poor families. HBI represents the
Government's first major intervention in nutrition since the National Food
and Nutrition Plan (PAN) was discontinued in 1983.

3.   HBI is adminstered efficiently and has penetrated some of the
poorest urban neighborhoods. Areas for concern are: (a) targeting of
children, based on age and geographical criteria, is too broad, leading to
the obviously unrealistic program coverage goals (1 million children by
1990, 1.5 million children by 1992); (b) the program lacks an effective
surveillance system to quantify impact; (c) given the rapid pace of
implementation, too little effort is being expended to mobilize community
support to help administer the program, ICBF's capacity to manage HBI is

likely to become constrained as its coverage expands; and (d) with the expanded coverage of HBI, ICBF is running into financing problems. ICBF finances its operations, including HBI, with earmarked revenues independent of annual budgetary allocations. ICBF's revenues from 1989 on, will no longer cover its expenditures--ICBF projects a deficit of US$80 million in 1989 and US$130 million in 1990.

4.   Project Objectives and Description. The proposed loan, in the amount of US$55 million, would aim to strengthen the HBI program, focus its efforts more sharply, and help ensure its sustainability. Specifically, it would finance: (a) food for the children as well as imported materials that go into the production of Bienestarina (powdered milk, wheat and soybean); (b) equipment and supplies for the program (vehicles for staff of ICBF, furniture, teaching materials); and (c) technical assistance and training components. A key project objective is to improve the effectiveness of the HBI program through the introduction of a comprehensive information system based on the Living Standard Measurement System (LSMS). The project, in addition, seeks to strengthen community support and participation for the program through community education.

5.   Rationale for Bank Involvement. In line with the Government's commitment to social programs favoring the poor, the Bank's country strategy is to orient our lending increasingly to the social sectors. The project seeks to support the Government's poverty alleviation effort by supporting an expansion and focusing of the HBI program. Bank involvement would represent a continuation in our support for the Government's poverty alleviation efforts. In FY88 the Bank prepared a poverty report that highlighted the program and made recommendations for improvements. Through this project the Bank would support this program financially while helping to improve its effectiveness.

6.   Project Issues and Anticipated Actions.

(a)   Processing Schedule. The need to help fill ICBF's financing gap from 1989 necessitates rapid preparation and processing of the project. To put the loan processing on a very fast track, a conscious effort will need to be made to keep the project design simple and to minimize the need for complicated institutional arrangements.

(b)   Securing New Revenue Sources for ICBF. To sustain HBI on an expanded scale, ICBF intends to seek Congressional approval for additional sources of earmarked revenue. Should ICBF fail to obtain additional sources of funds, the Central Government must agree to make budgetary allocations to sustain the program (see (c) below).

(c)   Loan Amount and Availability of Counterpart Funds. The proposed loan is expected to finance only a small part of the total program cost during 1989-1991. In view of the sizeable financing gap projected for ICBF in 1989 and 1990, the Government will need to put in counterpart funds to cover HBI's other key expenditures, e.g., stipends for day care mothers, home improvement credit (see (d) below).

(d)   Home Improvement Credit. While home upgrading is an important and integral part of the HBI program, the Bank should elect not to finance the home improvement credit component. Its inclusion would burden the project

with a range of knotty issues including the need to prop up the financially troubled Land Credit Institute (ICT). Nonetheless, given the critical importance of the credit component to HBI, the Bank should seek assurances from the Government to provide counterpart funds for this credit component.

(e)   Food Financing. A crucial component of the HBI program is the provision of food for pre-school age children. Bank financial assistance to the program would be effective only if the Bank is prepared to help finance the cost of such food, which would be fully justifiable under the HBI program.

(f)   NGO Participation. An efficient expansion of the HBI program might be facilitated by the participation of NGOs. The identification mission would explore this possibility.

7.   Benefits and Risks. Benefits include the improved nutritional status of pre-school children in the poorest urban neighborhoods of the country and substantial housing improvements for women who run community based day care that allows mothers of participating children to seek employment outside of their home. A major risk associated with the project is HBI's sustainability. It is essential that ICBF get additional revenues approved. Moreover, a strong technical assistance component must help introduce more selective targeting as well as effective surveillance (to help continued implementation of the program by empirically proving results). The project must also incorporate community education and participation components to ensure grassroot support for HBI.

8.   Next Steps. During the recent Bank programming mission (August 1-5, 1988), it was agreed that ICBF will send to the Bank by September 15, 1988 a project proposal. A Bank identification/preparation mission has been tentatively scheduled for October 1988 to review with the Government the ICBF proposals.

Task Summary and Brief

COLOMBIA: Improving Employment and Labor
Productivity in the Informal Sector: Proposals
for the Urban Poor

A. Profile

Status	FY89 Other Economic Work
Task Manager	Kazuko Uchimura
Mission Note	January 23, 1989
Missions	February 15-28, 1989
	April 4-14, 1989
White Cover Report	June 23, 1989

B. Background

1.   The Government's poverty eradication plan, "Plan de
Lucha contra la Pobreza Absoluta y para la Generacion de
Empleo" (PLPGE), announced in 1987, contains two principal
strategies, viz., (a) public interventions designed to
improve social services for the poor in health, nutrition,
urban housing and primary education; (b) expansion of
productive employment opportunities in the informal sector
where the majority of the urban poor are found. To date, the
Government has placed higher priority on the provision of
social services while the employment generation strategy for
the poor remains undeveloped and incoherent. Accordingly, the
Bank's FY88 Colombia Poverty Study entitled "Colombia: Social
Programs and Poverty Alleviation: An Assessment of Government
Initiatives" (Report No.7271-CO) focussed exclusively on
those basic needs programs that were already under
implementation or capable of being started within a short
period of time. While this study was underway, our
counterparts in the National Planning Department and the
President's Office expressed interest in having the Bank
continue to work with them in formulating policies and
programs intended to create jobs and improve earnings
for the poor in the informal sector. Hence, this proposed
study on informal sector employment is intended to round out
our work on the Government's poverty alleviation plan and to
explore possible lending operations that might support the
poverty strategy.

2.   The urban informal sector has been extensively studied
in Colombia. To initiate this exercise, LA3C1 undertook
a critical survey of the existing Colombian literature on the
subject (including a major study by Hugo Lopez for the
1986 Chenery Mission) and an evaluation of Government
policies and programs for microenterprise development.   A

few basic facts emerge from this survey as well as from our earlier work on the Poverty Study. First, informal sector activities can be divided into two distinct categories: (a) ownership of and employment in small businesses -- microenterprises-- which require minimum levels of capital and training and represent a viable alternative to salaried employment in the formal sector; and (b) the low-paying and precarious employment associated with the urban poor requiring no capital, no skills and little experience, e.g., street vendors, casual construction workers and domestic servants. Second, the informal sector accounts for more than 50% of Colombia's labor force. While there is an increasing two-way movement of workers between the formal and informal (microenterprise) labor market, labor laws and regulations that apply in the formal sector are almost never enforced in the informal market. Third, to the extent that they exist, public policies and programs in the informal sector have focused on the microenterprises, thereby sidestepping the issue of creating more productive employment opportunities for the lowest income groups. Fourth, among the urban poor, female headed households make up the most disadvantaged group. According to the 1985 Census data, approximately 25% of poor households were headed by women. Out of total female headed households 21% reported no incomes (as opposed to 8% for all households) and 33% of female heads of households earned less than legal minimum wages (as compared to 25% for all households surveyed).

C. Objectives of the Study

3. This study is conceived of as the second phase of our economic work on poverty. It is designed to help the Government formulate policies and programs to expand productive employment among the lowest income groups in the informal sector that have to date received relatively little attention from public agencies, viz., non-skilled workers in domestic service and construction, street vendors, and so on. To put the analysis and recommendations on the poor and unskilled segment of the urban labor force into proper context, the report will also contain an introductory chapter on the urban informal sector as a whole -- its size and linkages to the rest of the economy, the range of activities and their characteristics, the evolution of government policies and so on. The study will build on a large body of work undertaken by Colombians on the informal sector as well as on our FY88 economic work (Poverty Study, NGO Survey, a review of the literature on the informal sector),

4. Among the key topics, a special emphasis will be given in the study to female heads of households. ICBF's "Hogares de Bienestar Infantil" provides daycare services for women who need to support a family while raising young children. The study will explore initiatives to secure more stable employment for these women within their own communities --

training of new and marketable skills combined with measures to secure markets for their goods and services (e.g., sub-contracting of piece work from local businesses, linking up with wholesalers or retailers, etc.). The study will also focus on the needs of self-help builders and the possibility of using self-help construction and the services of small contractors more extensively in civil works to be undertaken by local jurisdictions under the ongoing administrative decentralization. Lastly, the study will evaluate a number of ongoing "comercializacion" pilot programs with the purpose of organizing larger-scale marketing for small producers and vendors in the informal market.

D.   Processing Schedule and Planned Resource Inputs

5.   The processing schedule is tentatively proposed as follows:

Preparatory Field Work	December 12, 1988-January 20, 1989
Mission Note	January 23, 1989
First Mission (Women in Dev. Component)	February 15-28, 1989
Follow-up Mission	April 4-14, 1989
White Cover Report	June 23, 1989

6.   This study, not included in the formal economic and sector work program for FY89, is undertaken under the categories of "Other Economic Work" as a follow up to the FY88 Poverty Study at the suggestion of DNP, and as possible input into future Bank operations in the human resources sector. While we do not plan to circulate a formal issues paper, we intend to prepare a memo discussing in greater detail the principal issues, the objectives and the scope of the proposed study as well as the assignment of responsibilities of mission members for informal review by LA3 and PHR. We also plan to circulate for review a survey, undertaken this past summer, of the existing Colombian literature on the informal sector and of Government policies and programs in the area of informal sector employment and incomes. Prior to the first mission scheduled for February 1989, a Colombian consultant will be hired to undertake case studies on existing programs of community based skill training, and on subcontracting and commercialization arrangements in the informal sector, particularly for women and other workers in non-skilled categories. There will also need to be a background research on the legal implications of subcontracting, e.g. introduction of a "putting-out" system, in the context of Colombia's labor legislation. We currently plan that the final product will remain in White Cover. However, we hope to present the findings and recommendations to the Government for discussion, and may after later date

suggest that we produce a formal report..

7.   We have programmed 33 staffweeks for the exercise.
So far, one staffweek from LA3C1 and 6 weeks of consultant
time have gone into the preparation of a survey of the
existing Colombian literature and of ongoing Government
programs in the informal sector. This first phase has been
completed, and charged against "EWO". During the remainder of
the fiscal year, LA3C1 will input 10 staffweeks; PHR (Women
in Development) will finance another 6 weeks of local
consultant time for the preparation of a case study and
contribute 11 staffweeks of international consultant time for
the field work in February 1989 and subsequent report
writing.

Reviewed by Katherine Marshall and Peter Miovic.
Draft discussed at a meeting of LA3 and PHR staff on November
29, 1988.

KUchimura:

June 9, 1989

<u>Mrs. Charlotte Conable</u>

Mrs. Conable:

    I thought you might be interested
in some initiatives on women.

Marianne Haug

‹ B. CONABLE
‹t

April 12, 1989

Mr. Moeen A. Qureshi

Re: Women in Development

Moeen:

As I mentioned to you last week, I have been concerned for some
time about the depth and strength of our commitment to the Women in
Development initiative. Women account for 50% of the world's productive
human potential. No country can afford to neglect such a high share of its
human resources.

My review of major economic reports and country strategy papers
leads me to the conclusion that the role of women in the development
process has rarely been integrated into the strategic thinking underlying
country assistance programs. There are, of course, exceptions to this
pattern. But we must raise our sights and work on a broader front in order
to be effective -- and we must act soon.

As you know, we have undertaken to report on WID to the Board by
the Fall. The report will be put together by PPR, based on the activities
of PPR and on the work programs in place in Operations. The Development
Committee has also asked for a special report on Women in Development for
the Spring meeting in 1990. Finally, the World Development Report for 1990
will deal with poverty and it will reflect the fact that many more women
than men live in poverty.

In this context, a more systematic approach is needed. As a
first step, each Country Department should prepare, for one or several of
its client countries, an assessment of women's potential role in
development, the policy framework affecting their welfare and productivity,
the institutional bottlenecks standing in the way of progress, the action
programs which should be put in place, as well as the future involvement of
the Bank. An outline of the type of documentation I have in mind is
attached.

I decided to allocate to the specific effort US$35,000 per
Country Department, i.e. US$700,000 out of the FY89 Presidential
contingency. PBD advised me that Operations may not be able to use more
than $350,000 on this work during FY89. Accordingly, I have allocated
350,000 for the WID activities described in this memorandum and $350,000
for other FY89 operational purposes. I will request that you earmark
another $350,000 out of the base allocation I will be making to Operations
in FY90 in order to complete the task.

It is essential that Country Department Directors take direct charge of WID activities and that they assign sufficiently senior CD managers and staff members to provide leadership for the country dialogue, cross-divisional coordination, economic and sector work oversight and follow-up monitoring of WID action plans.

I plan to review the resulting country reviews with you and your Regional Vice Presidents before the Annual Meeting in September. This time frame (5 months) should allow for a substantial data collection effort and at least one visit to the field, including discussion with country officials.

I realize that some CDs have already undertaken detailed assessments and have operational action plans well in hand. Little work may be required to update these reports for our overall review. In these departments, the $35,000 allocation should, in the first instance, be used for assessment studies in the remaining countries handled by the CD or in the case of single country departments, for funding of specific follow-up activities identified in the action program.

Barber B. Conable

Attachment

cc: Messrs. Hopper, Rajagopalan
Regional Vice Presidents

Country Assessment of Women's Role in Development

Proposed Bank Approach and Plan of Action

Objective

1.   The objective is to prepare a concise assessment of the Bank's current and proposed approach to support for women's role in development in the country concerned. This assessment should address specifically how the Bank's operational strategy for the country takes into account this topic of special emphasis, and how the country strategy could be modified to enhance understanding of and direct support for the development role of women. It would, in most countries, represent a first systematic effort to articulate the Bank's definition of issues specifically pertaining to women, and should thus be seen as a first step. In those countries where systematic work has been undertaken, the review would represent a summary and assessment of experience to date, some additional analysis on major issues, and setting out of priorities and directions for future activities. The primary purpose of the assessments will be to enrich the country strategy and assist future work planning. They will also provide the basis for a report to the Executive Directors on Women in Development activities in FY90.

Scope of Work

2.   The scope of each memorandum should thus be focused on assessment of available information and analysis, with additional research work in limited areas. Discussion of issues with Government officials is needed. However, the intent is to develop an assessment and internal strategy document, so formal discussion of the document with Government representatives at this stage is not required. Since it is likely that the memoranda will recommend additional work and discussion with Government officials and entities, a strategy for handling such dialogue should be proposed. Likewise, the exercise should not entail a full scale analytic effort, but should identify areas where analysis is needed, establish priorities among them, and propose a work program for the future. The work involved would therefore depend on advancement of work to date and complexity of country issues, and should in all cases reflect a joint effort of experienced country staff, with support from consultants and PHRWD, if available. An allocation of US$35,000 per Country Department has been made available for the preparation of these country assessments.

Topics

3.   The suggested topics for a country assessment may include the following:

> (a) Statement of objectives and context; relate to other
>   strategic exercises (CSP, PFP) etc. and, in relevant cases,
>   aid coordination efforts underway. Brief outline of main
>   lines of country strategy.

(b) Previous and ongoing work on issues related to the role of
women in the country's development, through country economic
and sector work, Bank research, and in the context of
adjustment lending and investment projects. Comment on
country dialogue, status and issues, as these pertain to the
role of women in the country's development strategy.

(c) Summary status and data on women's economic and social role;
focus on pattern and trends specific to country.
Information on women's economic role and other
contributions, key constraints facing women (e.g., access
to information and resources; special impact of poverty
problems), education system policy or actual access; and
status of health services and indicators, and family
planning); generally promising approaches for improving
opportunities for women should be summarized and assessed.
Comments on legal issues, government policy, and political
aspects of women's organizations, NGO activities, and other
relevant issues affecting an understanding of the issues and
approach on strategy should be included. Analysis should
comment on adequacy and accuracy of information available,
and any plans for improvement (e.g. household surveys).
Data on families should also be covered as an integral part
of this discussion; a separate, related issue is the role of
women as heads of families. Where appropriate analysis is
available, a brief discussion of the economic role of women
in key economic sectors should be included.

(d) Assessment of status of analysis and information on these
issues, based both on direct Bank work and analysis and
experience of other institutions.

(e) Government strategy on issues relevant for women's role in
economic development and poverty alleviation. Summary of
policy statements and actual practice.

(f) Current Bank strategy: how has the matter of women's role
in economic development been handled in country strategy,
work program? Review (quantitative and qualitative) or work
undertaken to date and assessment of experience.

(g) Issues: Focus on 4-5 issues for development which emerge
from analysis of economic and social role of women; might
include (for example) education policy and its
implementation, focus on women and families in specific
poverty programs, delivery of social services, special
problems linked to economic adjustment programs, focus of

agricultural research and extension systems, credit access, and special issues for population and family planning policy. Comments on issues should be country specific and linked to overall country objectives and strategy.

(h) Proposed policy stance on issues affecting women in economic development vis-a-vis Government and additional analysis required to pursue this stance. Comment on strategy for dialogue with Government on policy ramifications of issues for women. The discussion should suggest an overall approach for effective handling of this issue in medium term (can include both direct and indirect approaches). The discussion should link overall proposed policy approach to the major issues defined for women's role in development, and relate explicitly to the broader country development and Bank operational strategy;

(i) Information gaps and requirements for analytic work, by Bank, other agencies. Relevant proposals for CESW program, research, and project-financed analytic work.

(j) Possible investment activities and technical assistance, under ongoing and proposed operations. Note any specific links to lending in support of policy reform.

(k) Plan of action and resource implications for next steps for the next two-three years. This plan should include both short-term measures (by the Government and the Bank) and longer term approaches and programs. Explicit discussion of costs and tradeoffs should be included.

April 14, 1989

Haug E 1229

DATE: June 1, 1989

TO: Regional Vice Presidents

FROM: Moeen A. Qureshi, OPNSV

EXTENSION: 73665

SUBJECT: Country Assessments on Women in Development (WID)

1.   This is further to my memorandum of April 13 on the allocation of the President's FY 89 contingency budget in connection with WID for which Mr. Conable has allotted special funds to the Country Departments to pursue the country assessments (see Mr. Conable's memorandum attached). To facilitate this work program in accordance with Mr. Conable's timetable, we are preparing this note for your guidance. It is our understanding that the Regions have already proceeded in their respective efforts.

2.   Choice of Countries. The Country Departments choose the countries for which country assessments are to be prepared in time for the fall Board meeting as required by Mr. Conable. The Departments may consult with PHRWD (Women in Development Division at PPR) in working out their strategy and work plans. While the WID assessment may be undertaken in connection with other ongoing ESW, it is expected that a freestanding assessment paper can be developed out of the task.

3.   Coordinators. It will be helpful if each Region will assign a staff member in the office of the RVP who will facilitate cross-departmental exchange of views in preparing these studies, arrange peer reviews, and who may serve as liaison with OPNSV, through EAS, and with PHRWD.

4.   Budget. The Departments will keep track of the use of the special funds by providing task numbers for the country assessment in accordance with the MIS.

5.   Timetable

June 15   Departments submit to the RVP's Office with a copy to EAS and PHRWD, work plans for the assessments, briefly stating for the country(ies) selected what the department hopes to achieve, approach to be used, expected outcome(s) and planned staff and budget inputs (including the name of the Task Manager).

August 31   RVPs submit draft assessments to EAS with a copy to PHRWD.

September 15   RVP transmits to EAS assessments for transmittal
                to Mr. Conable's office.

6.   <u>PHRWD's Draft Board Report</u>. PHRWD is preparing a draft Board
Report for Mr. Conable on this issue, which will depend to a large
extent on timely delivery of the WID country assessments. An outline of
this Board report will be circulated shortly through them.

7.   Questions regarding this subject may be addressed to Mr. Sicat
of EAS, X78054.

Attachments: Mr. Conable's letter to Mr. Qureshi
              WID Plan of Action

cc: Messrs./Mmes Rajagopalan, Hamilton, Herz; Vergin, Lee, Baudon; Haug
     Regional Administrative Officers

GS
GSicat:sb