

Figure 11.1 indicates that preschoolers are highly favored in the intra-household distribution of food.<sup>7</sup> For six out of nine food groups (the exceptions are legumes and vegetables), preschoolers have among the highest ratios. Generally, the opposite is true for parents, who have among the lowest ratios for most of the food groups, although among the highest ratios for legumes and vegetables. By contrast, using calorie adequacy ratios unadjusted for individual weights or activity patterns for this same population, Bouis and Haddad (1990) concluded that adults were favored in the intrahousehold distribution of food.

FS/ES ratios for sons and daughters 6–19 years old typically fall between the preschooler and adult ratios. Not unexpectedly, ratios for younger children in this age range look somewhat similar to those of their even younger siblings, and ratios of older adolescents look somewhat similar to those of their parents. Adolescents receive among the highest shares of legumes and other vegetables and the lowest shares of cooking ingredients, beverages, meats, and dairy products.

The intrahousehold distribution of dairy products is particularly skewed in favor of preschoolers; the distribution of meats is relatively even. Above the age of 14, female ratios tend to be higher than male ratios for several food groups, particularly fruits and vegetables, although this does not come out as statistically significant in regression analysis.

Does inequality in food distribution translate into unequal nutrient distribution? This is addressed by calculating FS/ES nutrient ratios for all five age groups. Results are presented in Figure 11.2.

A comparison of Figure 11.2 with Figure 11.1 suggests that the distribution of nutrients is more equal than the distribution of foods. This is explained by the interaction of two patterns: (1) each age-gender group has a high FS/ES ratio for at least one food group and (2) nutrients are relatively well distributed across food groups. For example, parental shares of dairy products and cooking ingredients are relatively low, but parental shares are high for green, leafy vegetables, which are rich in several micronutrients.

Protein, iron, niacin, riboflavin, and thiamine are remarkably evenly distributed, although this is coincidental, as it is unlikely that respondents were aware of the nutrient content, other than calories, of the foods being consumed. The high ratios for calcium and retinol for preschoolers are a consequence of their high dairy and meat shares. The higher ratios for vitamins A and C for adults (in particular for mothers) are a consequence of their high green, leafy vegetable and fruit shares.

It is very important to note that equity in FS/ES nutrient shares does not in any way take into account nutrient requirements. For example, iron requirements

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7. All breast-feeding children were excluded from the calculations and analyses.

**FIGURE 11.1** Deviations from 1.0 of proportions of nonstaples over proportions of calories, by food group and type of household member

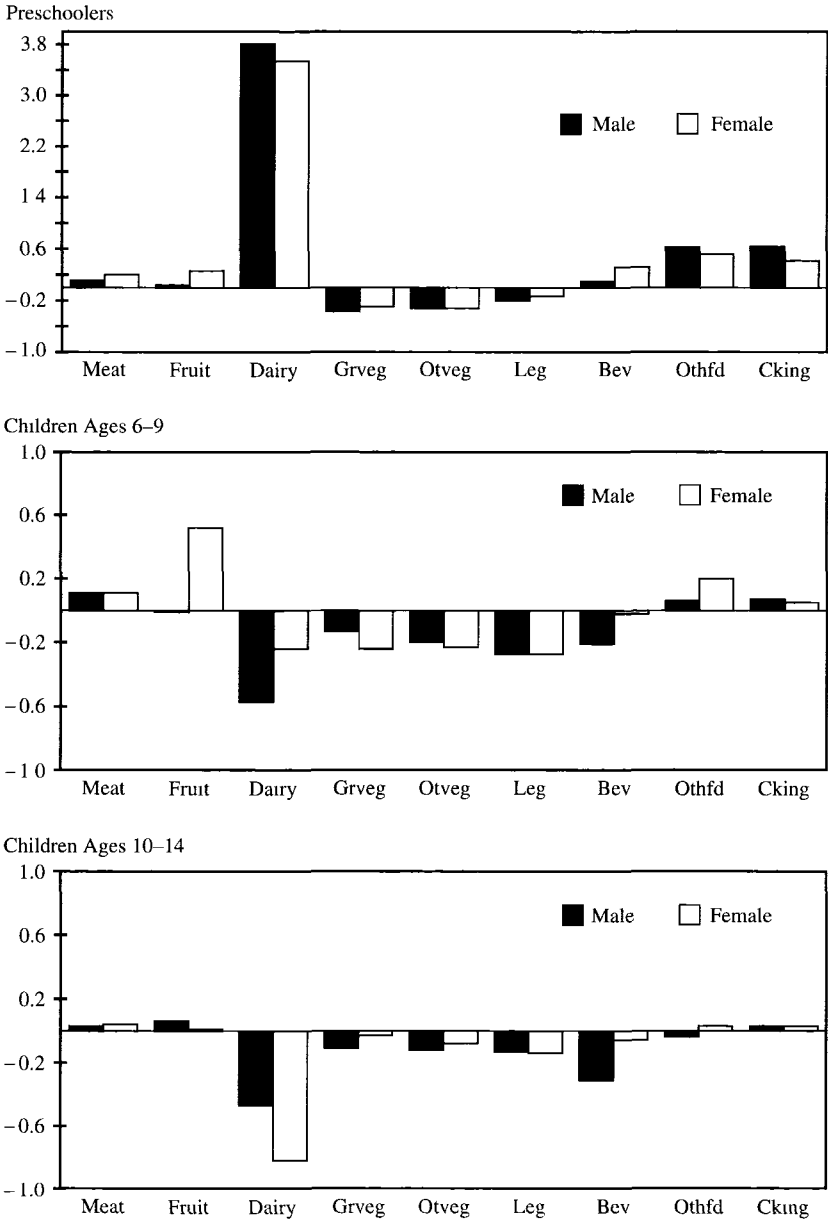
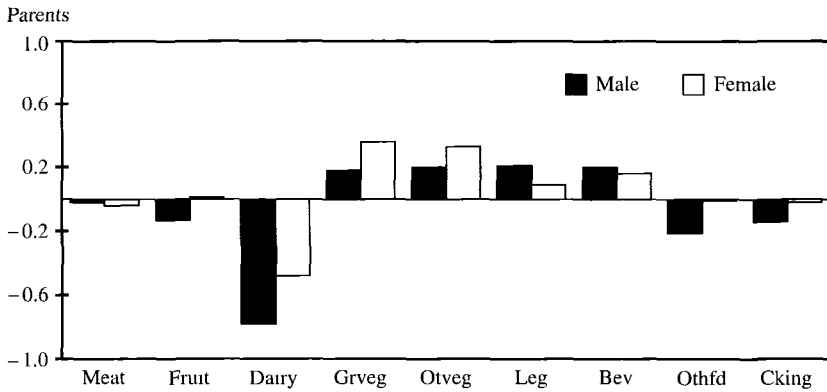
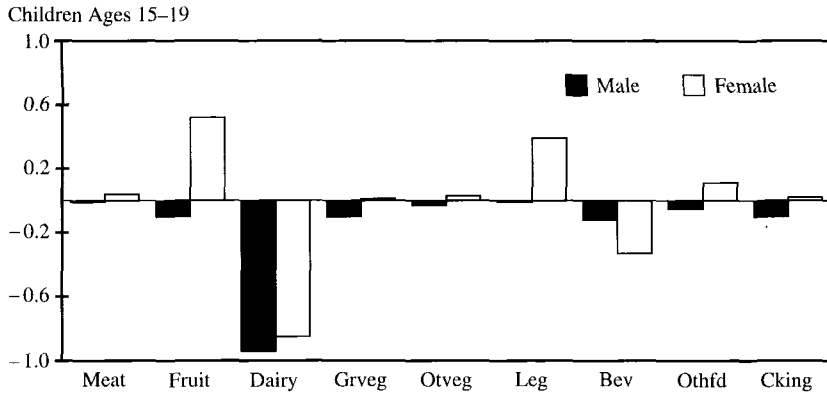


FIGURE 11.1 (continued)



SOURCE: International Food Policy Research Institute/Research Institute for Mindanao Culture Survey, 1984/85.

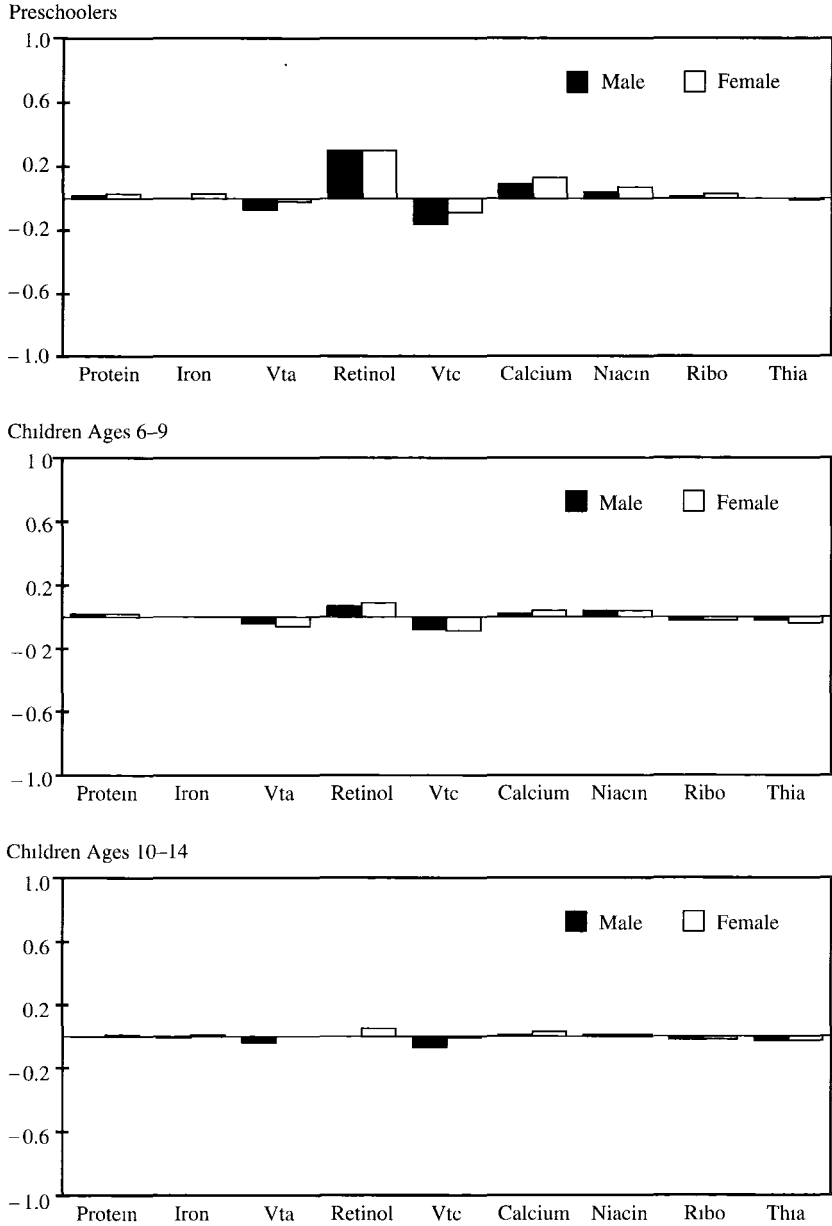
NOTE: Abbreviations are as follows. Grveg, green, leafy vegetables; Otveg, other vegetables; Leg, legumes; Bev, beverages; Othfd, other foods; Cking, cooking ingredients.

for adolescent girls and adult women are approximately twice as high as those for their male counterparts. For this population, iron adequacy is twice as high for fathers as for mothers.

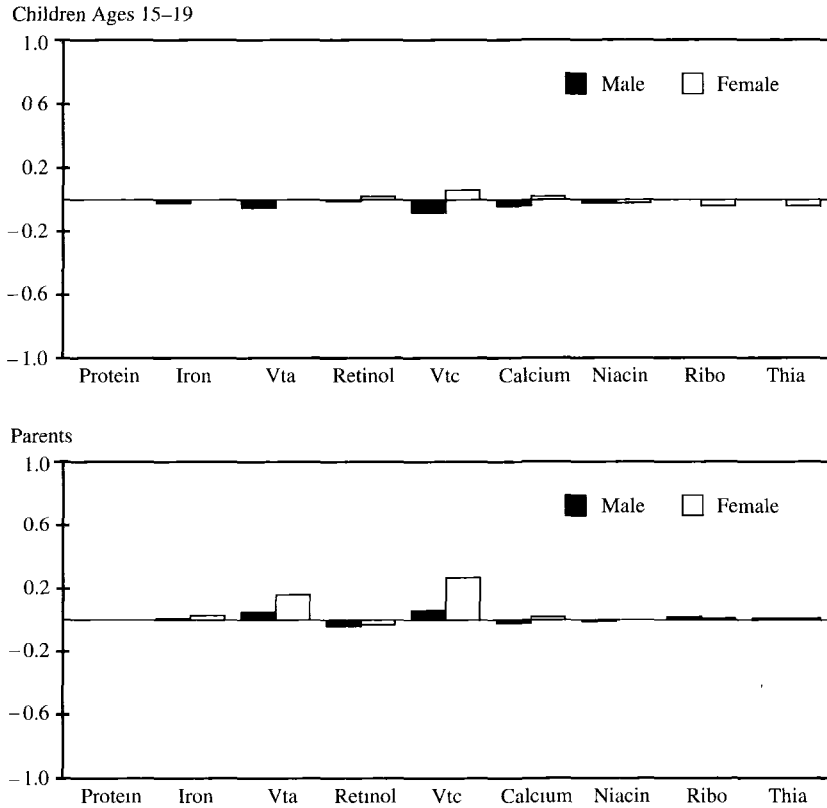
*Regression Analysis*

Do particular household or individual characteristics influence the intra-household distribution of food? To address this question, regressions were run with access to resources (proxied by the value of household assets), parental education, nutritional knowledge of the mother, age, gender, and household

**FIGURE 11.2** Deviations from 1.0 of proportions of nutrient intakes over proportions of calorie intakes, by type of nutrient and household member



**FIGURE 11.2** (continued)



SOURCE: International Food Policy Research Institute/Research Institute for Mindanao Culture Survey, 1984/85.

NOTE: Abbreviations are as follows: Vta, vitamin A; Vtc, vitamin C, Ribo, riboflavin; Thia, thiamine.

size as regressors and the FS/ES ratio for each food group as the dependent variable.<sup>8</sup> The sample was divided into four groups: fathers, mothers, preschoolers, and older children and adolescents (the 6- to 19-year-old age group). Separate ordinary least squares regressions were run for each group. Details of these results are available from the authors upon request.

8. All of these regressors are treated as exogenous in the short-run allocation of household resources. This approach permits use of ordinary least squares. The value of household assets is positively correlated with household income and per capita expenditures.

The only evidence that asset value has an effect on redistribution of food among types of household members is the positive effect on the share of dairy products for preschoolers and older children. (Dairy products have a very high income elasticity, one that is highly skewed in favor of preschoolers even at low asset values.) In the Philippine setting, it may be that parents from asset-poor households would like to provide children with more dairy products but are inclined to express their favoritism more fully toward children (inequality rises) only at higher levels of absolute food consumption for all household members associated with greater value of asset holdings.

There is no evidence that a mother's years in school affect redistribution of food among types of household members. However, greater nutritional knowledge of mothers is associated with less vegetable consumption among preschoolers and older children and greater vegetable consumption for the parents. Years in school for the father are associated positively with increases in his own consumption of meats, vegetables, and beverages. This is at the cost of the meat and beverage consumption of preschoolers and the vegetable consumption of older children.

Larger household size appears to result in some loss of status for older children, who eat relatively less meat and dairy products (high income elasticity) and more vegetables (low income elasticity). Possibly these older children receive less parental attention and are forced to fend for themselves more. Fathers in large households receive proportionately more vegetables. The vegetable shares of preschoolers decline.

Shares of vegetables increase with age and shares of cooking ingredients decline with age throughout childhood and adolescence. All gender dummy variables are statistically insignificant for children. However, in combined mother-father samples, the gender dummy variable for mothers was positive and significant for vegetables, fruits, cooking ingredients, and other foods.

## **Conclusions**

A new measure of inequality in intrahousehold distribution of food has been proposed, based on a presumption that satiation of hunger (energy consumption) is more equitably distributed among household members relative to other foods and nutrients. A related presumption is that where favoritism or discrimination occurs it will be manifested more strongly in terms of how nonstaple foods (in particular, those that have high income elasticities) are distributed.

Application of this measure of inequality to a Philippine data set indicates that preschoolers are favored in the intrahousehold distribution of food, a conclusion different from that reached by comparing only energy adequacy levels, both uncorrected (Bouis and Haddad 1990) and corrected for individual weights and activity patterns (Haddad, Kanbur, and Bouis 1992a), as well as

results obtained by Peña (1996) using actual cost of daily diet less cost of diet if only the cheapest calorie source (corn) had been consumed. Even though preschoolers have diets preferable (in a nonnutrient sense) to those of other age and gender groups, the latter are compensated by greater proportions of less-preferred foods. Consequently, nutrients were relatively evenly distributed among various age and gender groups. However, it is again stressed that equity in nutrient shares does not imply equity relative to individual requirements.

Most previous food-based studies of inequality have used energy intakes, which are highly correlated with staple food consumption, as a basis for measuring "fairness" in the intrahousehold distribution of resources. This chapter argues that calorie intakes are a poor indicator of inequality in that necessities can be expected to be more fairly distributed than luxuries.

## **12 Gender Bias in Intrahousehold Nutrition in South India: Unpacking Households and the Policy Process**

BARBARA HARRISS-WHITE

Public policy discourse has placed increasing confidence in the capacity of states to target individuals (Drèze and Sen 1989; World Bank 1990). This process of agenda formation has been accompanied by the development of theoretical models of the internal economic and power relations of households (see Pitt, Chapter 2, and Bruce and Lloyd, Chapter 13, this volume). At the same time, budgets for state welfare (especially for health, education, food, and antipoverty policy) have been on the decline in real per capita terms in many underdeveloped countries. Targeting is, therefore, increasingly invoked as the means of delivery of such welfare and development policies. These political and theoretical developments are likely to be no historical coincidence.

If the demand for more individual-specific welfare data is a fairly recent phenomenon, the generation of certain kinds of empirical data (including nutrition information) about individual household members has a long and distinguished academic history.

This chapter is concerned with the sensitivity of policy recommendations to statistical methodologies employed in analysis—particularly when the analysis is of individual-level data. Specifically, I deconstruct, compare, and contrast the analytical means whereby five studies using the same Indian database on the nutrition of individuals have given rise to different policy-relevant conclusions and recommendations. One of these studies is my own, and I try to apply the same critical standards to my methods as to those of others. Though the purpose is simple, the discussion is less so. In particular, it highlights the issue of the contrast between deductive and inductive approaches to policy-relevant analysis. The chapter is ordered so as to systematize the presentation of the substantive results of each study in the order in which the studies first appeared (irrespective of their final publication dates), before drawing out general issues and methodological comparisons and contrasts.



## **Measuring Individual Nutrition within the Household**

Individual nutrition is measured in three different ways. One, clinical signs and symptoms, will not concern us here (see Harriss 1991). The others, nutrients consumption and anthropometric status, are both extremely hard to measure accurately and to interpret.

Nutrients consumption is considered an input into health production functions (see Behrman 1988b), although one nutrient, energy, is a key dietary constraint and is usually correlated with the other nutrients. To measure nutrients consumption, it is necessary to have (seasonal) on-site observations of "normal" food consumption behavior over a stipulated period of time. Feast days and fast days (of special interest to anthropologists studying the symbolic content of food) are regarded by nutritionists as abnormal elements of the food cycle. Food allocations may be assessed by recall (typically over 24 hours, and preferably for seasonal sets of 24 hours). The method may involve direct weighing before consumption or the copying by the researcher of portions (raw or cooked) using standardized estimates of the weights of known volumes. Error may creep in through omissions (snacking, meals taken out of the household, breast milk, extraordinary food events) and commissions (in the conversion factors between raw and cooked ingredients, in the measurement of portions, in the classification of ingredients, in digestibility). There is widely alleged to be a trade-off between efforts to obtain high precision and modifications to behavior on account of being observed (Abdullah 1983).

Finally, the "adequacy" of nutrients consumption is interpreted in relation to estimates of needs that are controversial (Pacey and Payne 1984). Nutrients requirements are based on averages estimated for populations, usually corrected for body weight, sex, activity, age, and certain physiological states such as pregnancy and lactation. Requirements at the individual level are difficult to assess owing to substantial interindividual variability. Thus nutrients requirements based on averages for populations are abused by the user if applied to individuals. For example, half of a normally distributed population will have a less than average calorie (or any other nutrient) "requirement." The controversial notion of metabolic adaptation (the concept that the human body may have the capacity benignly to regulate the efficiency with which energy is metabolized over a range of intakes) casts further doubt over the analytical value of the "requirement." And the notion of a requirement must be distinguished from that of a recommended daily allowance (RDA), which is set somewhere (usually two standard deviations) above average to account for people whose requirement exceeds the average, except in the case of energy, for which the average is used.

Anthropometric status indicators are the "health product" in a health production function approach to the household. Weight, height, and age are all surprisingly hard to measure accurately, and by themselves they cannot tell us

if there is failure in the equity of household food distribution, because they are the summary outcome of the interaction between food intake and infection. Infections within the first 24 months have consequences for height trajectories, in particular growth deviations, which are now thought to be irreversible (Payne 1994).

Heights and weights must be compared with standards to improve their interpretation. Local standards that are disaggregated by gender and derived from populations in which there is gender bias will lead to underestimates of gender bias. Height deficits relative to standards are often interpreted as indicators of chronic disadvantage, though they may be more accurately attributed to disadvantage in infancy. Weight deficits in relation to height or age are interpreted as signifying more acute conditions. However, states of deficit are not of global significance; the same degree of deficit does not necessarily imply the same risk levels across different ethnic groups (Pacey and Payne 1984).

### **The ICRISAT Database**

The data collected under the auspices of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) cover some 1,200 individuals of all ages (except wholly breast-fed babies) from 240 households in six villages from four agroclimatically different regions of the semi-arid tropics of India. Forty households were selected in each village. Ten households were randomly selected from each class: agricultural labor and small, medium, and large cultivator classes. Village-level differences in agrarian structure mean that the sampling fraction varies in every stratum.

The data on food intake (24-hour recall), anthropometric status, and clinical signs and symptoms were obtained over an unexceptional time period, spaced approximately every 3–4 months, over a time span of 16 months between September 1976 and January 1978. The accuracy of these data was improved by using standardized cooking and storage containers. Dietary data were converted into values for 10 nutrients. Whole-household anthropometric data and clinical symptoms were also collected by a nutritionally and medically trained medical team (Ryan et al. 1984:6–16, 25). ICRISAT has subsequently and generously made publicly available these data, which have been used in various policy-relevant ways. After discussing the original research, I will examine the four later studies of the ICRISAT data.

#### *Ryan et al. (1984)*

ICRISAT's original research did not set out (as did later research) to test a deductive theoretical model, or indeed any specific hypotheses about intra-household allocation. Its concern with individual nutrition was addressed to three practical and general issues relevant to the conduct and objectives of agricultural research. The first was the most specifically formulated: to test the

correctness of the decision to prioritize yield stability at the expense of protein quality as a plant breeding objective (a decision made in the light of metabolic research showing that dietary energy was the limiting nutritional factor for health). The second goal was to examine the effects of the extreme seasonality of the semi-arid tropics on nutritional status (in the light of evidence showing the conjuncture of morbidity, vital reproductive events, low food stocks and consumption, and maximum energy expenditure, particularly among the poor [Chambers, Longhurst, and Pacey 1981; Lipton 1983]). The third objective was to explain individual nutritional status, at different aggregative scales relevant to policy emphases on production or distribution, as a function of agroclimatic region, socioeconomic status, household characteristics, and individual demographic detail.

With regard to the first objective, the research confirmed that proteins or essential amino acids were not the limiting nutrients in semi-arid tropical diets (Ryan et al. 1984:25–26), thereby vindicating the research priorities of breeders. It is the second and third objectives that are more relevant to subsequent work on intrahousehold allocation. Seasonal analysis used nutrient data aggregated into lean (mostly monsoon) and surplus (hot or cold, but dry) seasons based on the agricultural calendar and disaggregated variously by village, by age group (1–12 years, 13–18 years, and above), and by gender. These groups were also repooled in a variety of ways. The key finding with respect to seasonality was that little relationship was found between energy intake and village-specific agricultural seasons. It was concluded that nutritional seasonality in the semi-arid tropics was not so marked that the increased human energy requirements of high-yielding variety dryland crops would have deleterious effects on welfare. Moreover, there was no marked seasonal effect on the nutrient intakes of children. The 13- to 18-year-old age group experienced most “seasonal deprivation” of both protein and energy (relative to other age-sex groups), regardless of gender.

The characteristics of villages were found to be major determinants of the nutritional status of their inhabitants, but in ways that are counterintuitive. The ICRISAT study suggests that the more risky the agroclimatic and socioeconomic setting of a village, the less likely are the chances of finding individuals with hard-core energy deficiencies that linger across the seasons, but no explanation was offered for this result and interpretation.

With respect to the determinants of individual nutrient intakes, regression analyses were undertaken on 938 children under 12 years of age. Region and season were represented by dummy variables. Socioeconomic status was measured by farm size, income, and caste. Household features comprised the educational status of the mother and family size, and demographic status was characterized by age, sex, and clinical nutritional morbidity. The results are very interesting for what they have been taken to imply about intrahousehold allocation:

1. "There were no significant differences between boys and girls in the intake of these 10 nutrients" (38). Nor did birth order affect discrimination. Caste also had no effect on individual nutrition.
2. A "novel finding" was that carefully collected data on income "fails to explain nutrients consumption" (30).
3. Of statistical significance were the village dummies. "These primarily reflected differences in agroclimate and socioeconomic characteristics" (36); household size ("quantity and quality are substitutes in the context of household decisions" [36]); and land size (though the report expresses doubt over whether farm size is a "cause" or a "correlate reflecting one or more logically prior unmeasured factors" [30]).<sup>1</sup>

Regression analysis of anthropometric measures for children under 12 revealed that intervillage variation and household size were the only significant influences on weight-for-height. For a subset of children under seven years of age (with weight-for-age as the dependent variable), gender was not a significant variable, although birth order and village were. Weight-for-age declined 3 percent for each increase in birth order. The average weights in one village were 21 percent less than those in another in the same state. No explanation was offered for these phenomena. The authors state that "there are many more influences on the nutritional well-being of preschool children as measured by anthropometric indicators than we were able to specify in our equations" (53). It was later concluded using one case study as an example that "poor sanitation, hygiene, and public health infrastructure are most likely responsible for why our findings on energy and nutrients intake are often incongruent with results based on anthropometry" (Walker and Ryan 1990: 269).

Policy implications included the controversial one that individual malnutrition and undernutrition could not be addressed by the targeting of certain income groups; more positively, Ryan et al. suggest the targeting of households (irrespective of income) with characteristics such as larger size, assetlessness, and maternal illiteracy in "certain villages."

This study has been discussed at some length because it was the first and the referent research using the data.

#### *Behrman and Deolalikar (1989)*

Behrman and Deolalikar (1989) estimated a log-linear, reduced-form regression demand model on 1,786 individual-season observations averaged for lean and surplus seasons to test the hypotheses that demand for nutrition (calories and protein consumption) or health status (weight-for-height) de-

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1. Later ICRISAT work draws a different conclusion, however: "In general, the most important personal characteristic in explaining the variation in energy and nutrients intake across individuals was age" (Walker and Ryan 1990:284).

depends upon the environment (value of assets, landholding status [an income proxy], and season); genetic endowment (age and sex); and relative prices, specifically those of inputs (labor) and outputs (three staple foods: sorghum, rice, and pulses). Calorie and protein consumption were expressed as proportions of sex-specific RDAs. Weight-for-height was standardized by modified and sex-specific Harvard standards.

The results of this study were somewhat different from those of Ryan et al. (1984). Nutrients consumption was found to be significantly affected by prices, particularly that of protein in the lean season. The only intrahousehold gender discrimination in nutrients consumption (calories and protein) was against males. The response of anthropometric status to prices was less dependent on seasons. Further disaggregation by landholding status revealed that small cultivators operating less than 7 hectares had higher food price protein (calorie) elasticities than did larger cultivators (Behrman and Deolalikar 1989: 70), a result that the authors concluded was due to "greater dependence on product and labor markets" (76).

The conclusions for policy stressed (1) the usefulness of taking into account that seasonal differences in demand for nutrients were affected by prices, particularly for small cultivators (which underlies an appeal for better integration of local food and financial markets into regional and national markets); and (2) that the consumption-price responsiveness in the lean season means that "the more vulnerable children are likely to be particularly exposed to malnutrition risk when food is scarcest" (78).

The published study, however, did not disaggregate between adults and children. These conclusions were further qualified by the authors by their acknowledgment of multicollinearity associated with the limited price variation in the data and conditional on their choice of functional forms (77).

### *Behrman (1988b)*

Although the weak antimale bias in the ICRISAT set had been established (though not explained) in the two previous studies, Behrman embarked on a separate and very interesting modeling exercise testing antifemale bias. Noting that the earlier absence of gender bias or of seasonal discrimination could be masked by the "genetic-related endowments (including gender)" (Behrman 1988b:33), he explored the distinction between gender preference per se, on the one hand, and the maximization of total returns to labor in gendered labor markets, on the other. The ICRISAT data were used to test an innovative allocation model that distinguished between the position and the convexity of parental indifference curves between the health outcomes of pairs of children within the household. The convexity of the parental indifference curves described the aversion to inequality in health-related outcomes among their children. The position of the indifference curves around the 45-degree ray described the extent of parental preferences for equal health outcomes between children.

Estimation proceeded by comparing health outcomes (weight-for-height, weight, triceps skinfold thickness, and mid-upper-arm circumference) for pairs of children in terms of each nutrient (calories, beta carotene, riboflavin, vitamin C, and calcium). Investments in nutrients were made subject to budget constraints (with prices fixed and identical for all children) and subject to genetic and environmental factors (such as the gender composition of children of a household, gender differences in susceptibility to disease, and the valuation of labor market success). The health production function required in this model is assumed to have diminishing marginal returns to nutrients (37).

The validity of the assumptions underlying this model must be evaluated, even though this chapter is not primarily a critique of method per se but a comparison of the results of method. Health (measured as anthropometric status) is assumed to be produced simultaneously by nutrients. Behrman does not use weight-for-age, which would be the most appropriate indicator, because the functional form has to be independent of age and only in the case of twins (or children from different reproductive subunits within one joint family) will it be possible for children in this sample to be the same age. In actual fact, the functional form will vary with age. It seems to be assumed that the relationship between the percent of RDA and the anthropometric outcome is not age-dependent. The effects, for instance, on the indicator of anthropometric status of transferring a given quantity of nutrients between a mainly breast-fed child of 6 months and one of 36 months are extremely different. The impact on health of nutrient deficits in relation to RDAs will vary according to age. Moreover, it is assumed that a somewhat arbitrary subset of 5 of ICRIAT's 10 measured nutrients are "critical nutrients" (43).<sup>2</sup>

The model was run on lean- and surplus-season mean anthropometric and nutrient intake data for children under 13 years of age in that subset of households with more than one child. There were 390 pairs of data for lean seasons and 379 for surplus seasons. Weight proved the most important health indicator in the lean season, as it behaved in statistically significant and expected ways. In the same way, for the surplus season, weight-for-height replaced weight as the most significant health-outcome indicator.

The results show significant variation in the preference parameters between seasons. In the lean season, there is weak inequality aversion: "some parental concern with distribution" (47). In contrast, in the surplus season, parents behave in a compensating way and distribute nutrients to favor less well-endowed children, irrespective of gender (47-48). As for "unequal con-

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2. The five nutrients are calories, beta carotene, riboflavin, vitamin C, and calcium. They were selected because they are the nutrients said to be critical by Ryan et al. (1984). Ryan et al. (1984:57) actually conclude that these nutrients, including two B vitamins, were those in which villagers were "mostly deficient," and Behrman and Deolalikar (1989) had themselves earlier shown the arguably equally "critical" seasonal changes in price elasticities of protein, which was excluded from Behrman (1988b).

cern” or male-gender preference, although there is no significant relationship in the surplus season, in the lean season parents weight a given health-related outcome (that is, anthropometric score) for their boys about 5 percent more than for their girls. This is not an egregious parental bias. It is concluded that promale gender bias is greatest when food supplies are tightest.

A further regression analysis of lean-season gender bias, using an array of available household characteristics, reveals “somewhat surprisingly” that landholding “above some minimum level” does not affect promale bias, but caste and the educational level of the household head do (50). Boys are most favored in the lowest castes (for reasons not given) and boys are most favored in the lean season by most educated household heads (though actually, of course, by their wives).

The policy conclusions from Behrman’s study are derived from these last results and are aimed at policy-oriented research as well as, implicitly, at the monitoring and targeting aspects of the policy process. The weak promale bias, identified here as occurring in the lean season, is “probably not just a response to differential expected labor market returns to nutrient investments in boys versus those in girls” (52). In addition, feeding behavior tends to compensate nutritionally disadvantaged household members in the surplus season. The nutritionally vulnerable are low-caste female children under lean season conditions when they may be “close to or even below the margin for survival” (52). Policy-oriented research should be seasonally disaggregated.

*Behrman and Deolalikar (1990)*

Here Behrman and Deolalikar estimate a series of reduced-form log-linear demand models on 1,264 individual observations (this time, annual averages of lean and surplus seasons) of the intakes of seven nutrients. Their objectives are not only to estimate price and income elasticities of demand for individual nutrients by individuals within households, but also to assess systematically the impacts of unobserved fixed effects, nested in aggregation at the individual, household, and village level, and to distinguish the effects of current and permanent income on intrahousehold nutrients allocation. The selective availability of income data series constrained the analysis to half the villages. As previously, nutrients were expressed as proportions of sex-specific RDAs. Prices of labor and of food staples were village-specific annual averages. Individuals were pooled for analysis across agrarian class and village in groups of men, women, boys, and girls (Behrman and Deolalikar 1990), though the crucial age thresholds were not published.

The results of this thorough research proved hard to summarize. For adult males, 60 percent of the food price elasticities for the seven nutrients were significant, those for nonstaples being higher than those for staples. Only 7 percent of these elasticities were significant for boys. Elasticities for women and girls tended to be lower (a quarter of them being significant for both women and girls).

From a policy perspective, the authors stress that although this study shows no gender discrimination in nutrient levels or in nutrient intake variances, it revealed gender-specific adjustment to “changes” (in fact to spatial variations) in food prices. Despite their data’s averaging of lean- and surplus-season observations and despite the cross-sectional nature of this study, they infer that women and girls are penalized (and rewarded) more in scarcity (and glut) than are men and boys.

For the other two objectives, Behrman and Deolalikar not only confirm the initial finding by Ryan et al. (1984) that current income does not determine nutrient intakes, but also find deflated permanent income of no significance. Last, though Ryan et al. (1984) had introduced (but not explained) village-level characteristics as factors affecting nutrient intakes, Behrman and Deolalikar here not only confirm this phenomenon as an unobserved “fixed effect,” which they attribute to infrastructure (677, 681, 693), but also confirm the importance of fixed effects at the household and individual levels (though the latter did not apply to the most important single nutrient: calories). Elasticities computed without these controls will thus be a “misleading base for policy formulation” (692).

### *Harriss (1990)*

Harriss took the ICRISAT data as case study material in synthesizing Indian evidence for intrahousehold calorie allocations. A method developed for 24 other Indian studies of nutrient allocation was applied. For each household, a relative intake (RI) of each individual in relation to that of the household head was computed:

$$RI = \frac{\text{Intake of individual}}{\text{Intake of household head}}$$

A second index adjusted for age and sex was then derived from Indian Council of Medical Research (ICMR) norms for recommended intakes (based on age, sex, and physiological status, but not body size or activity level): a “recommended relative intake” (RRI) index:<sup>3</sup>

$$RRI = \frac{\text{Recommended intake of individual}}{\text{Recommended intake of household head}}$$

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3. The controversial assumption underlying this method is that humans are fixed-efficiency machines and incapable of metabolic, physiological, or behavioral adaptations to variations in energy supply. This problem was discussed in Harriss (1990:376–378). The approach used here is a default option awaiting operationalizable evidence on adaptation. If adaptive responses are ever modeled, they are likely to show that this approach overestimates discrimination, but by how much is not yet known. The ICMR-recommended intake estimates are among the most carefully determined and most regularly revised. “They indicate that the female adult needs 85 percent of the male’s energy intake. Comparison with Western norms and recent empirical research (which suggest, respectively, that adult females need 27 and 32 percent less than men) open up the possibility that the Indian norms err on the side of generosity to women. In which case, using them as a standard will tend to lead to overestimation of anti-female discrimination” (Harriss 1990:378).



For each individual, the RI was then expressed as a proportion of the RRI to obtain an index of relative intake (IRI):

$$\text{IRI} = \frac{\text{RI}}{\text{RRI}}$$

An IRI of 1.0 means that the individual's share relative to that of the household head was the same as the share under optimal conditions recommended by the ICMR. A value greater than 1.0 means that the share was greater than the norm and a value less than 1.0, that the share was less, a state that was interpreted as indicating discrimination. The IRI cannot be used to make inferences about absolute intakes.

The disaggregated data were used to ascertain whether intrahousehold allocations varied according to class position and changed under conditions of scarcity. From demand-based theories attempting to explain the Indian sex ratio's regional and social distribution, it could be hypothesized that female shares would be fairer under conditions in which women participate in the wage-labor market and in which their economic status would, as a result, be relatively higher than that of comparable nonparticipants. Fairest female shares were expected to be found in the landless laboring classes, and the greatest protection of females' shares was expected to be found under scarcity conditions in this class too, for the same reason (Harriss 1989b).

This method hit some rocks. First, the actual head of each household was not identified in the data set. The referent for RIs and RRIs was initially taken to be the largest calorie consumer who is male; but this person is often a teenager, with an absolute intake in excess of the recommended intake for adult males! Social and economic power and decisionmaking responsibility will almost certainly not reside in this character. Eventually, the head of household was taken to be the male aged 20–40 with the largest calorie consumption, recognizing that this choice was arbitrary.

Second, the variation between the two surplus seasons exceeded in magnitude any other seasonal difference, including any difference between a surplus and a lean season. The agricultural seasons in these rather widely scattered villages are not coterminous. Furthermore, agricultural production seasons are not nutritional seasons, probably because dietary energy can be obtained from farm and (via trade) nonfarm production, from employment in the farm and nonfarm economy, from stocks, and indirectly from loans and other exchanges. The study confined its data to the extreme maximum and minimum energy supply to each household out of the four rounds of data and regardless of how these readings had fallen under ICRISAT's seasonal classification. Therefore, allocation was examined under relative gluts and scarcity.

Owing to limited research resources, only four of the six ICRISAT villages were studied. The 160 households were grouped by four villages; by four land-size classes; by three age groups (using physiologically relevant disaggregations: under 10, 11–19, and 20 years and over); and by the two sex groups.

The IRIs for each group in glut and scarcity were then tested for significance by *t*-tests (96 of them). A further 96 tests were applied to experimental aggregations of agrarian classes and size groups in order to increase cell sizes.

Out of the total 192 *t*-tests, only 14 were significant at the 5 percent level and only 2 were significant at the 1 percent level.<sup>4</sup>

The results showed complex village- and class-specific patterns of age and sex bias in allocation. These were so idiosyncratic as to defy any generalization.

Among landless labor, significant scarcity adjustments favored adolescent females at the expense of young boys and girls in two villages. In one village, scarcity conditions led to the favoring of young children of both sexes at the expense of adult women. In another village, there were no significant adjustments in sharing practices.

Among the most landed classes, scarcity conditions penalized all females under 20 and favored adult men in one village. In another, all children were penalized to the benefit of adult men. In a third, adolescent females were favored at the expense of adult men. In a fourth, there were no significant adjustments. In the other studies considered here, the use of agricultural rather than food-supply seasons masks contradictory village- and class-specific nutritional experiences in both “lean” and “surplus” seasons.

The implication for policy was much clearer. Direct and remedial welfare intervention (such as that advocated and carefully justified by Drèze and Sen [1989]) must be researched, planned, and implemented at the individual village level, such is the degree of intervillage variation. This is easier said than done. “The age and gender impact of discrimination, its social and seasonal incidence and severity all vary regionally at levels which are below those at which the policy process of agenda formation, authorization and resource mobilization and allocation normally operate. It is most unlikely that this situation would be changed by further research” (Harriss 1991:409–410).

## Commentary

These five pieces of work using one database have produced conflicting results for policy:

1. Ryan et al. (1984) found neither seasonality nor gender bias nor consistent relationships with income with respect to individual anthropometric indexes or nutrient intakes.
2. Behrman and Deolalikar (1989) allowed for more seasonality and found that protein consumption varies seasonally in expected ways according to prices. They also found antimale bias in nutrient allocation, though not in anthropometric status. Using holding size as an income proxy, their re-

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4. There is a major problem of small cell sizes with ICRISAT's database.

- search reported significantly greater nutrient-price elasticities among smaller cultivators.
3. Behrman's (1988b) model showed weak but statistically significant lean-season pro-male child bias and anti-female child bias. But landholding status was not a significant determinant of allocative practice.
  4. Behrman and Deolalikar (1990) discovered gender and age differences in nutrients adjustments to intervillage price variations, but, because this implied for them a profemale bias in glut seasons, they were cautious about terming this behavior discrimination.
  5. Harriss (1990) found village- and class-specific patterns of age and sex bias coexisting with absence of bias and significant, complex, and countervailing village-specific adjustments to nutritional scarcities.

These discrepancies arise because of differences in the subsets of data selected, in the type of classifications made, and in the analytical methods employed (see Table 12.1). Careful specification of the problem for research is a necessary precondition for measurement. Just as there is a difference between modeling what is seen and seeing what is modeled, there is also a world of difference between the testing of a model by disproof and making sense of an existing database. The original sample selection of villages and households was for purposes other than the description and explanation of individual nutrition. It was to look at representative conditions of dryland agricultural production (Walker and Ryan 1990:9–24).<sup>5</sup> So the type and size of the samples mean that the possibility of nontrivial intervillage variation in the explanation for individual nutrition was not seriously contemplated prior to or during the period of field survey. Modeling what is seen with respect to intrahousehold nutrients is in its infancy.

In the same way, the collection of data may involve a more or less conscious selection between the competing theories and models of other disciplines. In the case considered here, data collection has, from the beginning, assumed a nutritional model of human energy metabolism as a fixed-efficiency machine and has not allowed for the investigation of seasonal or individual nutrient allocations under conditions of metabolic, physiological, and behavioral adaptation (Payne and Lipton 1994).

### *Individualistic Classification of Data*

Some of the divergences in results are the product of individualistic classification and the exclusion of data. Taking the case of individualistic classifications

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5. Two further comments on field method are relevant. First, a common problem is that a prioristic research procedure with a piloted but precoded questionnaire does not generally allow room for maneuver if initial hypotheses generate unanticipated results. Second, a hierarchical structure of personnel for data collection is known to run risks of greater measurement errors (if only because of investigator bias and multiple transcription) than alternative structures, such as one in which the final analyst does the fieldwork, although this places serious constraints upon scale.

**TABLE 12.1** Individualism in research on gender and seasonal biases in nutrition using ICRISAT data

Data	Source				
	Ryan et al. (1984)	Behrman and Deolalikar (1989)	Behrman (1988b)	Behrman and Deolalikar (1990)	Harniss (1990)
Number of cases	1,200 people	1,768 observations	390 child pairs (lean seasons); 379 child pairs (surplus seasons)	1,264 observations	2,400 observations
Households	240	240	Not specified	120	160
Villages	6	6	6	3	4
Nutrients	10	2	5	7	1
Anthropometric indicators	6	1	4	...	...
Age groups (years)	1–12, 13–18, >18	1–15	<13	Men, women, boys, girls	<10, 11–19, >20
Seasons	Each of two lean and two surplus	Averages for lean and surplus seasons	Averages for lean and surplus seasons	Lean and surplus averaged for each year	Nutritionally extreme observations—minimum and maximum calories per household
Subsets analyzed	Individuals, children <12 (M,F), children <5 (M,F)	Individuals (M,F)	Children <13 (M,F)	Men, women, boys, girls	Households: three age groups as above

Other variables	Agrarian class Income Caste Household size Household composition	Land Prices for: M,F labor, sorghum, rice, pulses	Labor (M,F) Caste Education Household composition	Income Land Caste Labor (M,F) Price for rice, gram, sorghum, milk Age and education of household head Household size Household composition Village population	Holding size
<b>Results</b>					
Seasonality in nutrient intake	No	Yes	Yes	...	Yes <sup>a</sup>
Variations according to income/land class	No	Yes	No	No	Yes
Antifemale gender bias	No	No	Yes, in lean seasons	Yes, in adjustments	Yes
Age bias	Yes	...	...	Yes	Yes

NOTE: ..., not applicable

<sup>a</sup>All results (a) village-specific; (b) coexisting with absence of relationships

of children, for example, Ryan et al. (1984) classify children into a set aged 1–12 years and a subset aged 1–6 years. In Behrman and Deolalikar (1989), they are 1–15; in Behrman (1988b), they are under 13; and in Behrman and Deolalikar (1990), their age is not mentioned. In Harriss (1990), children are under 10 years old. Behrman and Deolalikar obscure the teenage category important in Ryan et al. (1984) and in Harriss (1990). Methodology may necessitate data exclusion. Behrman (1988b), for instance, has to exclude any household without pairs of children under 13 years of age.

### *Seasonality*

Seasonality was an important parameter in four studies, but the implication that agricultural seasonality implied seasonality in food supply was accepted in all but one. Despite cautions in Ryan et al. (1984), no interannual seasonal variation was modeled in Behrman and Deolalikar (1989) and in Behrman (1988b). In Harriss (1990), the analysis was confined to data for the rounds of minimum and maximum nutrient availabilities to each individual household, quite irrespective of how these rounds were classified, since “lean” had been discovered not to correspond with minimum nor “surplus” with maximum. Energy balances, so crucial to studies of seasonality in nutrition, were out of the scope of the field study and were not estimated by ICRISAT. All of the studies subsequently had to assume that energy expenditure could be held seasonally constant and was “moderate” (therefore not needing special accommodation), which is probably unrealistic.

### *Nutrients Studied*

The range of results is also a product of selectivity in the deployment of nutrients. Ryan et al. (1984) meticulously analyzed 10 nutrients and five anthropometric measures combined into six indicators and attempted to interpret the complicated nutrient-specific patterns. Behrman and Deolalikar (1989) looked at two nutrients (calories and protein) and one health status indicator (weight-for-height); Behrman (1988b) looked at five nutrients (excluding protein) and four anthropometric indicators; Behrman and Deolalikar (1990) looked at seven nutrients; Harriss (1990) looked at calories alone. Nutrients intakes were analyzed as absolute values in the research reported here of Ryan et al. (1984), as proportions of RDAs in Behrman and Deolalikar (1989, 1990) and Behrman (1988b), and as proportions of male household head’s consumption in Harriss (1990). The use of RDAs introduces further possible measurement error into the analysis, since RDAs are in any case not known to the same precision for all nutrients. Walker and Ryan (1990:267–269) is a useful reference both for a representative discussion of deprivation using RDAs and for a conclusion diametrically opposed to that of ICRISAT’s earlier study. Whereas Ryan et al. (1984) stressed intervillage variation as being crucial in explaining

variation in individual nutrient intakes, Walker and Ryan (1990:278–279) concluded that as a result of partitioning the sums of squares of nutrients expressed as proportions of RDAs, “interhousehold variation was the dominant contributor [50 percent] to the total variation in energy and nutrient intakes; next in importance was intrahousehold variation [33 percent] and intervillage variation contributed only one-sixth.” Behrman and Deolalikar (1990:677) find village size significant for 46 percent of the nutrient elasticities calculated, about which they write: “our results underscore the importance of village infrastructure for nutritional improvements,” although village size is more likely to be a product of local agricultural productivity (the causal relation then reversed) and village infrastructure is well known to depend on remoteness or distance from towns (von Oppen, Rao, and Rao 1985).

#### *Stratification of Households by Size of Landholding*

Differences in results may also be generated by differences in the aggregation of data. Behrman disaggregated by size of holding (though the empirical groupings were not specified) and found that size of holding did not affect the promale bias identified in his model. Behrman and Deolalikar (1989) disaggregated using a 7-hectare cutoff and found significantly greater seasonal adjustments in price elasticities of consumption among “small” rather than large cultivators. Harriss (1990) found not only class variation in age-sex allocative bias and in adjustments between gluts and scarcity, but also intervillage variation in these phenomena. Ryan et al. (1984:58–59) concluded that the “agro-climatic and socioeconomic characteristics of the villages and regions” were the most important determinant of low individual intakes in the households of small farmers and landless laborers. Harriss took the landholding size classes of Ryan et al., which varied from village to village and were radically different from those of Behrman and Deolalikar (1989).

#### *Analytical Groups of Individuals*

Ryan et al. (1984) and Behrman and Deolalikar (1989) used data on individuals measured in the field within households but analyzed in aggregated age bands (and sometimes age-sex bands). In contrast, Behrman (1988b) and Harriss (1990) empirically examined intrahousehold allocations. Behrman compared those households containing pairs of children, and Harriss calculated individual discrimination within each individual household, then averaged these indexes by age, sex, land-size class, and village. It is not possible to judge the relative roles of research method, data classification (especially aggregation), and data selection (and exclusion) in the array of results. But it is clear that development economics does not insist on replicability prior to offering policy advice.

## **Empirical Conclusions**

Conclusions in all but Behrman's study run counter to orthodoxy: the intrahousehold bias, if it exists at all, is found to be against male children by Ryan et al. (1984) and against males by Behrman and Deolalikar (1989), whereas Behrman and Deolalikar (1990) report a bias oscillating against and toward females according to supplies. In Harriss (1990), some scarcity bias is significantly antichildren of whatever sex, some anti-adult male, and some antifemale of whatever age! All the unexpected results proved impossible to explain. Age bias rather than gender bias was also found by Ryan et al., teenagers being most vulnerable. This was also impossible to explain.

In the absence of hard evidence for a specific interpretation of empirical results, appeal is made to residual factors for which there are no data to buttress speculation. Ryan et al. (1984), for instance, speculate on the lack of influence of income on nutrition as follows: children may be protected from income fluctuations; the range of incomes is low; the intrahousehold control over income may be a more important determinant of nutrition than income per se, but it is not known. The problem of intervillage variation was certainly recognized by Ryan et al., but it had to be explained by referring in great detail to the characteristics of one village as an example. Harriss (1990:397–398) struggles without conspicuous success to use village agroecology and labor relations to explain age-sex patterns of sharing and adjustment in shares specific to holding class and village. Behrman and Deolalikar (1990) load the variable of village population with many unmeasured characteristics.

## **Policy Conclusions**

Although the publication of these results has been phased in time and although it is unlikely that a policymaker in the field of public health and food would have read them all, in a scenario under which such a policymaker were presented with the results of these five studies, she or he would be right to be intervention-averse.

Not only is the policy advice contradictory, it also suffers from vagueness and triviality, despite—or perhaps because of—the specificity of many of the substantive results. “Policy relevance” may be used to justify research (and its funding) in the first instance, but in practice “policy” tends to be residualized and often smacks of tokenism. Facts do not speak for themselves and need values (and assumptions) for their interpretation. One of Behrman and Deolalikar's (1989) policy recommendations is a plea for improved private market integration (by means unspecified), but the factual evidence on class-specific price elasticities of nutrients consumption would equally well support a plea for price stabilization (by state intervention). From their later results,



Behrman and Deolalikar (1990:692–693) conclude that “The food price results have important implications for the food subsidy policies that many less-developed countries pursue in order to improve the nutrient intake of the poor. Our results suggest that subsidies on foods other than inferior ones (e.g. sorghum or cassava [*sic*]) actually can reduce individual nutrient intakes on the average in households and particularly for males.” In these five studies, cavalier assumptions are made about state delivery capacity. It is equally clear that there is no quick fix for policy. There are general appeals for targeting, but by village in Ryan et al. (1984) and Harriss (1990); less confidently by holding size class, family size, and maternal educational status in Ryan et al.; and by caste, season, gender, and education of the male household head in Behrman (1988b).

Yet the questions of what is to be targeted, by what means, and at what expense are unaddressed. Furthermore, the means whereby what is here an inadequately defined part of the process of policymaking and implementation might be shifted to the village level, given village-specific needs, is also unaddressed. In order to answer these entirely legitimate questions, another kind of research on the policy process would need to be carried out.

It is outside the scope of this chapter to consider in detail how this can be done. The standard approach involves a rigorous consideration of the (social) costs and benefits of alternatives. But it has been pointed out from a number of empirical examples (Clay and Schaffer 1984) that here, too, the assumptions determine the outcomes, and the entire process of implementation is residualized. If “policy is what policy does,” some different approaches may be useful. The policy process is fruitfully conceptualized as three sets of activities that occur simultaneously. One is the process of agenda formation, in which present, actual actions and future, possible actions by the state are identified and prioritized in various ways (rhetorically, in terms of budgetary allocations, and so forth). Statements of advisability and of intention (as found in planning documents and in the remarks addressed to policy concerns and appended to technical research papers) are politically located in this phase. But a great deal of other political activity competes with science at this point. The second activity has been called proceduralization and refers to the making of laws or informal rules (which carry sanctions on their breaching but are not necessarily legally binding). By means of these rules, agendas may be translated into material action. Comparative analysis of agendas and procedures (and, further, of the legal adjudication of apparent breaches of procedure) demonstrates slippage (Sections 3 and 4 in Ghai, Luckham, and Snyder 1987). Last, there is the complicated process of state allocation of resources and of peoples’ access to them. Here again much slippage is to be found (Harriss 1991). Allocation and access have been less well researched than agenda. Procedure is hardly addressed in social science. Agenda is studied, but it is less often analyzed historically and critically as a problem.

At the very least, it is evident that the research discussed here is aimed as a technical input to agenda formation. Both the ideology of “policy relevance” that informs these technical inputs and the fate of the kind of policy advice discussed here ought to be as valid as areas for research as intrahousehold allocation *per se*. And every bit as difficult. Not only do households need unpacking, so does the policy process.

## 13 Finding the Ties That Bind: Beyond Headship and Household

JUDITH BRUCE AND CYNTHIA B. LLOYD

In this chapter, the literature dealing with households and headship is reviewed to lay the foundations for a new research and policy focus on the family. Specifically, it is argued that the family is a more important resource allocation arena to understand than is the household, at least when it comes to designing public policy for improving child welfare in developing countries. In addition, it is argued that the gender of the household head has proved to be a useful window of convenience into the workings of the family and household, but it has provided an incomplete picture. In this chapter we provide a reason for going beyond headship and household to the design of data collection instruments that focus on the real interest—family survival strategies and intrafamily resource allocation as they affect child welfare. In the first half of the chapter we assess recent literature on female-headed and -maintained families and newly available data on the family circumstances and living arrangements of women and children to answer three broad questions with important implications for research and policy: What is the operational meaning of headship? Is the household concept a useful guide for understanding the family relationships that determine children's welfare? Is the household a sufficient context for understanding women's economic roles and vulnerabilities? In the second half of the chapter we draw lessons from these conclusions for both population and economic development policy. A case is built for a new research focus on the family that transcends the physical and temporal boundaries of the household, and for a policy focus that inquires into meaningful family relationships. The specification and support of parenting roles—

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particularly fathering roles—in fulfilling the social and economic needs of children are emphasized.

### **Households and Families: What Has Been Learned?**

Coresidential arrangements and family relationships form the context within which resource sharing and exchange among individuals take place. Households are the institutions within which the researcher usually studies these interpersonal transactions at the micro level. Because residentially distinct households are relatively easy to identify in most settings, they provide efficient units within which to study people's domestic lives and assess their relative welfare. In the short run, it is reasonable to assume that the members of any particular household are bound together by ties of mutual interest that surpass the possibilities for sharing and support available in alternative living arrangements. However, not all resources of household members are fully shared, and households rarely contain within them a closed circle of interpersonal transactions.<sup>1</sup> The maintenance of networks of mutual obligation and support between kin does not require coresidence or even physical proximity (Stone 1977; Thadani 1978). Most household members are likely to have family members residing outside the household with whom they have long-term economic connections. Thus a view of intrafamily connections and resource flows—particularly important when considering children's well-being—requires looking beyond the immediate residential household. In the discussion that follows, a family is defined as a group of individuals related by blood or marriage and a household as a group of individuals living together and sharing meals.

#### *Headship: A Window into the Household?*

The designation of a household member as its “head” is commonly used in censuses and surveys to identify a “reference person” to whom individuals are linked and by whom they are counted and their characteristics recorded. The head is not usually defined by any objective criteria (the possible exception is duration of residence) but instead by the subjective criterion that he or she is so designated by other household members. Among the attributes commonly assigned to the head are that he or she carries primary economic responsibility, functions as the primary decisionmaking authority, or is the

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1. The degree to which such a closed circle of transactions does not exist is likely to vary cross-culturally. To take an extreme example, an in-depth anthropological study of a residential neighborhood in Accra, Ghana, concluded that most production as well as key consumption activities occurred outside the household, that household members usually performed these activities separately, that sexual activity more often occurred between men and women from different households rather than from the same household, and that most children had primary relationships of socialization with adults living in other households (Sanjek 1982).

most respected person. There is a tendency in many cultures for household members to name the oldest male affiliated with the household as its head, even when he is no longer economically active or even in regular residence. Thus the meaning of headship is far from standard, and its social meaning is likely to vary cross-culturally as well as among members of the same household.

A comparison of households according to the sex of the head has often been used as a means of learning indirectly about the relative roles of men and women in household production and resource allocation. A key analytic dilemma in studying the differences between male- and female-headed households, however, is the asymmetry of their structure. A household labeled male-headed almost invariably has one or more females present, including the spouse of the male head. A female-headed household, on the other hand, is most often a male-absent household. In comparing these two household types, the analytical problems implied by this asymmetry are dealt with not just once but at every point in the research and in interpreting the findings for policy. In the discussion that follows, the focus is on the relative household responsibility and authority of male and female heads and the consequent implications for allocation of resources in these two household types.

In developing countries, where much production occurs outside the market sector, it is often difficult to evaluate the relative economic roles of household members. In male-headed households, where men and women are coresident and often work side-by-side in family farms and businesses, a comparison of their earnings will confirm the economic advantage of the male head. The male advantage stems from two sources: the male typically earns more for the same effort, and he is awarded control over the cash collectively generated because of his position of authority (and sometimes the explicit biases of a development policy). According to Sen (1990:130), such joint economic activities often create “systematic biases in the perception of who is ‘producing’ what and ‘earning’ what” within the household.

An alternative approach to the analysis of relative economic contributions is a comparison of work effort between household types, or the proportion of total household work hours contributed by male and female heads. Lloyd and Gage-Brandon (1993b), in a comparison of the relative work hours of men and women in Ghana, showed that, controlling for other relevant factors, household heads (men or women) work longer hours, on average, in the market than other adult household members. This finding confirms that heads do carry extra responsibility in the household. Furthermore, they found that female heads work significantly longer hours, on average, than male heads when domestic work was taken into consideration, corroborating findings by Rosenhouse (1989) for Peru. However, comparisons of the share of total household work contributed by male and female heads in these two studies

revealed that female heads are much more likely to be primary workers<sup>2</sup> in the household than male heads, who often share significant work responsibility with at least one other member. Indeed, in 30 percent of male-headed households in Ghana, the spouse of the head was identified as a "main worker." In Peru, 40 percent of the households in which the primary worker was a woman were actually reported to be "male-headed."

There is little information on the relative decisionmaking responsibility of male and female heads, but data on relative economic responsibility suggest that the authority structure in female-headed households may be more cohesive because of the absence of adult male members (Dwyer and Bruce 1988). Male-headed households and multigenerational households tend to be larger and to have more earners, so the potential for conflict is much greater (Doan and Bisharat 1990). In Ghana, household members were asked who was best informed about different activities within the household, such as agriculture and livestock tending, nonfarm business, and food purchasing. In male-headed households, the spouse of the head was named as the best informed about nonfarm business in 52 percent of the cases and about food purchases in 69 percent of the cases (Haddad 1990). In female-headed households, the female head was almost always declared the most knowledgeable in all areas of household activity. Although knowledge is not synonymous with control, it is certainly a precondition. Such evidence supports the view that authority is more fully vested in one person in female-headed households and more variably distributed in male-headed households. Thus, with regard to both productive work effort and degree of authority, women who are named household heads appear more likely to fulfill the range of assumed roles of head than men so named for the very reason that female heads rarely live with other adults who could compete for such roles.

Evidence is growing that the internal distribution of resources in female-headed households is more child-oriented than in male-headed households. This evidence is derived from comparisons of the overall pattern of household consumption, the types of food purchased and consumed by members of male- and female-headed households, and differences in children's school enrollment. One hypothesis is that women can implement their priorities more easily and hence redirect resources more efficiently to children when they are fully in charge of the household. For example, recent evidence from Jamaica indicates that female-headed households consume foods of higher nutritional quality and spend a larger share of their income on child goods and a significantly smaller share on alcohol (Horton and Miller 1989). Selective evidence of the longer-term impact on children of these expenditure differences between male- and female-headed households is primarily derived from data on child nutritional

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2. The primary worker is defined as the household member with the greatest share of the household's total hours of market work.

status. Despite lower household incomes, a smaller percentage of children in some types of female-headed households in Kenya and Malawi are moderately to severely malnourished than in male-headed households (Kennedy and Peters 1992). Furthermore, when households with similar resources are compared in seven Sub-Saharan African countries, children in female-headed households have higher school enrollment and completion rates than children in male-headed households (Lloyd and Blanc 1996).

Observed differences in child welfare and in expenditure patterns by headship status provide an indirect way of assessing the implications for the household of women's greater access to and control over household income. Several careful empirical studies of the distribution of income and expenditures within the household provide direct evidence for the contrasting expenditure priorities of men and women and support the hypothesis that women in a variety of household types—including male-headed—are more child-oriented in their expenditures. Hoddinott and Haddad (1991), using household expenditure data from Côte d'Ivoire, show that a doubling of the income under women's control would lead to a 2 percent rise in the budget share going to food and a dramatic decline in the budget share going to alcohol (-26 percent) and cigarettes (-14 percent). Using household budget data from Brazil, the analysis by Thomas (Chapter 9, this volume) confirms that additional income in the hands of women leads to a greater share of the household budget going to human capital goods as well as higher per capita calorie and protein intake. Finally, in a sample of periurban children in Guatemala, Engle (1993) has estimated that the attainment of an additional half a standard deviation in a child's weight-for-height would require US\$11.40 per month if earned by the mother and US\$166 per month if earned by the father. Based on the same Guatemalan data, Engle (1991) also found that the higher the share of total household income earned by a child's mother, the higher the child's nutritional status.

### *Children's Living Arrangements: The Ties That Bind*

The data on children's well-being in female-headed households suggest that female stewardship of resources is especially beneficial to children. Data more descriptive of intrahousehold processes, such as those analyzed by Thomas (Chapter 9, this volume) and Engle (1993), further suggest a differential propensity on the part of mothers and fathers to spend on children. As these intrahousehold data are less easy to come by than the more commonly available headship data, an important research and policy goal has been to assess the value of headship information as a means of identifying the family links through which child welfare is determined. Do headship and related household structure data accurately direct us to the resource base of children? An unspoken assumption in linking child welfare to the characteristics of the head is the notion that the head somehow acts, because of biological links, on behalf of the

**TABLE 13.1** Percent of children living away from mothers, by age

Area/Country	Total	Age (years)		
		0-4	5-9	10-14
<b>Sub-Saharan Africa</b>				
Botswana	27.6	18.7	32.2	33.7
Burundi	4.8	1.2	6.4	9.5
Ghana	15.2	4.2	18.2	29.4
Kenya	6.8	2.8	7.7	11.4
Liberia	25.3	11.2	33.0	40.9
Mali	10.5	3.6	13.5	17.8
Senegal	13.6	5.7	16.3	24.0
Zimbabwe	14.3	6.8	15.9	22.8
<b>Asia and North Africa</b>				
Indonesia	3.7	1.5	3.3	6.5
Morocco	2.8	0.9	2.6	5.7
Sri Lanka	2.7	1.2	2.9	4.2
Thailand	7.0	4.0	6.5	10.4
Tunisia	0.5	0.2	0.4	0.9
<b>Latin America and Caribbean</b>				
Brazil	4.0	2.6	4.3	5.7
Colombia	6.0	2.8	6.3	9.6
Dominican Republic	12.4	6.6	12.9	18.8
Ecuador	3.7	1.5	3.6	6.6
Peru	3.5	1.3	3.1	6.5
Trinidad and Tobago	5.7	3.3	5.7	9.1

SOURCE: Lloyd and Desai (1992).

children and the household. Implicit in much child welfare research is the assumption that the household head is the biological parent of the children residing in the household. But are children who reside in male-headed households residing with both parents? Are children who reside in female-headed households residing with their mother?

In most countries of North Africa, Asia, and Latin America, all but a few percent of children under the age of five years reside with their mothers (Table 13.1). In Sub-Saharan Africa, the proportions of younger children living apart from their mother can be higher—for example, 11 percent in Liberia and 19 percent in Botswana. As children age, the proportions living away rise in all regions, but only in Africa do they represent a substantial minority of children. For mothers with partners who have limited resources, sending a child to another household may enhance the child's access to resources or minimize the



disadvantages for children still coresident with the mothers. Lloyd and Desai's (1992) analysis of children's living arrangements showed that the probability that a child will be fostered away from its mother is significantly greater when the mother has no residential spouse or partner and when there is competition from younger siblings.<sup>3</sup> Thus under such circumstances a child may be transferred from a "poor" female-headed household to a presumptively richer male-headed household. Yet it is not clear that the child is advantaged by such a move, as neither of the child's biological parents is the household head; hence, neither of the child's most immediate protectors or supporters is in the strongest position to direct resources to that child. If an unexamined conclusion were to be drawn from the data about this child, it would be that he or she is in a male-headed household living with both parents when, in fact, this child is living with neither parent. A recent analysis from Ghana indicates that although 71 percent of school-age children live in male-headed households, 42 percent of school-age children are not coresiding with their fathers.<sup>4</sup>

Furthermore, living in a female-headed household is not synonymous with living in a mother-headed household. Table 13.2 presents data from 17 developing countries that show the proportion of childhood years lived in mother-headed households and in households headed by other women, often grandmothers.<sup>5</sup> Although mother-headed households represent the majority of female-headed households in most countries (except in Senegal, Sri Lanka, and Thailand), between 5 and 10 percent of children's lives in seven of the countries shown here are spent in households headed by women who are not their mothers.

Finally, a child's consumption and human capital investment prospects are determined not only by whether living arrangements permit one or both parents to direct resources to him or her, but also by the number of siblings (both resident and nonresident) with whom he or she is competing. If either parent has had children with one or more other partners, the number of "same-mother" siblings a child has will differ from the number of "same-father" siblings (Lloyd and Gage-Brandon 1993a). Extramarital childbearing, divorce, remarriage, and polygamy are all factors leading to this result. Data rarely allow a glimpse of the potential importance of the presence of half- and step-siblings to parental investments in children. One problem is that fathers may be reluctant to acknowledge all their children, if they no longer have any

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3. This analysis included seven Sub-Saharan African countries as well as Thailand and the Dominican Republic; in all of these countries, significant numbers of children live apart from their mothers.

4. Lloyd and Gage (1995) and special tabulations from the Ghana Living Standards Measurement Survey in 1987/88.

5. These are synthetic cohort estimates calculated by adding age-specific proportions of children living in households that are mother-headed, other female-headed, and male-headed for single years of age from 0 to 15 and then dividing by 15. The effect is to standardize for differences in children's age distribution for comparisons across countries.

**TABLE 13.2** Percent of a child's years spent in female-headed households, by household type

Area/Country	Headed by Mother	Headed by Other Female	Mother-Headed as a Percentage of Female-Headed Households
<b>Sub-Saharan Africa</b>			
Botswana	31	18	63
Burundi	8	4	67
Ghana	21	12	64
Kenya	18	5	78
Liberia	10	9	53
Mali	4	1	80
Senegal	2	6	25
Zimbabwe	29	7	81
<b>Asia and North Africa</b>			
Indonesia	3	3	50
Morocco	7	2	78
Sri Lanka	5	7	42
Thailand	7	9	44
Tunisia	5	1	83
<b>Latin America and Caribbean</b>			
Colombia	8	5	62
Dominican Republic	15	2	88
Ecuador	6	3	67
Trinidad and Tobago	5	1	83

SOURCE: Calculated from Tables 4–6 in Lloyd and Desai (1992).

links with the child's mother. In Ghana, school-aged children have roughly two more "same-father" siblings, on average, than "same-mother" siblings. A child with more "same-father" siblings than "same-mother" siblings inevitably has a smaller proportional claim on the father's resources than on the mother's (Lloyd and Gage-Brandon 1993a).<sup>6</sup>

#### *Women's Living Arrangements: Is There a Safe Place?*

Women's commitment to and need for the family have traditionally been much greater than men's because basic economic survival and the acquisition of valid social roles have been difficult for women to achieve outside marriage

6. These estimates are based on the reports of all men and women in the household about children residing in the household as well as outside. The study was limited to siblings under the age of 30

and childbearing. Yet families, even traditional extended ones, do not always provide women with reliable economic protection. As the proportion of female-maintained households rises over time (Bruce, Lloyd, and Leonard 1995), the likelihood that a woman will become the principal economic support for her family, at least for some portion of her life cycle, increases as well. Knowledge or fear concerning the likelihood of becoming a widow or losing the economic support of a spouse has been shown to influence women's fertility choices in high-mortality settings such as Bangladesh (Cain 1986). The risk of widowhood is just one of the factors leading to women's living without partners and to female headship in developing countries. Other factors, many of which may be growing in importance, include migration (of both men and women), unpartnered (usually adolescent) fertility, marital instability, and the competing sexual relations of one partner or the other. Women's awareness of these possibilities provides them with an important motivation for achieving some control over resources even when living with an economically active spouse.

A comparison of data on the likelihood of marital disruption in very different settings in the developing world reveals a not inconsequential likelihood that a married women will experience the death of a husband or divorce or separation by her mid-40s (Bruce, Lloyd, and Leonard 1995).<sup>7</sup> The proportion ranges from roughly one-quarter of women in Asia and North Africa to roughly one-third in Latin America and the Caribbean and Sub-Saharan Africa. Although some of these women form new unions, those having children from earlier partnerships are no longer residentially linked with the fathers of these children.

Women's insecurity arises not only from the instability of male-female partnerships and their own circumscribed access to labor markets but also centrally from their motherhood status. For many women becoming a mother is a greater disposing factor to poverty than gender alone. The economic implications of uncommitted or unstable male-female relationships are greatly magnified when the loss of a partner jeopardizes not only a woman's livelihood but also her dependent children's access to support. Thus the father's economic relationship with the children is very much part of the economic portfolio of a woman who is a mother.

Other factors besides marital status and motherhood are likely to be important in determining the extent of a mother's financial responsibility for her children. When husbands and wives live apart because of job migration or customary residential arrangements, the contribution of fathers to the support of the household is likely to diminish. Polygamy also increases a mother's financial responsibility for her own children.

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7. Unfortunately, results beyond age 49 cannot be seen because the Demographic Health Survey data were restricted to women of reproductive age.

Finally, the economic fate of women more than men, and of female-headed households more than male-headed households, is determined by extra-household relationships. Family members live together within households, but it is important to recognize that family relationships often transcend the geographical boundaries of the household (Lloyd 1995). Family relationships are fluid, and the implications of this—at least in the economic sense—are probably more crucial for women than for men. Some female-headed households are not only well off compared with male-headed households, but even better off because of a particularly important extrahousehold economic link—that of remittances (Kennedy and Peters 1992; Lloyd and Gage-Brandon 1993b). Other female-headed households have limited resources and no extended support systems. Indeed the very poorest of mother-child groupings are unlikely to be found in the residentially distinct female-headed category; owing to their disadvantaged circumstances, they are often incorporated into larger, and male-headed, households (Buvinic et al. 1992). The wealth or poverty of mothers and their children is determined to an important degree by whether fathers, regardless of marital or residential arrangements, contribute economically to their children. Given women's limited economic power relative to men, a noncontributing father in any household type is among the most severe welfare risks mothers and children face.

### **Where to Go from Here?**

In developing research and policy implications from the points outlined in the previous section, the focus is on two policy arenas: (1) population and family planning and (2) economic development. In both arenas, rather lopsided and ill-founded views of the family have been central. In the case of family planning and population programs, data collection procedures track offspring through their links with the biological mother without a trace of interest in the father. The development paradigm, on the other hand, centers all of its attention and expectations on the head of the household, implicitly male and presumably a dutiful parent. Analysis in this chapter suggests that population and development policies would be more effective if they were founded on a more balanced and empirically based view of family demography, of male and female roles in households and as parents, and of intrafamily sharing.

In the discussion that follows, attention is centered on a subject of importance to both population and development policy—the parent-child relationship. This was selected from the many family relationships under strain because the parent-child link seems to be the one that should be best protected and whose rupture carries the most grievous consequences. To be more specific, it is owed this special attention on the basis of three criteria: (1) its stability over time, (2) the intrinsic vulnerability of one of its members, and (3) its potential for long-term productivity gains. Many other family relation-

ships, such as those between spouses and between adult children and their parents, will frame and influence the parent-child relationship. Indeed an interest in women's well-being is served by this focus to the extent that a woman's own poverty is traceable to the biased attention to women only as mothers and the societal neglect of fathers' roles and responsibilities.

There is good precedent for focusing on children. National governments and international agencies repeatedly call for investments in children, such as mandatory school attendance and invigorated efforts to ensure child survival and extend primary health care. Population policy's version of child-centered language suggests that families would be better off if couples invested more fully in each child—a truism popularly expressed as “smaller families are happier families.” Indeed it is key to the fertility decline that children become more costly to parents. But in fact not much real thought has been given to intrahousehold processes in framing these policies. In the discussion that follows, three directions are suggested for future research and policy efforts that would promote equity between men and women, encourage productivity, and promote investments in children based on a better understanding of family processes: (1) the articulation of culturally appropriate children's rights, (2) the further specification of and support for fathers' social and economic responsibilities to children, and (3) equity for women as individuals in the labor market.

### *Children's Rights*

The time has come to broaden this policy purview beyond the mother-child link and to focus on something bigger and more important—the rights of children as individuals. Regardless of the potential devotion of mothers, there is general consensus among social scientists and practitioners that children are entitled to a fair share of the social and economic resources of both of their biological (or culturally ascribed) parents.<sup>8</sup> “Who pays for the kids?” should become an explicit and fundamental issue of development policy (Folbre 1994).

Identifying effective policies and programs to entitle children will be as challenging in developing countries as it continues to be in industrialized countries. As a start, programs that deal with children should establish expectations for the participation of both mothers and fathers and systematically portray this in media, outreach, and program design. If the root of discrimination against girls is sexual inequality in the wider society, such programs should challenge those ideologies held by parents about girls that may seem to justify their neglect.

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8. Some societies define parenthood more broadly. However, we believe that the role of grandparents, aunts, uncles, and other normatively ascribed parent surrogates will begin to diminish as social mobility and economic pressure tend to decrease family size and homogenize family concepts. With time, a more uniform, cross-cultural definition of parental responsibility is expected to emerge.

Parental migration presents a particular challenge to the full attainment of children's rights. As mentioned previously, parents typically migrate in search of work to help their families. Yet relatively little is known about how parental migration affects children's well-being and their prospects over time. As the long-term value of outmigration to sending countries is increasingly questioned (Papademetriou and Martin 1991), more information about the long-run returns to sending families is needed. Some receiving-country migration policies differentiate between the rights of fathers and mothers to bring in children (Lim 1990). It is important to assess policies that, though established with hard-currency considerations in mind, may have unexpected returns to the custodial parent and children. For example, seasonal workers from Jamaica in the United States are paid the majority of their wage in Jamaica. In the Philippines, when shipping crews are contracted for, the contractor must pay 70 percent or more of the sailor's wage to a designated person or family in the Philippines. Do such policies increase the possibility that absent fathers will provide economic support for children?

Finally, regarding the issue of child maintenance, explicit costs and economic expectations must be assigned to those who bear children, and penalties must be imposed on those who try to avoid their responsibilities.

Effective definition of policy in this area will require further research on children's residential arrangements and access to parental and other family support in different cultures and countries and on the consequences for children of different types of parenting arrangements. Much more needs to be known about the relationship between parents' residential and marital arrangements and their children's claim on their resources. More also needs to be known about how the number and sex of a child's siblings (including half- and stepsiblings) are likely to affect his or her opportunities. Finally, further research is needed to identify the sources of inequality in parental investment in children according to their gender, circumstances of birth, living arrangements, and whether or not the child's birth was wanted.

### *Support for the Father's Role*

There is no compelling reason why the father-child link is any less important than the mother-child link. At the level of program, policy, and social debate, the value of the father's role, expectations of fathers and incentives for "good" fathering, and sanctions for "poor" fathering must be defined. Without these efforts and in light of the changeable marital and residential arrangements of parents, it is likely that an increasing proportion of children in developing countries with inadequate access to their fathers' economic and emotional resources—a trend only too familiar in the industrialized countries—will be observed.

Most of this policy interest in children has been channeled through mothers, as if they were the sole solution to the need for generating additional income and rendering appropriate child care. A U.S. study on race, family structure, and changing poverty among children (Eggebeen and Lichter 1991) found that, without the significant increases in the labor force participation of mothers that occurred between 1960 and 1980, the rise in the proportion of children living in poverty in the 1980s would have been even greater than it actually was. Though there may be more to learn about what women can do to restructure their time or redirect their income to benefit children, it is unlikely that there is nearly as much room to maneuver here as there is with respect to fathers' behavior, time investments, and income use vis-à-vis children. Lack of interest in the topic is reflected in how little is known about fathers' roles in supporting their children. Time budget data show that fathers' total work time (market and domestic) increases less than mothers' with the arrival of each additional child (Boulier 1977; Fried and Settergren 1986).

On the matter of behavior and social support, a parallel lacuna in concern about the father's role is found. A study of the effects of maternal mortality on children in Southern Africa illustrates the point (Defense for Children International-USA 1991). Because only mothers were provided with information on their children's nutritional needs at the time of delivery, fathers had no sense of their parental responsibilities in the event of the mother's death. As a result of inadequate child care arrangements and the provision of insufficient money for food, the children's health and nutrition suffered. Nonetheless, because people did not see a child's nutrition as a father's responsibility, people in the community did not expect any more of the father. Engle (1990) recounts the results of a recent study in Nigeria, which found that 35 percent of men whose children were hospitalized for malnutrition attributed this to problems in mothering and the home environment, rather than to food sufficiency (in which they have a role) (Ojofeitimi and Adelekan 1984).

Finally, there is a good side of this story to tell. A few studies indicate an association between the father's commitment to the family and the child's well-being. For example, Engle (1993) found that in Guatemala, the proportion of the father's income devoted to the family, more than the absolute amount of his income directed to the family, was associated with the child's welfare as measured by weight-for-height. If a father's interactive time with children increased during the early years, so might his propensity to support children should a marriage fail or should he migrate.

In order to devise policies that attract more men into the business of caring for their children, one must observe how a father constructs his parenting role. Does he define his responsibility as one that flows through his relationship to the child's mother, as Furstenberg and Cherlin (1991) suggest for some fathers in the United States? Is it heavily conditioned by the

circumstances of the child's conception, the existence of other sexual relationships, the continuing rapport between the parents, his coresidence with the child, or the child's gender? When does the father view his relationship to the child as permanent and one of obligation?

### *Economic Equity for Women*

Nothing in the research reviewed in this chapter suggests to us that women in developing countries will be under less pressure to contribute substantially to the well-being of themselves and others in the coming decades. It is clear from all the information about how households and families operate and the volatility of partnerships that there is no one on whom the adult woman or mother can rely absolutely except herself. The available information on changing family structures, female headship, and maintenance of families argues for an intensified effort to increase the hourly return on women's work effort.

In past generations and in subsistence economies, a mother may have been able to obtain acceptable outcomes for herself and her children by growing and processing more food for home consumption and gathering fuel from longer distances, among other efforts. But increasingly, to enter the modern economy, women and their dependents require cash for school fees, transportation, and the purchase of modern medicine, and food of adequate nutritional quality.

In the 1970s and 1980s, investigators often used a "full income" concept<sup>9</sup> to give a clearer picture of the tremendous resourcefulness and hard work of the poor in garnering resources for survival. If such exercises continue to be useful in thinking about the total sum of effort in making up an economy, and particularly in reevaluating women's contributions, it works against poor people, and especially women, when this attributed value is mistaken for purchasing power. The fact that so many impoverished women are producing reasonable livelihoods for dependents—though not necessarily for themselves—has distracted us from the question of how economic growth and adequate investment in human capital can best be achieved. More balanced attention to men's and women's roles, realistically viewing *both* as producers *and* reproducers—as workers and parents—will provide a better basis for evaluating the adequacy of income or quality of life. If gender equity is to be achieved in development policies, men and women should be able to produce their fair share of a basic standard of living for themselves and their dependents through relatively comparable work efforts and time expenditures.

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9. Full income is defined as income earned for hours worked for pay plus imputed income from nonmarket hours of work (assumed to be equal to the hours in the day remaining after allowing for necessary hours for sleep) plus unearned income.



Current policies encumber women's livelihoods in two respects: they do not accommodate women's special family responsibilities and they tie women's access to resources, including labor markets, to marital or sexual relationships with men or to their fertility status. In the formal labor market, maternity leave provisions and child-care arrangements are the exception rather than the rule; in the informal sector and the domestic arena, the lack of infrastructure and of complementary productive inputs (such as land of adequate quality and appropriate capital equipment) keeps women's productivity low and reduces the time and energy available for their children (Desai and Jain 1994). Another source of women's economic inequality derives from the law and traditional practice. When women are treated as legal juniors in family law and economic policy, their access to family-based productive resources is prejudiced. With the mounting evidence of shifting family arrangements, diminishing coresidence of spouses, and women's growing economic responsibility for children, there is no plausible basis for policies that limit women's economic access based on marital or fertility status. The requirement of a husband's (father's or son's) consent for women's access to credit, market activity, migration for work, or asset ownership is as unproductive as it is offensive. Women's access to a fair share of marital property on the occasion of divorce or death of a spouse is as necessary to their survival as it is fair. There is little systematic information about the specific legal, administrative, and social barriers to women's rights and economic independence that remain codified in regulations and customary practice. A more systematic analysis of the ways in which presumptions about women's family roles inhibit their access to vital resources is called for.

The removal of gender bias from economic policy must include removing explicit and implicit constraints on women based on family or reproductive roles. A test of women's unencumbered access should be: "Can a celibate, childless woman own property?" "Can a pregnant, unmarried woman hold a job?" Though women will always be economic assets to their households and families, this dividend to society arises from the more fundamental recognition that women as individuals have rights to livelihoods on their own behalf.

## **Conclusions**

This analysis of the operational meanings of headship and household in defining both the economic contributions and vulnerabilities of women and their implications for the children they support points up the important economic contribution that women make in all types of households and families, regardless of their headship status. Owing to the complexity and flux in family types, women's marital status and living arrangements provide an insufficient framework for studying their economic vulnerability and often project a false picture of either economic security or poverty. By extension, children's welfare

is less conditioned by their parents' marital status than current policies and normative approaches would have us believe. The wealth or poverty of mothers and their children is determined to an important degree by whether fathers, regardless of marital or residential arrangements, contribute economically to their children, not by the family's normatively ascribed headship or household type. Indeed household living arrangements are the outcome of family survival strategies and, as such, are more likely to be the consequence of underlying economic circumstances than a determining factor in those circumstances (Lloyd 1995). The convenient assumption made by most economists that headship is exogenous has come under increasing scrutiny. Handa (1995) reports that modeling the endogeneity of female headship is possible. In particular, Handa finds that outside opportunities or extraenvironmental parameters associated with bargaining models of the household and family influence the formation of female-headed households in Jamaica.

The likelihood of increases in the extent of family separation due to the widening search for livelihoods, as well as the destructive forces of civil unrest, famine, and war, lends urgency to the pursuit of new research and policy initiatives that focus on the links between men and women, parents and children, both within and between households. The structure of existing data on households must not blind researchers to the full complexity of the family as they seek to learn more about intrafamily connections and resource flows and design policies that will strengthen these connections—particularly the neglected father-child link. For example, the collection of new data on mothers and children, as it is typically carried out in fertility, family planning, and child health surveys, must incorporate ways to link children to their biological fathers, even if they reside outside the household, as well as to gather more information from men about their childbearing and -rearing roles. Even in the absence of full information, however, certain principles and priorities are clear: the recognition of children's right to a fair share of both parents' social and economic resources, the importance of fathers to their children's well-being and future development, and women's economic equity, achieved under circumstances that are sensitive to unencumbered family roles.

## **PART III**

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# **The Policy Relevance of Intrahousehold Resource Allocation**



## 14 Family Resources and Gender Differences in Human Capital Investments: The Demand for Children's Medical Care in Pakistan

HAROLD ALDERMAN AND PAUL GERTLER

Using a model of human capital investment, we examine in this chapter how gender differences in human capital allocations vary across families with different levels of resources. Differences in rates of such investment by gender have been documented extensively for South Asia and occasionally for Latin America and Sub-Saharan Africa.<sup>1</sup> We show theoretically that, under the same conditions that would lead to higher investments in sons, the demand for daughters' human capital will be more income and price elastic. Moreover, we find that the difference in the price elasticities falls as family resources rise. Poorer families invest less in daughters relative to sons, and the difference in the level of discrimination between wealthier and poorer families grows as the price of human capital rises. These results imply that policies designed to alleviate poverty and raise incomes will also reduce gender discrimination, especially among the poor. In addition, increases in the prices of education, medical care, and nutrition not only exaggerate the promale bias but also exaggerate the bias proportionally more within poorer families. These policy implications are independent of whether the reason for discrimination is due to market incentives or preferences.

There is substantial empirical support for these hypotheses in the literature on the demand for medical care, education, and nutrition in developing countries. For example, DeTray (1988) finds the demand for girls' schooling to be more income elastic than that for boys in Malaysia. Schultz (1985) finds girls' school enrollment rates to be more price and income elastic in an aggregate cross-national analysis, whereas Behrman (1988b) finds the proson bias in nutrition allocation to be greatest during the "lean" season in rural India. Similarly Garg and Morduch (1997) find that gender discrimination in nutrition among siblings in Ghana is apparent mainly among low-income households. As household resources increase, these patterns disappear. In this

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1. A partial list of studies that document gender differences in human capital includes Boserup (1970), Rosenzweig and Schultz (1982), Sen and Sengupta (1983), Bardhan (1984), Schultz (1985), Behrman (1988b, 1990), Subramanian and Deaton (1990), Svedberg (1990), and Thomas (1994).

chapter we test these hypotheses, drawing on data on the demand for children's medical care in rural Pakistan. The results presented here are consistent with the predictions of the model used.

### **A Gender-Specific Model of Human Capital Investment**

In this section a two-period model is constructed in order to investigate gender differences in the absolute level of investment in human capital as well as in the income and price elasticities of investment. An important feature of the model is that its predictions hold whether the reason for discrimination is due to market incentives or parental preferences. By contrast many existing studies have focused on the question of whether gender differences reflect preference orderings or investment opportunities. Dyson and Moore (1983), for example, use regional patterns of gender differences in child mortality rates to argue that they arise from kinship systems, among other factors. This claim is endorsed by Das Gupta (1987). The hypothesis essentially shows a preference for males for their direct contribution to household utility. In contrast Boserup (1970) and Rosenzweig and Schultz (1982) as well as Bardhan (1984) propose a model in which differences in allocation reflect differences in expected returns to investments. In such a model, there need not be a preference for males per se, but only a desire to maximize the level of expected lifetime total consumption. Behrman and Deolalikar (1995) show that wage rates in Indonesia do not indicate that lower returns to investment are a plausible explanation for differences in schooling. Behrman (1988b) finds evidence to support a combination of the two hypotheses.

Many models of human capital investments have been formulated in terms of a single household utility function. However, even if collective approaches account for the process of allocation of household resources, it is still necessary to explain why a household member chooses to invest more in one gender than the other. For example, Thomas (1994) finds evidence for differential investments in daughters and sons by mothers as compared to fathers. It is unclear whether this finding reflects differential returns to investments (including the propensity of the child to remit to the parent) or preferences per se. The model presented here—or a similar one that explains difference in perceived returns to improvements in girls' human capital relative to boys'—must hold for at least one adult in the household for bargaining to affect gender-specific investments.<sup>2</sup>

#### *Assumptions*

Consider a world in which parents work in the first period and retire in the second period. Consumption in the first period is income less that which is

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2. Thus, using a variant of the principle of Occam's razor, this study does not set up a bargaining model since distinguishable predictions that can be analyzed with the data are not apparent

invested in the human capital of children, whereas consumption in the second period depends on the wealth of the children, which, in turn, depends on their human capital.<sup>3</sup> Parents value their own consumption and their children's wealth. Thus there are both investment and consumption motives for human capital investments. In their human capital investment decisions, parents must trade off their present consumption against their future consumption and their children's wealth.

To focus on gender differences, the family is assumed to have two children, one of each sex. Market incentives are introduced by allowing both the return to children's human capital and children's remittance rates to differ by gender. Preference differences can also be introduced by allowing the marginal utility of children's human capital to differ by gender.

Formally let the parents' lifetime utility function be

$$U = F(C_1) + G(C_2, W_b, W_g) \tag{14.1}$$

where

- $C_1$  = consumption in period 1,
- $C_2$  = consumption in period 2,
- $W_b$  = the wealth of the male child, and
- $W_g$  = the wealth of the female child.

If parents do not explicitly prefer one gender to the other, it is assumed that  $\partial G/\partial W_b = \partial G/\partial W_g$  and  $\partial^2 G/\partial W_b \partial W_b = \partial^2 G/\partial W_g \partial W_g$  when  $W_b = W_g$ .

Parents' consumption in the second period is generated by transfers from their children. It is assumed that the amount of resources remitted to parents is proportional to each child's wealth. Formally parents' second-period consumption is

$$C_2 = \beta W_b + \tau W_g \tag{14.2}$$

where  $\beta$  is the rate of transfer per unit wealth from the male child and  $\tau$  is the rate of transfer per unit wealth from the female child. The relative magnitudes of male and female remittance rates partly depend on cultural patterns of intergenerational transfers. As noted by Rosenzweig and Schultz (1982),  $\tau$  may be negative, for example when parents must provide large dowries in order for their daughters to marry.

Children's wealth depends on their human capital in the following manner:

$$W_b = bH_b \tag{14.3}$$

and

$$W_g = gH_g \tag{14.4}$$

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3. The model can be expanded to overlapping generations, most simply by defining parental income as net of transfers to the previous generation.

where  $b$  and  $g$  are the respective monetary returns to investment in human capital.

Finally, the model is closed by specifying the family's budget constraint:

$$P(H_b + H_g) + C_1 = Y \quad (14.5)$$

where  $P$  is the price of human capital and  $Y$  is parental income. Parents divide this income between current consumption and investment in their children's human capital.

### *Equilibrium*

Parents choose  $H_b$  and  $H_g$  to maximize utility subject to the budget constraint and their children's remittance function. (It is assumed that remittances are deterministic.) By substituting equations (14.2)–(14.5) into equation (14.1), the following maximization problem is derived:

$$\max H_b, H_g = F[Y - P(H_b + H_g)] + G[(\beta b H_b + \tau g H_g), b H_b, g H_g] \quad (14.6)$$

The first-order conditions are

$$\frac{\partial E}{\partial C_1} P = \frac{\partial G}{\partial C_2} \beta b + \frac{\partial G}{\partial W_b} b \quad (14.7)$$

and

$$\frac{\partial F}{\partial C_1} P = \frac{\partial G}{\partial C_2} \tau g + \frac{\partial G}{\partial W_g} g \quad (14.8)$$

Conditions (14.7) and (14.8) imply that parents invest in their children's human capital to the point that the marginal cost in terms of consumption today equals the marginal benefit tomorrow. These marginal benefits are equal to the marginal utility of second-period consumption multiplied by the remittance rate per unit of human capital, plus the utility the parents derive from a marginal increase in the children's human capital.

Now turn to the implications of the model for the allocation of resources between genders. Consider the case in which the market return to boys' human capital is greater than the return to girls' human capital ( $b > g$ ), as in Rosenzweig and Schultz (1982). This implies that families invest more in boys' human capital than in girls' human capital. A similar conclusion is derived when boys' rates of remittance are larger (that is,  $\beta > \tau$ ) or if parents are concerned more with sons' wealth than with daughters' wealth ( $\partial G/\partial W_b > \partial G/\partial W_g$ ).

The left-hand sides of equations (14.7) and (14.8)—marginal cost—are identical. Hence parents invest in the human capital of boys and girls up to the point at which the marginal benefit of boys' human capital equals the marginal benefit of girls' human capital:



$$\frac{\partial G}{\partial C_2} \beta b + \frac{\partial G}{\partial W_b} b = \frac{\partial G}{\partial C_2} \tau g + \frac{\partial G}{\partial W_g} g \quad (14.9)$$

If  $b > g$ , the left-hand side of equation (14.9) will be greater than the right-hand side when evaluated at the same level of human capital. Since the marginal benefit functions are decreasing in  $H$ , equation (14.9) is satisfied at a point at which  $H_b > H_g$ . When  $\beta > \tau$  or when  $\partial G/\partial W_b > \partial G/\partial W_g$ , the marginal benefit from a boy's human capital will also be greater than the marginal benefit from a girl's human capital at the same value of  $H$ . By a similar argument, investment in a boy's human capital will exceed that in a girl's.

*Comparative Statics*

How does the allocation of human capital change in response to increases in the price of human capital and in family wealth? Results show that the conditions that led to higher investment in a boy's human capital will also imply higher price and income elasticities of investment in a girl's human capital.

Beginning with price elasticities, a price rise increases the marginal cost of human capital investment—that is, the left-hand sides of equations (14.7) and (14.8). The assumption that  $b > g$  implies that the change in  $H_g$  that restores the condition in equation (14.8) for each level of  $H_b$  is larger than the change in  $H_b$  that satisfies equation (14.7) for each level of  $H_g$  following a price change. That is, the demand for a girl's human capital is more price elastic than the demand for a boy's human capital.

Alternatively stated, when  $b > g$ , the marginal benefit from a boy's human capital decreases faster with  $H$  than does that from a girl's human capital. Hence the adjustment necessary to restore equilibrium is less with boys than with girls. This finding implies smaller absolute values for price elasticities. It is not a statement about second derivatives, but about the product of the parameters in equations (14.3) and (14.4) multiplied by the first derivatives of the second term on the right in equation (14.1). Similarly, the demand for a girl's human capital is more price elastic than the demand for a boy's human capital when  $\beta > \tau$ .

The situation is more complex when  $\partial G/\partial W_b > \partial G/\partial W_g$ . Under that condition, the assumptions outlined previously are insufficient to determine the relative magnitude of the price elasticities. With the plausible assumption, however, that  $\partial G^2/\partial W_b \partial W_b > \partial G^2/\partial W_g \partial W_g$ , relative magnitudes of the price elasticities similar to the two earlier conditions will be expected.

By a similar argument, the same conditions imply that the demand for a girl's human capital is more income elastic than the demand for a boy's human capital. An increase in income affects the first-order conditions through the marginal cost of human capital investment—the left-hand sides of equations (14.7) and (14.8). The increase lowers the marginal utility of current consumption

and therefore lowers marginal cost. This fall in marginal cost is analogous to a reduction in price. Therefore an increase in income leads to a greater increase in the investment in human capital for girls than for boys.

Finally, the model implies that the price elasticity of demand falls with income and that a girl's price elasticity falls faster with income than a boy's. An increase in income lowers the marginal utility of current consumption and, therefore, the marginal cost of human capital. This result implies that a rise in price represents a larger increase in marginal cost at lower levels of income than at higher levels of income. Hence increased prices will generate larger reductions in human capital investment among families with lower incomes than among families with higher incomes. Put another way, differences in gender price elasticities diminish with income.

### **Evidence from the Demand for Medical Care in Pakistan**

In this section, the hypotheses concerning gender differences in price and income elasticities of investment in human capital are tested by examining the provision of medical care to children in rural Pakistan. Sathar (1987) notes that postneonatal mortality rates for girls in Pakistan are 15 percent above those for boys; the discrepancy is greater for daughters that are born after another girl. Indeed Pakistan has the highest ratio of males to females in the world. The ratio over all age groups in 1981 was 1.1 males for every female (Krotki 1986). Similarly, enrollment rates at all levels of schooling indicate a predominance of investment in the schooling of boys over girls.

In addition to a preference for sons, other factors may also contribute to gender discrimination. For example, participation in the wage labor force is low among women. Direct economic contribution of women to the natal household is limited not only by these employment patterns but also by the tendency of women to leave the household, and often the village, at marriage. This cultural norm contrasts with the tendency for sons to remain in an extended family structure.

These separate reasons for gender differences have the same implication for behavior in the model. Accordingly no attempt is made to identify their relative contribution, but instead the focus is placed on the degree of income and price responsiveness in health investment decisions.

In the empirical framework, utility depends on children's health and on the consumption of goods other than medical care. Only primary curative aspects of health investment are considered.<sup>4</sup> If a child experiences an illness, the family must decide whether or not to seek medical care and from which care provider. The benefit from consuming medical care is an improvement in

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4. That is, the theoretical model is tested by looking at investment conditional on illness rather than the full range of investment in human capital to which it may apply.

children's health, and the cost of medical care is a reduction in the family's consumption of other goods and services. There are some potential limitations to testing the model by looking at investment conditional on illness rather than the full range of investment in human capital. These price responses that are estimated may be considered short-run elasticities and will differ from long-run elasticities if the probability of illness is responsive to price. Thus the estimates here are likely to be lower bounds to the long-run estimates. Dow (1995) presents one empirical investigation that finds that the difference between long- and short-run responses is not large and, moreover, that there is no sample selection bias using a sample conditional on illness.

The demand for a particular alternative is the probability that it yields the highest utility among the alternatives. Gertler, Locay, and Sanderson (1987) show that income can influence the choice of provider only if the conditional utility function allows for a nonconstant marginal rate of substitution of health consumption. One functional form that satisfies this condition is the semi-quadratic, in which utility is linear in health and quadratic in consumption.

Specifically, let the conditional utility function for the non-self-care alternatives be

$$U_j = \alpha_0 H_j + \alpha_1 (Y - P_j) + \alpha_2 (Y - P_j)^2 + \varepsilon_j \quad (14.10)$$

where  $H$  denotes expected outcome;  $Y$ , income; and  $P_j$ , the cost of health care from the  $j$ th provider.  $\varepsilon_j$  is a zero mean random taste disturbance with finite variance and is uncorrelated across families and alternatives. Under the alternative of self-care,  $P_0 = 0$ , implying that the conditional utility function reduces to

$$U_0 = \alpha_0 H_0 + \alpha_1 Y + \alpha_2 Y^2 + \varepsilon_0 \quad (14.11)$$

for the self-care alternative.

Estimation is based on the ordering of the utility of these different alternatives. This implies that the parameters in equations (14.10) and (14.11) are identified only when the values of expected health and consumption differ across the alternatives; if the contributions of either expected health or consumption to utility are constant across alternatives, they cannot influence which alternative is chosen.

In practice, specification of the demand across alternatives is based on the difference in the utility of each alternative from that of self-care. Expanding the quadratic term in equation (14.10) and taking the difference between equations (14.11) and (14.10) gives

$$U_j - U_0 = \alpha_0 (H_j - H_0) - \alpha_1 P_j - 2\alpha_2 Y P_j + \alpha_2 P_j^2 + \varepsilon_j - \varepsilon_0 \quad (14.12)$$

Note that the difference includes terms in price and price squared, allowing for declining (or increasing) price responsiveness. Income enters only in the

interaction with price. One can test whether the parameter for the interaction differs from zero and whether it differs from the parameter for the quadratic price term. This latter test indicates if the relation of income and price is an artifact of the functional form. In particular, the model requires that the estimated coefficient for  $YP$  is twice that estimated for  $P^2$ .<sup>5</sup>

The remaining issue in the specification is the measurement of the efficacy (quality) of each alternative. The quality of health care provider  $j$  is defined as the difference between expected health outcome from the  $j$ th provider and that of self-care:

$$Q_j = H_j - H_0 \quad (14.13)$$

Substituting into the conditional utility function (14.10) yields:

$$U_j = \alpha_0(H_0 + Q_j) + \alpha_1(Y - P_j) + \alpha_2(Y - P_j)^2 + \epsilon_j \quad (14.14)$$

Since  $Q_0$  has been normalized to 0, the conditional utility function in equation (14.14) for the self-care alternative reduces to

$$U_0 = \alpha_0 H_0 + \alpha_1 Y + \alpha_2 Y^2 + \epsilon_0 \quad (14.15)$$

The  $\alpha_0 H_0$  term appears in all the conditional utility functions. Since only differences in utility influence preference ordering, this term can be ignored.

Quality,  $Q_j$ , is not directly observable. This problem is solved by letting  $Q_j$  be a parametric function of its observable determinants. The quality of provider  $j$ 's care is the expected improvement in health (marginal product) over the expected level of health that would occur from self-treatment. This is a function of characteristics of the health care provider (including distance) as well as family characteristics such as health status and ability to implement the recommended treatment. For example, the expected improvement in health from hospital care relative to self-care may be increasing in education, since families with higher education may be better able to implement recommended treatment plans.

Similarly, the marginal utility of the health of a child may depend on how many children there are in the household. In general, the value of health may vary with demographic characteristics such as age, sex, education, and family composition.

Thus basic determinants of both the quality household production function and the marginal utility of quality are demographic variables. Pollak and Wachter (1975) argue that the separate effects of demographic variables in the household production function and in the marginal utility of quality generally cannot be identified. Therefore, a reduced-form model of the utility from quality is specified. Formally, let the utility from quality be given by

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5. This hypothesis was not rejected.

$$\alpha_0 Q_j = \varepsilon_{0j} + \beta_{1j} X + \beta_{2j} Z_j + \eta_j \tag{14.16}$$

where  $X$  is a vector of demographic variables,  $Z_j$  provides specific characteristics that do not directly enter the budget constraint, and  $\eta_j$  is a zero mean random disturbance with finite variance.

To make the specification as general as possible, let the coefficients in equation (14.16) vary by alternative. Allowing for different intercepts permits the baseline quality to vary by type of provider, and having different slope coefficients allows the provider’s productivity relative to self-care to vary with family characteristics such as age, education, and severity of illness. The alternative specific intercept is important in this model because it allows the quality to vary across provider types.

Since  $Q_0 = 0$ , the utility from quality simplifies to  $\alpha_0 Q_0 = 0$  for the self-care alternative. As mentioned, the coefficients in equation (14.16) are interpreted relative to the self-care alternative. The normalization sets the unobserved portion of quality in the self-care alternative,  $\eta_0$ , to zero.

Substitution of equation (14.16) into the conditional utility function (14.10) yields

$$U_j = V_j + \eta_j + \varepsilon_j \tag{14.17}$$

where

$$V_j = \alpha_0 \beta_{0j} + \alpha_0 \beta_{1j} X + \alpha_0 \alpha_{2j} Z_j + \alpha_1 (Y - P_j) + \alpha_2 (Y - P_j)^2 \tag{14.18}$$

The intercept and coefficients on the demographic variables vary by alternative, whereas the coefficients on the economic variables are constant across alternatives.

The final step is the specification of the stochastic distribution. Many studies of the demand for medical care in developing countries have assumed that these take on a multinomial logit (MNL) form. The MNL suffers from the independence of irrelevant alternatives assumption (McFadden 1981). This assumption is equivalent to assuming that the stochastic portions of the conditional utility functions are uncorrelated across alternatives, and it imposes the restriction that the cross-price elasticities are the same across alternatives. A computationally feasible generalization of the MNL is the nested multinomial logit (NMNL). The NMNL allows for correlation across subgroups of alternatives and, therefore, nonconstant, cross-price elasticities across subgroups.

The stochastic assumptions here group the non-self-care alternatives together. The  $\eta_j$ s imply that the non-self-care alternatives may be correlated with each other, but not with the self-care alternative. Therefore, the self-care demand function (that is, the probability of choosing self-care) is

$$\pi_0 = \frac{\exp(V_0)}{\exp(V_0) + [\sum_{j \neq 0} \exp(V_j / \sigma)]^\sigma} \tag{14.19}$$

and the probability of choosing a traditional healer, doctor, pharmacist, or clinic is

$$\pi_j = \frac{[1 - \pi_0][\exp(V_j / \sigma)]}{\sum_{j \neq 0} \exp(V_j / \sigma)} \quad (14.20)$$

where  $\sigma$  is a coefficient of dissimilarity between the non-self-care and the self-care conditional utility functions introduced by the  $\eta_j$ s and the  $V_j$ s given in equation (14.17).

McFadden (1981) shows that  $\sigma$  must be between zero and one for the model to be consistent with utility maximization. When  $\sigma$  is less than one, the error terms in the utility functions of the non-self-care alternatives are correlated. This result implies that families view the non-self-care alternatives as closer substitutes with other care than with self-care. When  $\sigma = 1$ , all of the alternatives are viewed as equally close substitutes and the NMNL reduces to an MNL.

Own-price effects enter the demand function via the numerator in equation (14.20). Cross-price effects enter via the denominators in equations (14.19) and (14.20). When  $\sigma$  is less than one, the cross-price elasticities of the non-self-care alternatives are higher than the cross-price elasticities of the self-care alternative.

A further refinement, typically not reported in other studies, is in the treatment of cases for which the household reports that a type of provider is not available. Failure to modify the likelihood function for those cases in which the household choice is limited by nonavailability may have a nontrivial impact on estimated relative utilities. The likelihood function is modified by excluding the unavailable options from the denominators of equations (14.19) and (14.20). The numerators are automatically excluded from these options since an unavailable option is never chosen.

## Data

The data for this study come from a 1986 survey of households residing in five low-income districts throughout Pakistan (Alderman and Garcia 1993). Female enumerators interviewed female household members and recorded data on illness by type and associated medical care use during the preceding two weeks for each child five years of age or under. Also recorded were the availability, costs, and distances of medical services, in addition to socioeconomic characteristics of the household. Moreover, information was collected on assets to predict household incomes, which were used as a measure of permanent income. Table 14.1 reports descriptive statistics.

The sample is conditional on acute morbidity, with trauma, surgery, and chronic illness being excluded. Since the observations are of individuals, not

**TABLE 14.1** Descriptive statistics of data used in this analysis

Variable	Female children		Male children	
	Mean	Standard Deviation	Mean	Standard Deviation
Annual household income per capita (rupees)	2,464	918	2,512	965
<i>Siani</i> price (rupees)	14.29	13.32	15.49	13.46
Government clinic price (rupees)	19.89	13.34	20.32	13.91
Pharmacist price (rupees)	15.45	8.40	15.69	8.84
Doctor price (rupees)	35.21	9.09	35.53	9.15
<i>Siani</i> travel time (minutes)	42.03	46.01	46.00	48.25
Government clinic travel time (minutes)	116.88	101.65	112.04	100.22
Pharmacist travel time (minutes)	71.96	46.64	70.50	47.46
Doctor travel time (minutes)	58.56	39.36	53.75	37.50
<i>Siani</i> waiting time (minutes)	21.63	22.46	23.96	23.51
Government clinic waiting time (minutes)	67.42	51.49	64.65	51.09
Pharmacist waiting time (minutes)	32.97	25.52	32.94	25.45
Doctor waiting time (minutes)	31.34	12.29	29.76	11.20
Household size	10.61	5.29	10.55	5.01
Age (years)	2.31	1.56	2.21	1.52
Mother's education (= 1 if some)	0.07	...	0.05	...
Days ill	3.80	4.18	4.10	4.82
Diarrhea = 1	0.68	...	0.66	...
Cough = 1	0.06	...	0.06	...
Flu = 1	0.10	...	0.10	...
Fever = 1	0.47	...	0.47	...
Height/age	79.40	27.59	80.71	24.77
Go to <i>siani</i> = 1	0.13	...	0.11	...
Go to government clinic = 1	0.10	..	0.09	...
Go to pharmacist = 1	0.05	...	0.04	...
Go to doctor = 1	0.43	...	0.47	...
Know of <i>siani</i> = 1	0.94	..	0.92	...
Know of government clinic = 1	0.95	...	0.97	...
Know of pharmacist = 1	0.56	...	0.55	...
Know of doctor = 1	0.96	...	0.96	...
Sample size	1,649		1,781	

SOURCE: International Food Policy Research Institute survey of five districts in Pakistan, 1986–91.

NOTES: *Siani* refers to a traditional healer.  
..., not applicable.

households, larger households have a greater weight in the sample than would be the case in the household-based sample. This explains the large value for average household size.

Four provider alternatives in addition to self-care were identified: (1) private physicians, (2) pharmacists, (3) government clinics, and (4) traditional healers (*sianis*). Private medical care predominates in this sample, as well as elsewhere in Pakistan. The 43 percent of cases taken to private doctors observed in the sample is consistent with the 41 percent of all cases (including adult illnesses and surgery) observed in urban Pakistan (Pakistan 1987). Costs per visit are relatively low, in part due to the nature of childhood illnesses, but are of an expected relative magnitude.

Consumption net of medical care, consumption squared, and the determinants of the utility from quality must be specified for each alternative. Consumption is computed as monthly family income less the price of consultation. Monthly family income is measured by predicted total income, including the value of home production. The price of each alternative is the median reported price in each region. Consumption and consumption squared are measured in per capita terms.

Pitt and Rosenzweig (1985) provide evidence that family income depends on the health status of children through the influence on the labor supply behavior of mothers. The instrumental variables procedure corrects for possible simultaneity bias (Alderman and Garcia 1993). Measures of family assets—including irrigated and rainfed area owned, orchards, volume of livestock, vehicles and other machinery—serve as the identifying variables. The instrumenting equations also include such variables as household composition and the number of males and females with primary, secondary, and postsecondary education. The instrumenting equations allow for separate parameters for each district to accommodate different resource bases and returns to assets.

The data include the child's age in months, a dichotomous variable indicating whether the child had diarrhea, a set of mutually exclusive dichotomous variables indicating whether the child had various illness symptoms, the duration of the illness, and, as a measure of overall nutritional status, the child's height-for-age as a percentage of the international standard. In addition, the level of the mother's education and the size of the household were included.

Measures for travel and waiting times by provider are available. In a fully specified model, the corresponding time prices would enter the budget constraint and be part of the total price of medical care. There are two reasons why this approach is not feasible here: (1) the value of the time of the person would need to be known to compute the time price, and (2) there would need to be an identifiable person who takes the child for medical care. Although the survey attempted to obtain information on the family member who usually accompanied the child to the caregiver, most households indicated that the responsibil-



ity was joint. Hence no value for time could be accurately ascribed to the visits observed. Moreover, the value of time is difficult to compute for women. Although the labor force participation of adult women was between 30 and 40 percent in this sample, depending on the season, few women worked in the wage sector.

By treating time costs outside the monetary budget constraint, the coefficients of time are allowed to pick up any travel costs. It is implicitly assumed that time costs do not reduce expenditures but rather come at the expense of leisure. Thus travel time enters the conditional utility functions as a separate argument.

## **Results**

### *Specification*

The provider choice model was estimated separately for males and females. The hypothesis that the two samples could be pooled into a single model was rejected at the .01 significance level in a likelihood ratio test. Coefficients were estimated separately by gender and are presented in Table 14.2. The standard errors were computed by applying the formula developed in Duncan (1987) to correct for the potential bias introduced through instrumenting for family incomes.

The values of  $\sigma$  in both models are between zero and one and are significantly different from both these numbers. This outcome indicates that the NMNL is preferred to the MNL, implying that households view the professional choices as closer substitutes for each other than for the self-care alternative.

The coefficients on the consumption and consumption squared terms are significantly different from zero, implying that the conditional utility function is concave in consumption. Prices enter through these terms, and it is the variation in prices that identifies these parameters. Price effects are negative over the relevant income range, and the price effects diminish with income. In addition, the negative coefficient on consumption squared indicates that families with more resources are more likely to seek medical care to treat their child's illness.

The coefficients on travel and waiting time are negative and significantly different from zero. The results are consistent with results from other countries such as Côte d'Ivoire (Dor, Gertler, and van der Gaag 1987) and Peru (Gertler, Locay, and Sanderson 1987).

Older boys received care more often, whereas care is age neutral in the model for girls. Children with more serious illnesses tended to receive more care in both models. Mother's education did not affect health care choice. This finding is plausible given the low level of education and lack of variation in the sample.

**TABLE 14.2** NMNL model of medical care provider choice, estimate coefficients, and *t*-statistics

Variable	Female children		Male children	
	Coefficient	<i>t</i> -Statistic	Coefficient	<i>t</i> -Statistic
Consumption	0.162	2.83	0.126	2.39
Consumption squared <sup>a</sup>	-0.148	2.71	-0.091	1.66
ln (travel time)	-0.209	2.85	-0.201	2.84
ln (waiting time)	-0.211	2.32	-0.326	2.69
Sigma	0.545	3.29	0.629	3.43
<i>Siani</i>				
Constant	2.350	5.88	3.050	6.03
Household size	-0.028	1.58	-0.022	1.22
Age	0.076	1.65	-0.035	0.63
Mother's education	0.062	0.19	-0.258	0.58
Days ill	0.168	8.75	0.221	9.71
Diarrhea	-0.706	4.96	-0.823	5.35
Cough	-1.655	5.22	-1.700	5.44
Flu	-1.573	6.16	-1.910	6.79
Fever	-1.905	9.93	-1.854	9.08
Height-for-age	0.003	1.18	-0.003	1.12
Government clinic				
Constant	2.956	5.96	2.928	5.46
Household size	-0.013	0.85	0.008	0.48
Age	0.110	2.07	0.039	0.71
Mother's education	-0.074	0.22	0.025	0.07
Days ill	0.174	8.91	1.217	9.01
Diarrhea	-0.808	4.32	-0.871	4.83
Cough	-1.830	5.36	-1.829	5.03
Flu	-1.785	6.26	-1.662	5.55
Fever	-1.629	7.91	-1.430	6.86
Height-for-age	-0.003	1.09	-0.005	-1.43
Pharmacist				
Constant	2.886	5.22	2.689	4.54
Household size	-0.043	1.71	0.007	0.30
Age	0.009	0.14	-0.037	0.50
Mother's education	-0.345	0.70	0.012	0.03
Days ill	0.165	5.10	0.266	13.75
Diarrhea	-0.788	4.09	-1.205	5.15
Cough	-1.247	2.75	-1.310	2.91
Flu	-0.942	2.36	-1.116	2.70
Fever	-1.116	3.78	-1.376	4.57
Height-for-age	-0.004	1.37	-0.008	1.75
Doctor				
Constant	3.762	5.77	4.124	5.62
Household size	-0.004	0.32	-0.016	0.99
Age	0.080	1.84	0.062	1.37
Mother's education	0.214	0.76	0.027	0.08
Days ill	0.201	15.28	0.256	15.88
Diarrhea	-0.824	5.57	-0.922	6.74
Cough	-1.819	6.03	-2.203	7.63
Flu	-1.973	7.54	-1.718	6.99
Fever	-1.575	9.30	-1.458	8.69
Height-for-age	-0.003	1.27	-0.004	1.46
Sample size	1,649		1,732	
Log likelihood	1,795.29		1,859.51	

NOTE: *Siani* refers to a traditional healer.

<sup>a</sup>Coefficients reflect scaling of consumption by dividing it by 10,000.

## Gender Differences

Owing to the nonlinear nature of the model, simulation is used to explore gender differences. All simulations are conducted holding constant the values of the explanatory variables at the population means, so that the gender comparisons reflect only differences in the coefficients of the two models. The simulation results are then used to derive the arc elasticities reported in Table 14.3. As expected, the price elasticity of demand for female care is more elastic than male demand at lower income levels. Furthermore, the difference disappears as income rises. In the lowest income group, the absolute value of the price elasticity for doctors is 58 percent larger for females than for males.

TABLE 14.3 Arc price elasticities by income and gender

Income	Price Range	<i>Stani</i>	Government		
			Clinic	Pharmacist	Doctor
Female children					
500	0-15	-0.28	-0.29	-0.30	-0.10
	15-30	-0.60	-0.60	-0.61	-0.25
	30-45	-0.91	-0.91	-0.93	-0.46
1,500	0-15	-0.24	-0.24	-0.25	-0.09
	15-30	-0.49	-0.49	-0.50	-0.20
	30-45	-0.75	-0.75	-0.76	-0.35
2,500	0-15	-0.19	-0.19	-0.19	-0.07
	15-30	-0.38	-0.38	-0.39	-0.15
	30-45	-0.58	-0.58	-0.59	-0.25
3,500	0-15	-0.13	-0.13	-0.14	-0.05
	15-30	-0.26	-0.27	-0.27	-0.10
	30-45	-0.40	-0.40	-0.41	-0.16
Male children					
500	0-15	-0.21	-0.21	-0.21	-0.07
	15-30	-0.43	-0.43	-0.44	-0.17
	30-45	-0.66	-0.66	-0.67	-0.29
1,500	0-15	-0.18	-0.18	-0.19	-0.06
	15-30	-0.37	-0.37	-0.38	-0.14
	30-45	-0.56	-0.57	-0.58	-0.24
2,500	0-15	-0.15	-0.15	-0.16	-0.05
	15-30	-0.31	-0.31	-0.32	-0.11
	30-45	-0.47	-0.47	-0.48	-0.19
3,500	0-15	-0.12	-0.12	-0.12	-0.04
	15-30	-0.24	-0.24	-0.25	-0.09
	30-45	-0.37	-0.37	-0.38	-0.14

NOTE: *Stani* refers to a traditional healer.

**TABLE 14.4** Arc income elasticities of demand by demand and gender

Income Range	Provider				
	<i>Siam</i>	Government Clinic	Pharmacist	Doctor	Self
Female children					
200–2,000	–0.17	–0.08	–0.16	0.15	–0.19
2,000–3,500	–0.27	–0.15	–0.26	0.20	–0.30
Male children					
500–2,000	–0.09	–0.05	–0.09	0.08	–0.12
2,000–3,500	–0.14	–0.08	–0.14	0.11	–0.19

NOTE. *Siam* refers to a traditional healer.

The corresponding percentage difference is only 14 percent for the highest income group. These comparisons pertain to the 30- to 45-rupee price range, a level that is consistent with doctors' average fee at the time of the survey.

The relative magnitude of price responsiveness for female and male children is similar for traditional healers and pharmacists as well as for clinics that the government provides. Households are more price responsive for these care providers. It is noteworthy that those health providers with the highest absolute values for price elasticities are sources of health care that are considered inferior, as indicated by the income elasticities reported in Table 14.4; for both females and males, the income elasticities are positive only for private doctor care.

Income elasticities are found to be uniformly larger in absolute value for females than for males. Higher-income households appear to be more responsive with changes of income than lower-income households. The model, however, does not predict how income elasticities change with income. Note that the discrete choice model used here exhausts all possibilities. If one choice has a positive income response, at least one other must have a negative response.

These simulations can be used to indicate the predicted probability of choosing each alternative by income level and gender at current average prices per care provider category (Table 14.5). Reading down a column represents how the probability of choosing a particular provider changes as income rises. Reading across a row gives the probability of choosing each provider for a given income class. Each row, therefore, sums to one. The results for females are presented in the upper panel of Table 14.5 and the results for males in the lower panel. Lower-income households seek care more often for males than for females.

More telling is the tendency to use high-quality providers (private doctors) more often for males than for females. Although the probability of a

**TABLE 14.5** Predicted probability of choosing a provider by income and gender

Income	Provider				
	<i>Siani</i>	Government Clinic	Pharmacist	Doctor	Self
Female children					
500	0.092	0.072	0.059	0.490	0.287
1,000	0.090	0.071	0.057	0.503	0.279
1,500	0.087	0.070	0.056	0.516	0.271
2,000	0.085	0.069	0.054	0.529	0.263
2,500	0.083	0.068	0.053	0.542	0.254
3,000	0.080	0.067	0.051	0.555	0.246
3,500	0.078	0.066	0.050	0.568	0.239
Male children					
500	0.077	0.063	0.044	0.544	0.272
1,000	0.077	0.063	0.043	0.551	0.267
1,500	0.075	0.062	0.043	0.558	0.262
2,000	0.073	0.062	0.042	0.566	0.257
2,500	0.072	0.061	0.042	0.573	0.252
3,000	0.071	0.061	0.041	0.580	0.247
3,500	0.070	0.060	0.040	0.588	0.242

NOTE. *Siani* refers to a traditional healer.

low-income household taking a son to the doctor is 0.054 higher than the probability of its taking a daughter,<sup>6</sup> the probability that only self-care is chosen for the daughter is only 0.015 higher. The remaining difference in the choice of health care provider is in the probability of choosing a provider considered less desirable. These differences disappear as income rises.

Although the differences in health care choice indicated in this table are not dramatic, they pertain to an environment in which the price of health care is low. Moreover, most of the illness incidents from which this estimation is derived are the general day-to-day ailments to which children are susceptible. Cases that are life-threatening often require more expensive hospitalization. The comparatively high price for these treatments may lead to a greater magnitude of gender discrimination and possibly fatal delays in seeking care.

## Summary

In this chapter we have examined how gender differences in human capital investments vary across families with different levels of resources. It

6. The probability for the male is 111 percent of that for the female.

has been demonstrated theoretically that the demand for a daughter's human capital will be more income and price elastic under the same conditions that would lead to higher investments in the human capital of males. Moreover, we have found that differences in price elasticities disappear as family resources rise. These results are robust in that they appear in various models that explain differential rates of human capital investment—that is, when the reason for discrimination involves market incentives, parental preferences, or cultural differences in intergenerational transfers. Empirical support for these hypotheses was found in the demand for children's medical care in rural Pakistan. Finally, as indicated previously, the conditional estimates here are lower-bound estimates of long-run responses. Whereas the illustration is based on a specific form of human capital investment, the model is general; the differences in investments observed should apply to other investments, such as education, as well as forms of investments that are difficult to measure, such as child care.

The results imply that general economic growth will assist in reducing differences in investment in human capital for males and females. Existing cross-sectional studies have not found a strong negative correlation between levels of economic development and apparent discrimination (Dyson and Moore 1983; Kynch and Sen 1983; Bardhan 1984; Murthi, Guio, and Drèze 1995). However, this may reflect preexisting differences in the parameters that indicate propensity to remit, marginal returns to human capital investments, or preferences, as well as secular trends in the parameters. Regional differences, then, should not be considered a test of the proposition that gender discrimination declines with income.

Only a limited set of policy instruments can be used to influence household resource allocation. These results indicate that price policy has the potential to reduce gender biases in human capital investment. Moreover, price responsiveness is higher among lower-income households, in which the gender-specific price elasticities are also predicted to have relatively larger differences in absolute value. The theoretical and empirical results indicate a potential, relatively noninvasive, role for policy intervention.

# **15 Gender Asymmetries in Intrahousehold Resource Allocation in Sub-Saharan Africa: Some Policy Implications for Land and Labor Productivity**

JENNIE DEY ABBAS

Declining per capita food and agricultural production in most Sub-Saharan African countries is a source of concern among governments and the international community. The annual growth rate of per capita agricultural production for the region fell from 0.5 percent in the 1961–70 period to –1.8 percent and –0.2 percent in the 1970–80 and 1980–94 periods, respectively (FAO 1995). If Africa is to provide adequate food and employment for its growing population, it must expand agricultural production by at least 4 percent a year. To date, with the exception of hybrid maize, most of the growth in production has been due to expansion of cultivated area rather than increases in yield. Opportunities for further expansion in area are negligible in a number of land-scarce countries such as Burundi, Kenya, Malawi, and Rwanda, where rapidly increasing population densities are leading to land-resource mining and environmental degradation. Even in countries with unexploited land resources, such as Zaire, expansion of cultivated area is an insufficient means for arresting falling per capita food production. Production increases will therefore require a dramatic improvement in productivity of the order of 1–2 percent annually for labor and about 3 percent for land (see, for example, World Bank [1989b]).

Strategies for increasing productivity—whether farmer-instigated or stimulated by “outsiders”—have generally included one or more of the following:

1. modification of existing farming practices for traditional crops through the introduction of improved production inputs, such as higher-yielding seed varieties, fertilizers, and pesticides, often in conjunction with soil conservation measures and new cultural practices;
2. radical changes in crop production technologies involving the development of irrigation infrastructure and the introduction of more advanced, integrated-technology packages (especially for rice and vegetables);
3. (partial) substitution of traditional food or cash crops by higher-value (often new) cash crops, such as cocoa, tobacco, coffee, and tea; and

#### 4. development of more integrated crop-livestock-forestry-fishery systems.

Because women produce 50 percent or more of agricultural output in many Sub-Saharan countries, particularly in eastern and southern Africa, where they manage 20–40 percent of the farms, failure to optimize women's uptake of opportunities for agricultural intensification will have enormous repercussions in aggregate terms on national production and income. In this chapter I analyze gender-differentiated responses to agricultural intensification strategies and discuss the implications of gender for public policy, in order to contribute to the efforts to improve the effectiveness of development assistance to women farmers.

### **Intrahousehold Gender Asymmetries**

Gender asymmetries in intrahousehold resource allocation limit women's ability to adopt productivity-enhancing technologies in three ways.<sup>1</sup> First, women generally obtain rights to use land for household and personal crops through men.<sup>2</sup> Women's rights are not as strong as men's, and they often experience tenure insecurity, particularly if widowed or divorced. Second, women commonly have obligations to provide labor for male-controlled household (and sometimes personal) fields; these obligations often take precedence over women's rights to engage in own-account farming or other income-generating activities. Third, although in theory women generally have the right to dispose of the product and income from their own-account economic activities, in practice they may have relatively little freedom to reinvest their income in productivity-enhancing inputs or labor-saving equipment.

Women's rights to specific productive resources can and do change over time. Furthermore, there may be large differences in the quantity and quality of resources controlled by women within a single community, depending on their socioeconomic class. However, whatever women's socioeconomic status, their rights are generally inferior to those of the men in their households. Subtle social mechanisms and ideologies play an important role in justifying unequal gender relations within the household and the community, and these are further reinforced by policy and institutional biases against women's access to new technologies, inputs, and services, particularly credit and extension.

### **Labor Productivity**

Since land has, until recently, been in relatively ample supply, the main concern of most Sub-Saharan farming systems has been to maximize returns

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1. See, for example, Guyer (1981, 1986), Sen (1985c), Lele (1986), Cloud and Knowles (1988), Roberts (1988, 1991), Dey (1990), and Whitehead (1990a).

2. Instances have been documented of women owning land (Dey 1980; Cloud and Knowles 1988) and cocoa plantations (Afonja 1986), but this observation tends to apply to relatively small areas.



on labor. The most striking areas of gender asymmetry or conflict or both in intrahousehold and community resource allocation, therefore, tend to revolve around control of household labor as well as access to supplementary non-household labor. The four issues discussed in this section indicate the complex ways in which these gender asymmetries have often prevented women (and their families) from realizing the full potential labor productivity gains expected from agricultural intensification programs.

*Gender Asymmetries in the Adoption of Productivity-Enhancing Technologies or Higher-Value Crops*

Weaker rights to land, labor, and the income from their own production often prevent women from taking advantage of new productivity-enhancing technologies or higher-value crops. The SEMRY rice project in Cameroon, for example, failed to attract married women as own-account rice producers. Because rice was considered a male crop, women could not have controlled the income resulting from rice production, even if they produced the crop. Women therefore preferred to grow sorghum, despite less advanced technologies and lower returns on their labor, because they controlled the product (Jones 1986).

The underlying dynamics are not simply due to intrahousehold gender inequalities, because female-headed households<sup>3</sup> are often at a serious disadvantage compared with male-headed households in adopting technologies that enhance labor productivity. In Kenya, for instance, where women do most of the work in tea production, female-headed households were only half as likely as male-headed households to adopt tea (the most remunerative cash crop). Bevan, Collier, and Gunning (1989) note that, since about one-third of rural households are female-headed, the impact of this lower propensity to adopt tea is substantial in aggregate terms.

These authors, however, do not explore the underlying reasons for their interesting results. It is clear that labor shortages in female-headed households play a major role. Because 25 percent of married women in rural areas are in polygamous unions (World Bank 1989a), it is likely that female-headed households are smaller in size and are unable to allocate scarce labor to cash crops. Bevan, Collier, and Gunning (1989) also suggest that the absence of a wage labor force precludes the recruitment of nonfamily labor by labor-scarce female- (or male-) headed households. Another possible clue to explain these results is given by the authors' finding that land endowment was a significant influence on tea adoption. Women's inferior access to land could be a constraint on opportunities to plant tea. Other explanatory factors might include

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3. Unfortunately, none of the studies cited in this chapter, except those of Jones (1985, 1986), differentiates between female-headed households in which the adult male members are migrant workers, and therefore temporarily absent, and households that are headed by women who are divorced, separated, or widowed. The former category of household is likely to have better access to production resources (including cash to hire labor) than the latter.

gender inequalities in access to education, extension, and credit or capital for the initial investment, as well as gender segregation of informal information networks that promote the spread, *inter alia*, of new agricultural technologies.

The complex socioeconomic factors affecting women's response to new opportunities for agricultural intensification were explored in some detail in a survey of 160 households (of which 26 [16 percent] were female-headed) in the area of Malawi covered by the Lilongwe Land Development Program (Chipande 1987). None of the female-headed households adopted one of the program's main innovations, an improved technology package for fire-cured tobacco; only two took up the second innovation, improved (mainly hybrid) maize. Labor-deficient households (which included all those headed by women) were unwilling to take on these technology packages despite the inducement of credit and extension, because of the risk of poor yields and defaulting on credit repayments. Female-headed households preferred to grow groundnuts, although these required more labor per hectare and gave lower returns on labor than tobacco and maize. Further analysis, moreover, revealed that (1) labor demand for tobacco was far beyond the labor supply of female-headed households; (2) hybrid maize required a greater outlay in inputs and was more risky than groundnuts (factors that weighed heavily with female-headed households, which were significantly poorer than male-headed households); and (3) although the labor input for groundnuts was roughly double that for maize, the labor demand was spread more evenly. Constrained by heavy domestic commitments, female-household heads preferred to minimize peak labor demands and grow a crop with greater labor flexibility than hybrid maize, which has time-specific operations.

#### *Agricultural Technology Change and Loss of Female Control of Production*

New technologies introduced to improve productivity on female-controlled crops or land have generally been taken over by men if they brought greater returns than the men's own crops. As a result, women tend to be confined to crops with less advanced technologies and lower returns on labor. The most striking example so far reported concerns The Gambia. Women traditionally had almost exclusive responsibility for rainfed and swamp rice production. But they were largely excluded from control of new rice technologies, which were introduced along with small-scale irrigated rice schemes in the 1970s and a large-scale pump irrigation project owned and managed by the state in the Jahali-Pacharr area in the 1980s.<sup>4</sup> Women lost well-established use and ownership rights to rice land when it was developed for irrigation, although the tenancy titles issued by the government were registered in women's

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4. For the 1970s, see Dey (1980, 1981); for the Jahali-Pacharr project, see, for example, Carney (1988b), von Braun, Puetz, and Webb (1989), von Braun and Webb (1989), and Webb (1989).

names. As a result rice went from being a crop under female management and control to a household crop under the control of the male household head.<sup>5</sup> Men gained greater control over female labor, as women were obligated to work on (nonpersonal) household, male-controlled crops. In the case of the Jahali-Pacharr project, this resulted in an increase in communal agricultural work for *both* men and women. The increase, however, was relatively greater for women than for men (von Braun and Webb 1989).

The incentives for men to take control of the irrigated rice technology were strong, because the returns on labor were considerably higher than for any other crop. As a result of the irrigation scheme, women were not only prevented from producing the crop with the highest returns on labor but also shifted off the best rice land, on which their labor productivity had been highest.

Women did not readily acquiesce to the loss of their rice land. Their struggles were, however, thwarted by the project management's support for the male household heads' efforts to assert control over the land and technology for household production, despite attempts by the main donor to protect women's traditional rights (Carney 1988b). Women were, nonetheless, insistent on exercising their rights to engage in own-account production: since there was little, if any, uncultivated swamp rice land available, they generally borrowed upland fields, mainly for groundnut and, to a lesser extent, cotton production.

That women adopt strategies to protect their rights to engage in own-account farming and other income-generating activities—despite attempts by development projects to increase the production of household units under male control—is further confirmed by the Mwea settlement scheme in Kenya (Hanger and Moris 1973) and the Volta Valley resettlement project in Burkina Faso (McMillan 1987). Both projects provided land and technology packages for communally cultivated household crops. No consideration was given to women's rights to private fields nor their active role in animal husbandry and trade. As a result, men gained more control over women's activities.

In Mwea, some women managed to borrow land off the scheme to grow beans and vegetables and increased their beer-brewing activities and black market transactions in rice (which, under the tenancy regulations, was to be sold to the scheme). In Burkina Faso, most women had succeeded within a few years in establishing private grain fields (largely off the scheme); several of the older women had built up goat herds and two owned cattle. It is significant that the only crop on which the recommended technology package was consistently applied was the male-controlled household cotton crop—largely because of the extension service's more intensive supervision of cotton, which was used to reimburse settlers' loans.

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5. Women are rarely household heads in rural areas of The Gambia. Unmarried, divorced, or widowed women are absorbed into extended and frequently polygamous male-headed households.

*Gender Differences in Labor Productivity for the Same Crop and Technology*

A number of studies suggest that women often have lower average labor productivity levels than men for the same crop and broad level of technology. Unequal endowments in land, which are well documented in the anthropological literature, are clearly a major causal factor. However, there do not appear to be any studies that show a direct, quantitative link between land endowment and labor productivity, except that by Jackson (1985, cited in Palmer 1991), who notes that women in the Kano River irrigation project area in Nigeria obtained lower yields because they were allocated inferior land. This land was also more fragmented or farther away from the village, thus forcing women to forego productive labor time in walking greater distances.

Saito and Weidemann (1990) indicate that institutional biases against women's access to extension, inputs, and credit, and their generally lower educational levels, militate against their adoption of productivity-enhancing technologies. Moock (1976) found that when female farm managers in the Vihiga Division of Western Kenya enjoyed the same access as men to extension, production inputs, and education, their maize yields were nearly 7 percent higher than those of men. He noted that "women are generally more competent than men in Vihiga as farm managers, which is to say that women produce more output, on average, from a given package of maize inputs" (Moock 1973, cited in Palmer 1991).

A number of studies have considered the production implications of gender differences in labor endowments. Ram and Singh (1988) found that female agricultural labor in the Mossi plateau of Burkina Faso was six times more productive in farming than male labor. Although they were unable to control for men's and women's different endowments, they conjectured that women's significantly younger age and competition between co-wives could partly explain the differences in productivity.

Most of the evidence, however, suggests that women suffer greater labor constraints than men. Smock (1981) reviews evidence indicating that women's lower energy levels, sapped by successive pregnancies and the constant demands of domestic chores and child-care responsibilities, contribute to lower productivity levels.

In Nigeria (Palmer 1991) and Ghana (FAO 1991), women's obligation to attend first to the household or their husbands' fields meant that they were unable to carry out crucial operations on their own fields at the optimum time and were sometimes forced to leave tasks unfinished. In Burkina Faso, women were customarily allowed one day out of every five to tend to their personal fields. However, if men required extra labor for household or their own fields, they could "even take this day from the women" (van Koppen 1990:3).

Von Braun and Webb (1989) found women's average labor productivity in the Jahali-Pacharr area of The Gambia to be lower than men's for the same crops and level of technology. They suggested that this difference could be partly explained by women's reduced access to labor-saving implements and the fact that women generally cultivated smaller plots of land, causing diseconomies of scale. They attributed these circumstances to women's time constraints.

Their data indicate that it is not that female labor per se is less productive, but that the total labor input, consisting of both male and female labor, on female-controlled fields is less productive than that on male-controlled fields (see also Dey 1980).

Probably the most important factor is women's inferior access to labor. Household heads, especially males, have considerably greater financial resources and social influence to recruit, for both household and personal crops, the extra nonhousehold labor needed to increase the area under cultivation and to perform operations at the optimum time in order to maximize yields. They are better placed to hire labor in the casual wage labor market and to take advantage of traditional labor arrangements. For instance, they are able to hire the labor of *kafo* (that is, age-grade groups), which can number as many as 40–60 persons. Similarly, since they control land allocation and household food stores, they effectively control recruitment of "strange farmers" (seasonal labor migrants), who work on their host's fields for three to four days a week in exchange for food and lodging and a plot of land on which to cultivate a personal cash crop.<sup>6</sup> Since women are rarely able to hire labor,<sup>7</sup> they tend to rely more on reciprocal labor exchange<sup>8</sup>—mainly based on kinship and friendship bonds with other women—not to extend the area under cultivation, but to deal with labor peaks.

Von Braun and Webb's findings could also be affected by gender differentials in skill endowments and access to extension. Their data are not disaggregated

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6. Poor households without adequate land and food to support one or more extra persons during the cultivation season are unable to afford such labor, thus perpetuating socioeconomic stratification between households.

7. Several *kafos* harvesting women's rice crops in 1977–78 were observed. In all cases, the women were ill or pregnant, and, since the crops were for household consumption, the expenses were met by their husbands (Dey 1980).

8. Where labor for personal fields is not reciprocated through labor exchange, it is generally compensated for after harvest through the gift of cloth, part of the crop, or cash payments. Such compensation generally flows from men to women, since men have greater claims on female labor. Similar transactions have been noted in other West African countries, for example, Burkina Faso (McMillan 1987), Cameroon (Jones 1986), Guinea Bissau (Funk 1988), Nigeria (Burfisher and Horenstein 1985; Babalola and Dennis 1988), and Sierra Leone (Leach 1991). It is generally observed that women regard their work for their husbands as an "obligation," whereas any assistance provided by husbands for their wives' personal fields is regarded as "help," that is, voluntary assistance.

for different ethnic groups, but it is possible that the gender productivity differentials for upland crops were biased by the performance of Mandinka women, who were not accustomed to growing upland crops before they lost their rice land. In view of individual responsibility for personal fields and the lack of extension support for women farmers in this area, it is not surprising that these women have not acquired the same skill levels as men.

Women's inconsistent productivity in traditional swamp rice is, however, difficult to explain, since this is traditionally a female crop. The considerable variations in average land and labor productivity (Dey 1980) may be due to the fact that men's fields were in the more productive swamps and they enjoyed greater and more timely access to labor or ploughing services or both.

In her study of a mixed livestock-crop farming system among the Tswana in an area of unpredictable rainfall in Botswana, P. E. Peters (1986) attributed gender differences in labor productivity for the staple crops of sorghum and maize to timely ploughing and planting. The timeliness of these operations depended crucially on access to *both* draught animals and male labor. Households composed only of women and children were smaller and poorer than others and generally owned few, if any, animals. Cattleless male- and female-headed households had access to ploughing-planting services through a variety of nonmarket relations (based on kinship, affinity, coresidence, friendship, or patron-client relations), generally in exchange for providing labor on the lenders' fields. Borrowers achieved lower output and productivity levels, because their fields were ploughed after those of the cattle owners. Citing Fortmann (1983), Peters also noted that female-headed, cattle-owning households ploughed even later than the cattleless households. Substantial male outmigration, attracted by high wage rates prevailing elsewhere, meant there was no male wage labor market in this area. As a result, these cattle-owning female household heads were unable to hire male labor for ploughing and planting and depended on assistance from male relatives, whose first priority was their own fields.

Feldstein and Poats (1990) also pointed to the lack of draught power and labor as major constraints on productivity in female- as compared with male-headed households in Zambia. Households without the resources to hire draught animals had to resort to more time-consuming land preparation by hand, whereas those hiring oxen had to wait until the owners had ploughed their own fields. In both cases, households encountered serious labor bottlenecks at planting time, which led to other productivity-reducing practices, such as broadcasting of sorghum seed instead of planting seeds spaced in furrows.

Furthermore, female-headed households cultivated smaller areas and were less able to benefit from economies of scale. They were also much less likely, as a result of poverty, to purchase maize seed and use fertilizer on maize: 33 percent purchased seed and 56.8 percent used fertilizer, compared with 81 percent and 88 percent, respectively, for men.

*Intrahousehold Cooperation and Conflict:  
Implications for Labor Allocative Efficiency*

Evidence suggests that gender asymmetries in access to household resources and the control of crop and livestock products may lead to conflicts of interest between men and women regarding adoption of productivity-enhancing technologies or higher-value crops. Such conflicts may result in inefficiencies in the household allocation of labor, with a corresponding failure to maximize agricultural intensification.

A particularly striking illustration of intrahousehold conflicts over labor allocation is in the SEMRY project in Cameroon (Jones 1985, 1986). Prior to the project, men and women allocated most of their agricultural labor to sorghum production, with each individual responsible for his or her own fields, with little exchange of labor. In contrast to many other farming systems in Sub-Saharan Africa, women had a minimal obligation to work for their husbands: 95 percent of the time women spent cultivating sorghum was on their own fields. Thus, in order to secure female labor needed for the more complex irrigated rice production system, men were forced to compensate their wives with paddy or cash after the sale of the crop. The average rate of compensation proved to be considerably lower than the average returns on labor from rice cultivation and less than the average rates paid to wage laborers transplanting, weeding, or harvesting rice.

Jones (1986) estimated that of an average female labor contribution of about CFA 31,200, husbands paid about CFA 16,900 in compensation. Nonetheless it seems that "the quantity of sorghum which households forwent on account of rice is more than compensated for, in grain equivalents, by the quantity of paddy retained" and that "the cash women receive from their husbands represents a real increase in their income" (Jones 1986:113). Yet, despite this, she found that many married women allocated less time to rice production than "independent" women (without husbands) and that the time devoted to rice increased with the level of compensation received. Women who received less than the average rate of compensation generally spent more time working as hired labor the following year and less time on their husbands' fields. She also noted (Jones 1985) that the more allocatively efficient households appeared to be those in which wives could exert more pressure in a bargaining situation: senior wives in polygamous households and women whose husbands still owed bride wealth payments to the wives' families (the wives' labor was needed to help accumulate the income to complete these payments).

Similar conflicts and trade-offs have been noted in other instances (Burfisher and Horenstein 1985; McMillan 1987; Carney 1988b; Leach 1991; Cleaver and Schreiber 1994). In the Jahali-Pacharr project in The Gambia, women were compensated for their labor in cash or kind, but at a rate considerably

below the actual returns on their labor. Average daily payments for their work on the irrigated rice were roughly equivalent to their labor productivity on their least remunerative cash crop, cotton (US\$0.33 per day), despite returns of US\$2.32 per day for the rice (von Braun and Webb 1989). Carney (1988b) also observed differences in levels of remuneration between the various ethnic groups participating in the scheme: rates were lower in the Mandinka villages, where women had few alternative sources of income.

Gender conflicts of interest also emerged in research trials in Zambia (Feldstein and Poats 1990). These were conducted to test the intercropping of beans (a female crop) with maize (predominantly a male crop) in fields prepared by tractor or oxen, with a view to saving female labor expended on land preparation, increasing the area under beans, and raising bean yields with fertilizer applied to maize. Although intercropping of beans in the same row or hill with maize led to an increase in bean yields (with no negative effect on maize yields), female farmers were reluctant to adopt the practice since, by intercropping with maize, beans would become a male crop, primarily for cash rather than for use as a relish.

Conflicts also surfaced in village discussions of trial results on farmers' fields of a high-yielding maize variety. Male farmers were very excited by a variety that out-yielded the most commonly cultivated variety and had a number of "agronomic advantages, such as a short maturity period, a short stem enabling easy harvesting by hand, resistance to common maize diseases such as cob rot, and hard kernels, which made it resistant to weevils during storage" (Feldstein and Poats 1990:246). However, women were not happy, since the hard kernels would require longer time for pounding or greater cash expenditure for machine grinding (Feldstein and Poats 1990). Unfortunately, no indication is given of whether or not farmers have subsequently adopted this variety.

## **Land Productivity**

In this section I discuss ways in which the success of public policies and programs, designed to increase land productivity and reduce environmental degradation as population pressure on land grows, is affected by intra- and interhousehold resource allocation.

### *Land Productivity under Environmentally Sustainable Conditions*

Few quantitative studies have investigated the relationship between land productivity and intra- and interhousehold resource allocation. Evidence from Ghana (Bukh 1977) indicates that lack of male labor for clearing dense vegetation led to longer cropping rotations on land that needed fallowing after one to three years. Women were also overcropping land covered with light secondary bush, which they could clear themselves. In areas of high population density,



the Guinea Savanna Zone of northern Ghana (FAO 1991), women were usually allocated only land that had already been cultivated for two or three years and that should then have been fallowed. Women practiced a reduced tillage system on this land by planting on the old ridges and minimally disturbing the soil. The inability to make new ridges was attributed to labor shortages. In both cases, reduced fallows led to declining fertility and yields.

Women tend to be pushed onto more marginal land for their own crops when men expand their operations in response to market incentives or government programs that introduce land conservation and water control measures and improved production technologies (Cleaver and Schreiber 1994). Even in cases in which both men and women cultivate marginal land and improved, environmentally sustainable technologies are available for such conditions, women might not have access to these technologies for a number of reasons. They may not have the cash or labor—particularly if they cultivate household food crops or small plots of low-return cash crops—to purchase inputs, such as fertilizers, that enhance land productivity, or to adopt environmentally sound practices, such as alley cropping or terracing. Lack of tenure security is a further disincentive to adopting practices on which the investment may not be recouped for some years. In some areas, women do not have the right to plant trees and are therefore unable to take advantage of either the soil conservation benefits of tree cropping or the possibility of increasing productivity through the use of high-value (often multipurpose) trees (Bruce 1989b). In some cases in which women have reasonable security of tenure, they nevertheless cannot undertake land improvements without first consulting the male head of the clan (FAO 1991). Finally, women's access to improved technologies for enhancing land conservation and land productivity may be seriously constrained by institutional biases in the provision of extension and credit.

Evidence suggests that when development programs ensure tenure security and equitable access to improved technologies, there are likely to be limited, if any, differences in land productivity between men and women. In the SEMRY rice project in Cameroon, for instance, land productivity for independent women's households was 4,270 kilograms per hectare compared with 4,330 kilograms per hectare for male-headed households (Jones 1986).

Attempts to encourage the adoption of long-term land improvement and conservation practices could also be thwarted by possible conflicts of interest within the household. For instance, fallows can be enhanced by sowing a legume after harvest. Subsequently, the new crop would be planted into a mulch of the leaves and small branches of the legume. This practice would, however, require considerably more labor than the traditional slash-and-burn system. The willingness of households to adopt this practice would depend not only on the supply of household and nonhousehold labor but also on whether women felt obliged or encouraged to allocate more labor to male-controlled land and crops (FAO 1991).

*Land Titling and Land Productivity*

Secure rights to land are essential if the cultivation of perennial crops, adoption of sustainable management practices, and financing of land improvements are to be carried out. However, it is frequently assumed that customary land tenure fails to provide adequate security and, by prohibiting land transfers through sale, discourages efficient land management. The perceived solution is land registration and titling. In addition to enhancing security, this practice is assumed to increase productivity by promoting the development of legal land markets. Land access would be determined by supply and demand factors and entrepreneurial ability, and by the development of rural credit markets, since land could be used as collateral.

The promotion of such land titling throughout Africa should be viewed with considerable concern, not only because of the enormous costs involved in administration but also because there is evidence of the regressive effect of titling on women's productivity and access to land. The spread of land sales, encouraged by titling, has reduced women's land security in Kenya; cases have been recorded of men selling land registered in their names, leaving their mothers destitute (Green 1987; Davison 1988). Women in settlement schemes in Zimbabwe were vulnerable to eviction upon divorce or the death of their husbands (Pankhurst and Jacobs 1988). Titling has also reduced women's ability to exchange plots in order to gain access to several plots in different agroecological environments as a strategy for distributing labor and enhancing its productivity (Green 1987).

Furthermore, titling is often not essential for either tenure security or productivity increases. Sub-Saharan customary land rights systems provide security to the cultivators and their descendants. These systems have successfully adapted to population increases and commercialization through privatization of communal rights, including land sales. Land purchases are becoming more common in a number of countries, such as Ghana, Niger, Rwanda, and Kenya. Using cross-sectional data for some rainfed cropping areas in Ghana, Kenya, and Rwanda in 1987–88, Migot-Adhola et al. (1991) found that, controlling for differences in land quality and household characteristics, there was no relationship between cross-sectional variations in land rights and productivity. The study also indicated that land titling was not sufficient for increasing access to formal credit. In Kenya—despite its 30-year-long experience with land registration—land served little value as collateral, since customary control over land transfer persisted despite the government land registration and titling program, and land transfers to outsiders through sale (or foreclosure) were not always recognized as legitimate. Limited use of formal credit in all three countries was due to weak rural credit markets rather than lack of collateral.

These findings confirmed the results of a survey carried out in the early 1980s in the Kenyan Highlands (Odingo 1989). The possession of title deeds appeared to have no effect on farmers' willingness to make long-term investments in the land or to increase labor productivity through the purchase of farm machinery or improved inputs. Since farming is risky, farmers were averse to using their titles as collateral for bank loans for fear of losing their land. Only a small minority of farmers who had obtained credit had used commercial banks. Furthermore, commercial banks were beginning to demand additional collateral before making loans to farmers.

Nevertheless, titling programs could play a useful role in safeguarding land access by vulnerable groups, especially women. Such programs could protect women's access to land through joint husband-wife titles or by ensuring widows' inheritance of their husbands' titles. In addition, more innovative programs to enhance women's access to credit by developing nonland forms of collateral (such as group guarantees and future crops) are needed.

### **Concluding Observations: Some Policy Implications**

The studies discussed thus far raise both equity and efficiency issues. With regard to equity, agricultural institutions and laws governing land ownership and inheritance rights still tend to discriminate against women. In a number of cases, development interventions designed to promote agricultural intensification have led to an erosion or loss of women's traditional land rights and personal income while increasing male control of female labor. This outcome points to the need for gender-sensitive policy and project design to prevent the introduction of new forms of exploitation of women, ensure their access to modern productive resources and technologies, and protect their traditional rights in agriculture.

Efficiency issues play a central role in determining policy priorities for allocating resources that promote agricultural intensification and ensure sustainable, environmentally sound development. Given the substantial contribution of women to agricultural production in most Sub-Saharan countries, it is vital to ensure that they have the opportunities and incentives to respond to agricultural productivity-enhancing policies and strategies. In some countries, gender roles in agriculture and their associated rights and responsibilities are often sufficiently flexible to adapt to new opportunities and incentives. In other countries, gender asymmetries in intrahousehold resource allocation constrain women (and sometimes their husbands) from taking full advantage of productivity-enhancing technologies. A particular problem is women's more limited control over the amount and timing of labor on their fields. Women's overriding obligations to work on male-controlled crops often mean that they cannot attend to their own crops at the optimum time. Since they rarely own or

operate animal-drawn or mechanical equipment, they usually receive these services from men after the latter have tended their own fields, with a correspondingly negative effect on yields. Because of their regular domestic commitments, women are much less able than men to handle agricultural labor peaks that might require very long hours for relatively short periods of time. And they are often unable to hire help to overcome labor bottlenecks because of their lower income levels and inferior access to nonmarket, nonhousehold labor. Where women have been able to defend their rights to cultivate personal crops (for example, in the SEMRY project in Cameroon), inefficiencies in the allocation of male and female household agricultural labor have arisen.

Despite the difficulty of intervening directly in intrahousehold resource allocation, policymakers can nonetheless make an important contribution to raising women's productivity in the following ways:

1. Ensuring that supporting institutions provide unbiased access for men and women to improved inputs (including credit), extension, and general education, and that a legal framework is in place to protect women's rights to and inheritance of land and other productive assets.
2. Promoting research on crops grown by women and, within the context of general farming systems research, taking better account of gender differences in the timing and amount of labor supply and access to labor-saving equipment.
3. Training women in the use of animal-drawn and mechanical equipment and new production technologies, and providing credit to enable them to purchase such equipment as well as productivity-increasing inputs.
4. Ensuring women's equal rights in land titling programs in areas of customary tenure and settlement or irrigation schemes, perhaps through the issuance of joint husband-wife titles.
5. Stimulating the development of formal and informal credit markets that use collateral other than land.
6. Promoting effective private-sector involvement in the distribution of production inputs, a strategy that is likely to be advantageous to small farmers and particularly women, since market-oriented organizations rarely exhibit the gender biases of statal or parastatal institutions.

Finally, there is a need for researchers and policymakers to explore the role of socioeconomic class and marital status in determining women's access to land, labor, draught animals and farm equipment, and educational attainment, and the implications of such access for women's land and labor productivity. Women in richer families have access to larger land areas (often with ownership rights) and are better placed to take advantage of agricultural intensification programs. Agricultural policies and intensification programs will almost certainly need more fine tuning to target poor women farmers, particularly those heading households with no male support.

## 16 Gender Coalitions: Extrafamily Influences on Intrafamily Inequality

NANCY FOLBRE

Over the past ten years, the microeconomics of the household has experienced a paradigmatic transformation. It is no longer acceptable to ignore inequalities of power and welfare among household members, or to assume that the household itself can be treated as an undifferentiated optimizing unit. Though no paradigmatic shift can be settled once and for all by a barrage of evidence, the burden of proof has been shifted to those who stand by the conventional assumption of familial altruism (Kuhn 1974; Alderman et al. 1995; Hart 1995). Today the microeconomics of household bargaining seems better developed than the macroeconomics of gender- and age-based inequalities. Many economists are modeling the consequences of differences in bargaining power, but few are exploring the causes.

This imbalance is evident in policy discussions. Evidence of gender bias in development planning has been accumulating for decades (Moser 1993; Kabeer 1994). The specific ways in which intrahousehold inequalities can limit and distort public policies have been carefully explained (Haddad and Kanbur 1992; Alderman, Haddad, and Hoddinott, Chapter 17, this volume). But there has been remarkably little discussion of *why* certain policies have been biased not only against women but also against equality in the household. Policymakers themselves are often described as if they were benevolent heads of that larger household known as the state.

In this chapter I argue that it is important to analyze the ways in which gender coalitions seek to influence institutions that affect intrafamily allocation. Individuals do not restrict their pursuit of self-interest to bargaining on the microeconomic level. They also seek to influence public policies and social norms, engaging in forms of collective action designed to protect and advance their position in the family as well as the labor market.

## **Family Bargaining**

The basic hypothesis underlying a bargaining power approach to the family is that there is likely to be a positive relationship among an individual's power, his or her influence on family decisionmaking, and his or her share of family resources (including leisure time). This hypothesis does not imply a complete absence of altruism or positively interdependent preferences in the household. It does, however, imply that self-interest also plays a significant role there (Folbre 1986). Family members may be committed to meeting one another's basic needs but still bargain over allocation within a certain range (Stark 1995). Two questions are of obvious importance: what exactly defines the "power" of family members, and just how self-interested are they?

Economists, not surprisingly, tend to answer these questions in economic ways. They generally define power in terms of fallback positions, the alternatives available to individuals should they withdraw their family commitments. Yet they devote little attention to how these fallback positions are determined. Similarly, economists generally assume that preferences determining levels of altruism in the family are exogenously given, without asking why they may vary among individuals or change over time. A more interdisciplinary approach to bargaining is less precise but also more ambitious, because it considers the possibility that individuals engage in forms of collective action designed to protect their individual bargaining power.

Before reviewing recent research that illustrates this point, I should explain why I emphasize family rather than household allocation. Both legal rules and implicit contracts pertain primarily to familial relationships rather than to coresidents in a particular physical location. A focus on households is convenient for some purposes, but it threatens to distract from the significant impact of changing family and household boundaries, such as increases in the percentage of families maintained by mothers alone. These families typically suffer from low intrafamily, rather than unequal intrahousehold, income flows. A focus on families also helps accommodate life-cycle rhythms. Since mothers generally invest more time (and often more money) in children than fathers do, the size and reliability of future "paybacks" from nonresident children are especially relevant to their welfare (Bruce, Lloyd, and Leonard 1995).

### *Social Institutions and Fallback Positions*

Economists, almost by definition, focus on wealth and income rather than on social identity. The Nash bargaining approach to modeling relations between husbands and wives, first developed in the early 1980s, defined fallback positions in terms of the utility that individuals would enjoy upon exiting the marriage, largely a function of their relative incomes as single persons (Manser and Brown 1980; McElroy and Horney 1981). Discussion of Becker's "rotten kid" brought to light the importance of the family altruist's control over family

assets (Hirshleifer 1977). In both cases, measurable bargaining power is largely a function of stocks of human and nonhuman capital and potential rates of return on them, and it is not significantly affected by the social identity of the bargainer. That Becker assumes that the family altruist is the father and the selfish family member is the “rotten kid” is incidental to his exposition.

Similarly, most empirical challenges to the unitary household hypothesis focus on wealth and income effects. They show, for instance, that some types of income have different effects on consumption or fertility decisions if contributed by a wife than if contributed by a husband (Schultz 1990; Thomas 1990; Browning et al. 1994). The results are quantitatively precise, though they suffer from econometric shortcomings and are inevitably limited by their static, cross-sectional nature (Pitt, Rosenzweig, and Hassan 1990; Behrman 1996). In general, such estimates offer a critique of, rather than an alternative to, the unitary model (Bourguignon and Chiappori 1992). A major problem is that measurable wealth and income are probably poor approximations of actual fallback positions.

The disposable income that an individual will enjoy upon exiting a marriage depends, among other things, on the distribution of the responsibilities and costs of caring for children, the extent of public transfers, and the probability of enjoying a share of another person’s income stream through remarriage. These are significantly affected by institutional factors such as family law and public policies regarding child care and income transfers. McElroy (1990) includes these among what she calls “extrahousehold environmental parameters.” But the most interesting feature of these parameters is not that they are external to the household, but that they are strongly affected by gender identity. Because mothers are far more likely than fathers to assume custody of children, poor enforcement of the child support responsibilities of an absent parent reduces women’s bargaining power. The same may be said of high child-care costs, which reduce the disposable income of a single parent. These are “gender-specific environmental parameters” (GEPs) that work against the interests of women as a group.

Consider the following two examples of GEP effects from Bangladesh. Kabeer’s (1995) research on urban Bangladeshi households suggests that women are disadvantaged by a rule that stipulates that they must relinquish custody of children after divorce, a rule that is especially likely to be enforced if they remarry. Pitt and Khandker’s (1995) recent empirical analysis of small-scale Grameen Bank-type programs in Bangladesh targeted specifically to women showed that credit supplied to women had a discernibly different impact on family spending and labor supply than credit supplied to men. Some GEPs may not affect the consequences of divorce but are relevant to other fallback definitions. Lundberg, Pollak, and Wales (1995) show that a British decision to send child allowance checks directly to mothers rather than to fathers in the late 1970s was associated with a shift toward relatively greater expenditures on women’s and children’s goods.

Precisely because GEPs are gender specific, they provide a motive for individuals to engage in gender-specific forms of collective action. Both men and women may foresee family-level benefits from the potential successes of a coalition with others of their gender, designed to modify child custody laws, to increase credit, or simply to improve gender-specific employment opportunities. The number and potential impact of GEPs is even greater if the bargaining game itself is conceptualized as a social, rather than a purely individual, process.

### *Social Norms and Fallback Positions*

Like traditional neoclassical theory, the Nash bargaining approach probably exaggerates the rational choices of optimizing individuals. It is known from experience that the transaction costs of bargaining within the family are high, and the forms of interaction so diverse that mutual responsibilities are difficult to specify in advance (England and Farkas 1986). The fact that relatively few couples draw up a contract governing their relationship confirms that explicit bargaining is limited. When bargaining does take place, it is unlikely to entail constant threats of divorce, which, after some point, either lose credibility or undermine affection.

Thus it seems quite reasonable to suggest that social norms play an important role in family allocation, specifying a set of mutual responsibilities among kin. A number of economists argue that norms are “gendered” in the sense that they rely on a social construction of masculinity and femininity (Folbre 1994; Kabeer 1994, 1995; Hart 1995). Sen (1990) suggests that social perceptions of contributions to the household may be more important than actual contributions in determining bargaining power. This does not imply that household allocation is an entirely norm-driven process, but that the relationship between individual choices and social norms requires serious scrutiny.

Two promising innovations in bargaining theory move in this direction. The separate-spheres model proposed by Lundberg and Pollak (1993; Chapter 5, this volume) defines fallback positions as a noncooperative equilibrium determined by social norms that dictate a certain division of labor based on separate spheres for men and women. Sociological dynamics set the stage for a cooperative bargaining process governed by more individualistic economic logic. If enough couples engage in bargaining, it is easy to see how the fallback norms themselves might be modified. Likewise, the norms themselves affect individual bargaining power. The conjugal contract model proposed by Carter and Katz (Chapter 6, this volume) describes a noncooperative game in which individuals control separate sources of income and maximize consumption of a combination of goods for own and collective consumption. Their responsibilities for collective consumption are specified by a socially determined conjugal contract influenced by “a complex of attitudes, mores, and opportunities exogenous to the household that can be labeled the ‘degree of patriarchy’” (103).



Many social norms governing family allocations are gender specific. Consider, for instance, the following normative statement: women should take primary responsibility for children and men should take primary responsibility for earning a market income. One can imagine a household in which the wife wants to work outside the home and the husband wants to spend more time in child care. Both agree that they will be better off if they violate the social norm. One can also imagine a household in which the wife wants to work outside the home but the husband does not want to spend more time in child care. In order to convince him to depart from the norm-based allocation, she may agree to make a “side-payment,” such as agreeing to work longer hours overall or devote more of her income to collective consumption. A Bangladeshi woman describes her reasons for handing her earnings over to her husband as follows: “As it is, he is letting me work, how would he feel if I also kept the money?” (Kabeer 1995:17). In this case, the social norm functions as a GEP that reduces her bargaining power.

Institutionalist economists have long described the evolution of norms as mechanisms for solving coordination problems (Schotter 1981). Becker (1981) interprets the emergence of the sexual division of labor in exactly these terms, as an efficient response to differences in male and female endowments. But norms are almost always more efficient for some groups than for others (Ullmann 1977). Even those that initially emerged untainted by any distributional motives are likely to acquire distributional consequences in the course of economic development and changes in relative prices. Individuals and groups often recognize that certain norms work to their own advantage and will defend them as long as the distributional gains outweigh the efficiency losses. Thus it seems likely that men and women will engage in collective efforts to influence social norms as well as more explicit social policies. Their relative success in this process will, in turn, influence intrafamily allocation.

### *Bargaining and Endogenous Preferences*

A more radical change in the analysis of bargaining entails a reconsideration of the role of preferences as well as a broader definition of fallback positions. Microeconomists typically assume that husbands and wives are equally self-interested (or altruistic), in the sense that they place equal weights on the welfare of the other. Becker’s (1981) “rotten-kid theorem” is an exception because it assumes that the wealth holder in the family is more altruistic than others. But Sen (1990) points out that the person with the least, rather than the most, bargaining power in a family tends to behave most altruistically. Women may be, on average, more altruistic than men because they have a less “separative” self (England and Kilbourne 1990), or mothers may simply have more love and affection for children than do fathers (Fuchs 1988).

If one accepts the conventional neoclassical assumption that preferences are exogenously given, one must conclude that mothers enjoy a compensating

differential: the pleasure of taking responsibility for children counterbalances the increased costs that they incur. But if women have metapreferences that allow them to analyze critically the consequences of their own preferences, they may try to change them, or they may encourage their daughters to be less altruistic than they were. Another interesting possibility is that the process of caring for children creates altruistic preferences, a type of addiction with positive consequences for children (and probably for society) but negative economic consequences for mothers. If addiction reflects a rational, utility-maximizing choice based on full information, the addict feels no regret (Becker, Grossman, and Murphy 1991). But a combination of imperfect information and probabilistic outcomes can explain why individuals often wish they could change (Orphanides and Zervos 1995). Sometimes people wish they could stop caring about others but find they cannot.

How might men and women acquire different preferences? Here again collective action may play a role. Becker and others suggest that parents may inculcate caring preferences in their children, in order to ensure that they themselves are cared for in old age (Becker 1993; Stark 1995). It is economically advantageous for men to augment caring preferences in women by enforcing social norms of female altruism, responsibility, and enjoyment of caring, and punishing deviation from these norms. Likewise, it is economically advantageous for women to augment caring preferences in men. But if men exercise more power than women over the design of the social institutions that inculcate preferences, they will win the caring game (Folbre and Weisskopf 1996).

### **Gender Coalitions**

Economists have been slow to develop theories of collective action, largely because the assumption that most individuals are purely self-interested implies that most collective undertakings will suffer from serious free rider problems. But there is now a growing interest in “rent-seeking” behavior (efforts to claim revenues that are not earned), including investments designed to influence electoral and political outcomes (Krueger 1974; Olson 1975, 1982; Grossman and Helpman 1994). As Becker (1993:372) puts it, “Individuals belong to particular groups—defined by occupation, industry, income, geography, age, and other characteristics—that are assumed to use political influence to enhance the well-being of their members.” Neither Becker nor any of the others cited ever mentions groups based on gender. Could men and women simply be added to the list of “interest groups” competing for political power?

Yes and no. They can be added, but not simply. Several aspects of the conventional approach to rent-seeking and lobbying militate against inclusion. Nevertheless a critical analysis of neoclassical reasoning points the way toward a better political economy of family policy.

*Rent-Seeking versus Power-Seeking*

In her pioneering article on rent-seeking, Krueger (1974) described the efforts of lobbying groups to establish protective tariffs that would allow them to charge a higher price for their goods. Following her example, most neoclassical theorists treat distributional struggle as a form of interference with market-driven outcomes. Rent-seeking groups impose real or metaphorical taxes that cause a divergence from market equilibrium and create a deadweight loss. Thus it is hardly surprising that an accumulation of such groups would lead to the kind of economic atherosclerosis that Olson (1982) describes.

Some gender-based conflicts can easily be described as rent-seeking. For instance, if male workers create an organization designed to limit women's ability to compete with them in the labor market, they are essentially imposing a tariff on women that lowers overall efficiency, as well as women's earnings and their bargaining power in the household. Similarly, one could argue that affirmative action is a retaliatory form of rent-seeking by women, designed to increase the demand for their labor in the market in order to compensate for previous or current discrimination against them, and to improve their bargaining power in the household.

Many other forms of collective action, however, do not directly pertain to the operation of markets, but to the organization of nonmarket institutions, such as property rights. In this situation, the rent-seeking tariff metaphor is misleading, because there is no deadweight efficiency loss. Take the example of slavery in the southern United States before the Civil War. In 1860, one group (the South) favored it; another group (the North) did not. Slavery allowed one kind of market (the buying and selling of other people) but forbade another (the slave's buying and selling of his or her own labor power). One set of property rights may have been more efficient than the other, but it is not obvious, *a priori*, which. Influential economic historians argue that slavery in the South was quite efficient, and that it was eliminated for political, rather than economic, reasons (Fogel and Engerman 1974; Fogel 1989).

The family is a nonmarket institution, and once the assumption of perfect familial altruism is relinquished it seems rather clear that the welfare of dependents requires some collective monitoring and enforcement of family responsibilities. Historically state governance of family life has provided a powerful excuse for imposing limits on women's participation in markets. However, women have engaged in collective efforts to redefine family rights and responsibilities. Many feminist struggles in the developing world today focus on property rights, such as married women's rights to control a share of family land or wealth, their own earnings, custody of children in the event of divorce, and claims on the income of fathers for the support of children in the event of nonmarriage or divorce (Folbre 1994). Efforts to improve these

property rights do not represent a claim on market-generated allocations but a contest over alternative institutional arrangements.

Such feminist campaigns are not unproductive efforts that reduce overall output. They probably increase the efficiency of production of human capital, not to mention child welfare. They obviously have distributional implications, because they affect the gender-specific environmental parameters described earlier and reduce men's bargaining power in the home. But most economists, lacking any theory other than that which celebrates the efficiency of markets, have little to say about them. The design of family and social policy, like the design of all nonmarket institutions, poses the types of ethical and political questions from which most economists fled when they chose their discipline.

### *Chosen Groups versus Given Groups*

Another obstacle to the economic analysis of gender coalitions lies in the common assumption that individuals join groups for entirely instrumental reasons, after calculating that the probable benefits exceed the probable costs. This assumption may be appropriate to "interest groups," which individuals choose to join for a very explicit purpose and from which they may exit at will. Yet it is far less appropriate to what might be called "given groups"—such as those based on gender, race, class, or nation—to which individuals are exogenously assigned. Exit from such groups is possible, but it is typically difficult and expensive. If I am a woman and I do not like the way women are treated, I cannot just resign from the gender, as if from a club.

Furthermore, the construction of gender identity often entails the development of solidarity, or altruism, among group members, eloquently conveyed by the language of kinship—brotherhood and sisterhood. One can name many "interest groups" based on gender, such as the National Organization of Women in the United States. But card-carrying, dues-paying feminists are the tip of a larger iceberg (or volcano) of less explicit and less instrumental forms of collective action that are coordinated by shared values rather than by explicit political association. The behavior need not be explicitly or consciously feminist. For instance, a woman who encourages another woman to vote for a candidate who supports reproductive rights because it will be good for women as a group is engaging in gender-based collective action.

Efforts to elect or influence public officials may be less important, in the long run, than efforts to contest and modify conventional social norms. It is hard to imagine a set of norms that proved more susceptible to change in the course of economic development than those defining masculinity and femininity. Different points of view are heavily encoded in phrases such as "family values," and claims about efficiency are framed in terms such as the "break-down" of the family. Gender is by no means the only aspect of social identity that influences this particular debate, but it is a salient one.

Unlike lobbying groups, which generally benefit from a clear presentation of their objectives, many groups that participate in what might be termed political and cultural bargaining over gender roles deny that this is their actual goal. Fundamentalist religious organizations are now playing an increasingly important role in both developed and developing countries. Whether Christian, Islamic, or Jewish, they are remarkably similar in their adherence to traditional gender roles, based on the claim that they are ordained by God. These religious organizations do not fit Becker's definition of a pressure group. Nonetheless they indisputably create pressures that have important consequences for intra-household allocation.

### *Methodology and Ideology*

The most ironic shortcoming of the economic approach to interest groups is that it ignores the ways in which group interests influence economics itself. The progress of scientific research is not determined by elections or lobbying, but it is certainly affected by circles, cliques, and coalitions that struggle to increase their share of power and resources. Funds for research are allocated by individuals whose social identities shape their perception of intellectual priorities. Priorities for the collection of data by governments and multilateral institutions are set by policymakers whose agenda is, inevitably, gendered.

A disproportionate share of economic research on intrahousehold inequality has been conducted by scholars from the developed countries on survey data collected in developing countries. When it comes to something as touchy as gender, it seems more acceptable to study others than ourselves. Much of the intellectual enthusiasm and financial support for research on the status of women derives from what might be called "efficiency" considerations—the hope that improving it will speed both fertility decline and economic development. Conveniently, the distributional costs will be imposed on men in other countries, not our own.

Awareness of the interplay of interests based on nation and class, as well as gender, does not discredit the results of such research. It merely signals the need for a greater awareness of the way in which bargaining power may affect academic as well as household outcomes. Social norms shape professional as well as personal life. Many well-established economists currently enforce strong taboos against interdisciplinary research, nonquantitative methods, and divergence from traditional neoclassical assumptions, making it difficult to develop alternative approaches to intrafamily inequalities. The best strategy for individual researchers willing to challenge these taboos is to demonstrate that the potential efficiency gains from developing a better theory of gender coalitions exceed the distributional losses that might be imposed on those who deny their existence.

## **Institutionalized Forms of Gender Bias**

A growing literature describes public policies that reduce women's bargaining power. Many of these policies were initially developed by states and religious organizations that explicitly restricted women's decisionmaking role. Starting about 150 years ago, feminist groups began systematically contesting institutionalized gender bias. The results have been significant but uneven. In general property rights have received more attention than social norms, but a closer look at existing research could help formulate a more systematic framework for comparative analysis. The following sections discuss particularly salient examples of GEPs.

### *Property Rights*

The advantage of focusing on property rights, which represent a subset of all public policies, is that they are easier to catalogue and have more direct implications for economic outcomes.

**RIGHTS TO LAND.** Potential for inheritance and co-ownership of marital assets affects women's ability to survive economically outside marriage. Particularly in areas where wage labor is not widespread, lack of independent access to land makes women dependent on male kin. In many areas of Sub-Saharan Africa, widows lack even basic rights to inherit marital property (Potash 1986). Agarwal's (1994a,b) detailed study of land rights in South Asia shows that legal reforms have not always changed actual practices, but it also suggests strategies for improving women's access.

**RIGHTS TO MARKET EMPLOYMENT AND EARNINGS.** In most countries, married women now have a legal right to control their own earnings. But other restrictions sometimes make it difficult for them to work outside the home. In Saudi Arabia, for instance, women are not allowed to drive.

**RIGHTS TO CONTROL OVER REPRODUCTIVE CAPACITIES.** Rape within marriage is not a punishable offense in most countries, and women often rely on methods of contraception that require male cooperation. As a result, many women who have already achieved their desired family size may see the possibility of another pregnancy as a threat. Yet modern contraceptives, as well as abortions, are proscribed in many countries. In others, women are vulnerable to forced sterilization and abortion (Hartmann 1987).

**RIGHTS TO PROTECTION AGAINST DOMESTIC VIOLENCE.** Lack of protection against spousal abuse is a significant political, economic, and public health problem in many countries (Heise, Pitanguy, and Germain 1994). It has obvious implications for bargaining power.

**RIGHTS TO CHILD CUSTODY.** Historical and comparative data suggest that, in economies in which children make significant contributions to family income, fathers are typically offered custody of them in the event of divorce.

As children become increasingly expensive, legal custody is shifted toward mothers (Folbre 1994).

**RIGHTS TO FINANCIAL SUPPORT FROM THE FATHERS OF CHILDREN.** Most legal systems outside Sub-Saharan Africa stipulate that a father must provide a minimal amount of financial support for his wife and children. However, this stipulation is seldom enforced, especially in the event of desertion. North-western European countries are unique in enforcing spousal support in the event of divorce or nonmarriage. This is a pressing issue, because the percentage of families maintained by women alone seems to be increasing in north-western Europe, the United States, Latin America, and Sub-Saharan Africa (Folbre 1990, 1994).

**RIGHTS TO EDUCATION.** Female enrollment rates in primary education have increased rapidly, approaching parity in many areas of the developing world. Nevertheless female children in most countries have a much lower probability than males of completing secondary and postsecondary education (King and Hill 1993).

#### *Other Public Policies*

Separate from but related to property rights are public policies that reinforce traditional gender roles by making it more costly for employers to hire women than men and imposing higher taxes on or providing lower benefits for women wage earners. These policies effectively lower women's wages relative to men's.

**LAWS AGAINST GENDER DISCRIMINATION.** Most countries of the world are signatories of the International Labour Office convention against discrimination in employment. The U.S. experience suggests that antidiscrimination rules can have a significant impact (Beller 1982). However, the U.S. legal system may be better suited than those of other countries to enforcement of such rules through class action suits (Winter 1994). Yet there have been remarkably few studies of the effectiveness or impact of antidiscrimination rules in developing countries.

**MATERNITY LEAVES.** The International Labour Office's Maternity Protection Convention stipulates that individual employers should not be liable for the cost of maternity benefits. In practice, however, they often pay the bill. Some even require women employees to provide medical certification that they are not pregnant (Anker and Hein 1985; Winter 1994). Even unpaid maternity leaves create disincentives to hire women. Neither paid nor unpaid family leaves from work should be gender specific.

**RETIREMENT AND FAMILY ALLOWANCE BENEFITS.** The social security systems imported by many countries of Latin America and Sub-Saharan Africa from Europe in the early twentieth century provided direct benefits for a select group of primarily male wage earners in covered employment, and only

indirect benefits for women and children, determined by their family relationship to a male wage earner. Furthermore the structure of both taxes and benefits discouraged married women from seeking employment. Only since the 1970s have some European countries taken steps to eliminate discrimination and protect the retirement benefits of women who gain access to benefits through marriage to a covered wage earner (Brocas, Cailloux, and Oget 1990). Family allowances in most countries are paid to male wage earners, and they often provide greater family subsidies for men than for women workers (Folbre 1993).

**CHILD-CARE POLICIES.** Women typically devote more time and energy to parenting than men. Therefore the degree of public assistance for child care has a significant impact on women's position in both the family and the labor market. In countries like France and Sweden, where substantial public services are provided, women experience much smaller reductions of lifetime earnings as a result of child rearing than in countries like Germany, Great Britain, and the United States (Davies and Joshi 1990).

### *A Research Agenda*

More detailed historical and comparative analysis of gender-biased public policies could shed further light on their evolution. Greater attention should also be devoted to the analysis of social norms, which are closely intertwined with public policies. Community values played an important role in fertility decline in Western Europe (Watkins 1991), and it is worth exploring the ways in which they may affect both community- and household-level bargaining between men and women. Even more pressing is the need to move beyond purely descriptive analysis toward more explicit modeling and hypothesis testing.

Both cross-sectional and longitudinal data that capture variations in public policy could be used to test the impact of GEPs on family allocation. Variations in public policy also require explanation. What kinds of collective action seem to be most successful at resisting or encouraging change? Are policies that are imposed on countries from outside as successful as those that emerge as the result of local grassroots activity? Are increases in women's education and employment levels associated with increases in their participation in women's groups? What are the ramifications of increased age at marriage, increased nonmarriage, and fertility decline for men's and women's perceptions of their own gender interests?

These questions will require time, patience, and imagination to answer. In the meantime, economists should recognize that they cannot simply be delegated to other disciplines. The burden of proof must be shifted to those who are reluctant to challenge the status quo. Why should public policies not promote equal access to education and wage employment? Why should the cost of children not be equally divided between men and women? Why should the state not guarantee all children a basic right to health, education, and economic opportunity?



## 17 Policy Issues and Intrahousehold Resource Allocation: Conclusions

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As seen from the preceding chapters, the costs of neglecting the process of intrahousehold resource allocation are often high. This is a categorical statement, not a statement about adopting or rejecting any particular model or class of models. It suggests that the process of policy analysis should begin with the following questions: How do individuals form family units? What norms govern the functioning of family units? How are these rules revised as circumstances change? In this spirit, we now recapitulate ways in which policy formulation and implementation can be improved by considering intrahousehold allocation.

Resource allocation processes are complex, and no single approach can be expected to be valid in all cultures or for all policy questions. Indeed a few caveats to policymakers are included here: just as ignoring intrahousehold allocation can result in errors, miscalculations will occasionally arise from basing actions on an incomplete understanding. However, whether or not they are understood, intrahousehold allocation processes occur in many spheres of action. There should be no reason why errors from ignoring intrahousehold processes are *inherently* less dangerous than errors from acting on the basis of the limited information given. In this concluding chapter we reiterate this point in the context of one—but hardly the only—key debate in this field, that of the advantages of targeting programs to women. Yet the risks involved in misunderstanding intrahousehold allocation are a powerful incentive to further research. Suggestions are given regarding ways in which the range of uncertainty in understanding household allocation processes can be reduced.

### Policy and Modeling of Intrahousehold Resource Allocation

Whereas many of the chapters in this book explore alternatives to unitary models of the household, others indicate that this challenge has encouraged researchers to broaden the applications of this model. Consider, for example, the choice of instruments to use for poverty alleviation. Under a welfarist

approach to poverty alleviation, lump-sum transfers are generally more efficient than price subsidies, if decisionmaking is unitary. Under a nonwelfarist scenario, with unitary decisionmaking, the efficiency of transfers holds when planners' objectives (weights on individual welfare) match those of the household (Tobin 1970), although Ross (1988) illustrates how such differences of objectives can make in-kind transfers efficient interventions. If the two sets of preferences do not match—possibly because of some externalities in investments or because policymakers (or a subset) have a different preference for female survival than do some households in the society at large—then there is still a range of interventions in wage and price policy that may be used in the context of unitary decisionmaking to shift household allocation closer to social objectives.

Much of the literature on gender discrimination in health and schooling can be viewed in this context. For example, the findings of Rosenzweig and Schultz (1982) imply an impact on female child survival if credible policies can be found to narrow male-female wage gaps. Similarly, Duraisamy and Malathy (1991), Gertler and Glewwe (1992), Alderman et al. (1996), and Alderman and Gertler (Chapter 14, this volume) imply roles for price policy in health and schooling allocation across boys and girls without a need to shift relative control of income. These are cases in which, as Pitt discusses in Chapter 2, individual prices can be identified or plausibly proposed.

If, however, household allocation is collective, it makes little sense to discuss a match between the preferences of the planners and those of the household; under this model, households may have behaviors, but they do not have a common preference. In a technical sense, interventions that aim to shift budget allocations merely weigh individuals' utility differently than does the household head. However, from a practical standpoint, it may not be useful to focus on the preference of one individual for, say, investment in children; only under rather special circumstances do the preferences of a single individual determine resource allocation. Welfarist objectives are more difficult to determine in the absence of a "standard" household utility function. Thus the current inability to distinguish between alternative collective models limits exact measurement of the welfare effects of policy.

However, this situation does not prohibit identification of four areas of policy in which neglect of the decisionmaking process could have serious consequences in terms of policy failure:

1. Different models predict different effects of public transfers made to the household. The unitary model predicts that the impact of such transfers is unaffected by the identity of the recipient, whereas collective models suggest that the identity of the recipient will change purchasing patterns.
2. Not only is the identity of the recipient important when the government is considering transfers, the response of nonrecipients must also be consid-

- ered. The nature of interactions between household members will determine whether public transfers are mitigated or enhanced by changes in private income-sharing behavior, as shown in the second set of examples given later in this section. Unitary as well as collective models treat this topic; the range of issues and predictions, however, differs across models.
3. In addition to predicting that the impact of transfers is neutral with respect to which household member is the recipient, household models that presume information sharing and joint production imply that the response to many other policy initiatives will be recipient independent. This presumption gives rise to two potential policy failures: (1) the nonadoption of particular policies that appear beneficial in the aggregate and (2) unintended costs arising from policies that are adopted.
  4. The unitary model depicts as impotent a number of policy initiatives that neither directly affect the technology of production nor affect household preferences, but which may have a major impact on allocation decisions. For example, laws on property rights within marriage and upon inheritance as well as the efficacy of enforcement may have long policy handles, as predicted under some models of intrahousehold allocation.

These four categories of policy failure are illustrated in the following sections.

#### *Targeting of Transfers and Income-Source Dependence*

The claim that household decisions are independent of the identity of the individual receiving income (income-source independence) has been refuted in a number of settings.<sup>1</sup> The implications of this refutation for public transfers are illustrated by the following quotations:

Many participants in the public debate concerning actual government transfers take it for granted that intrafamily distribution will vary systematically with the control of resources. When the British child allowance system was changed in the mid-1970s to make child benefits payable in cash to the mother, it was widely regarded as a redistribution of family income from men to women and was expected to be popular with women. (Lundberg and Pollak, Chapter 5, this volume, 76)

Indeed, so convinced did some Ministers become that a transfer of income “from the wallet to the purse” at a time of wage restraint would be resented by male workers, that they decided at one point in 1977 to defer the whole child benefit scheme. (Brown 1984:64).

Compared with the creation of a new instrument that so overtly transfers income “from the wallet to the purse,” other programs may achieve the same objective under a nonwelfarist banner. Food stamps, which often are found to

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1. This evidence is reviewed by Thomas (Chapter 9) and by Hoddinott, Alderman, and Haddad (Chapter 8).

influence spending in a manner different from cash, despite models that show their theoretical equivalence (Senauer and Young 1986), may be an illustration. Food stamps are not directed at women per se, but because women are the main food purchasers, the delivery mechanism creates an entitlement to the transfers.

Similar considerations are at play, for instance, in deciding whether labor should be remunerated with food or cash in a public works scheme. One of the many factors entering into the decision is the likely profile of program participants. When the nature of the work and the level of the wage offered are such that the participants are predominantly male, some have argued that remuneration should be in the form of food, owing to differences in male and female expenditure patterns.

The importance of the class of potential policy failures centered on control of income is likely to grow as social safety nets are designed to ameliorate the short-run negative impacts of economic adjustment. Newman, Jorgensen, and Pradhan (1991) found that in Bolivia, the Social Emergency Fund activities, mainly targeted at the construction industries, did bolster the incomes of the poorest in a cost-effective manner. But the Fund had only a 2 percent female participation rate. The untested assumption seems to have been that fund income would trickle down to wives, mothers, and children or that they would be better served through credit and other programs in which female participation was substantial.

A recent perspective on nonpooled incomes is presented by Browning (1994). He models savings within a two-person household in which wives are younger than their husbands and have longer life expectancies. Thus individuals have different preferences for savings. This approach results in household savings rates that are functions of individual income and age disparities. The models also predict that the household's response to pensions and insurance is not neutral to internal income distribution.

Moreover, if preferences are not unitary, some collective models imply price elasticities that differ from conventional demand theory.<sup>2</sup> Most price policy, however, is designed on the basis of models that use a representative consumer or a few sets of consumers based on region and income to portray an entire economy. In the presence of unitary preferences, it is not apparent that refined estimates of demand elasticities from further disaggregation of households will lead to new price instruments. However, if preferences are not unitary, gender- or age-specific price indexes exist, and price movements can reallocate resources within households. Therefore, when targeted income-transfer programs are costly to administer, price policy may be more efficient than lump-sum transfers.

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2. For example, Nash bargaining models imply a different set of restrictions on the Slutsky matrix than standard models.

*Intrahousehold Distribution and the Offsetting of Policy Goals*

In the initial discussion of policy issues, it was noted that changes in private behavior may offset public transfers (see Cox and Jakubson [1995] for a recent review). In models such as that of Barro (1974), altruism on the part of private agents undoes the effect of government policies that increase the incomes of the current generation at the expense of future generations. If intergenerational altruism, one form of the unitary model, is replaced with exchange motives, this result no longer holds.

Cox and Jimenez (1990) illustrate this feature. Consider a hypothetical family with young members residing in towns and old members living in rural areas. Transfers are made by the altruist “young” to the old, and individual consumption is a function of aggregate income. Suppose a social security program that taxes the young and subsidizes the old is introduced, leaving aggregate income unchanged. This might well lead to a reduction in urban-rural remittances, with consumption by individual members unchanged. However, suppose that these young-to-old transfers are undertaken in exchange for some in-kind service (such as home production). When an urban wage tax (the social security program) is introduced, with the proceeds used to subsidize rural wages, the opportunity cost for a rural resident providing a service will increase. As a result, the urban household members must transfer higher amounts to their elders. This is the opposite result of that predicted by the altruistic unitary model.

The empirical work of Quisumbing (1994b) and Altonji, Hayashi, and Kotlikoff (1992) as well as Cox and Jimenez (1992) has been motivated, in part, by a desire to test the policy implications of such a model of intergenerational altruism. An analogous possibility exists for intrahousehold transfers from husbands to wives. Although the polar position of perfect altruism may be hard to defend, the degree of partial crowding out is not measured in most models. This situation again makes assessment of the impact of targeted transfers imprecise.<sup>3</sup>

It is noted that a number of recent innovations in this field are modeled in terms of monitoring or the sequence of individual (or generational) decisions made, conditional on decisions made by other household members. For example, Rosenzweig and Wolpin (1993, 1994) study transfers across generations in which the moves of the parental generation are conditional on observing the younger generation (and, in their 1994 paper, the government). Such studies can be applied to residential choices and to predict the impact of private transfers in response to changes in government transfers.

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3. Similarly, although there is evidence that women's limited access to credit affects the allocation of inputs to agriculture, given that in some communities men purchase a portion of the inputs used by women, the net impact of targeted credit for crops controlled by women is likely to be less than expected, owing to reallocation by males.

Attempts to reallocate food in the light of targeted nutrition programs also fall under this broad category of policies, for which an understanding of intrahousehold allocation may be crucial to program success. A recent empirical example of this issue within the framework of the unitary model is provided by Pitt, Rosenzweig, and Hassan (1990). This study illustrates the adaptability of unitary models to a range of issues of intrahousehold allocation. They suggest that if returns to activities are responsive to health and effort, it makes sense for the household to allocate marginal calories to healthy men. They also find that in some seasons, individuals with the best health endowments are taxed in the sense that their larger allocation of calories does not fully compensate them for their effort. Thus, within the context of shared preferences, they show that households may reallocate so that consumption is more equitable than work effort. Thus they measure the role that equity as well as efficiency plays in household allocation (see also Pitt and Rosenzweig 1990).

#### *Intrahousehold Ramifications of Policy Initiatives: Agricultural Productivity*

A number of examples of the nonadoption of policies designed to improve crop technology reflect failure to appreciate intrahousehold allocation of responsibilities (Quisumbing 1994a). Jones (1986), summarized by Dey Abbas (Chapter 15, this volume), reported the results of a project in Cameroon to encourage women to produce rice. In the study area, rice was considered a "male" crop. Any income generated from it would have been controlled by men, even if the crop had been produced by women. Consequently few women entered into rice cultivation. Instead they continued to grow sorghum, despite its lower returns, because women controlled the harvested product. In Zambia households were encouraged to intercrop maize, a "male" crop, with beans, a "female" crop (Poats 1991). Researchers hoped that households would take advantage of the well-known complementary nutritional benefits of the two crops. In addition they hoped that the overall amount of weeding time would be diminished, through the simultaneous weeding of both crops. However, women opposed this innovation because if beans were planted on land normally allocated to maize, they would lose ownership of the beans and the men would benefit from the cash generated by their sale.

Udry et al. (1995) and Udry (1996) generalize on the misallocation of resources within farm households. They note that intrahousehold inefficiency in Burkina Faso can account for a loss of 10–20 percent owing to misallocation of currently used inputs. This conclusion was framed in terms of a static technology; over time, greater misallocation might come from inefficiencies in adapting new techniques.

That extension workers routinely ignore women farmers when new technology is introduced is well documented. For example, in Malawi Gladwin and McMillan (1989) found that a groundnut seed multiplication project was introduced to male household heads, despite the fact that groundnuts were

recognized as a women's crop, whereas tobacco, cotton, and hybrid maize were considered men's crops. Extension agents argued that the program was "too complicated" for women to understand. The exclusion of women from the project resulted in a loss of cash crop income for the wives of program participants.

Similar examples of the overly narrow focus on one household member can be found that pertain to resource management (Alderman et al. 1994). Garrett and Espinosa (1988) document an illustration from Ecuadorean Indian communities. In these communities, both men and women traditionally own and control land and animals, with control being governed by a complex set of property rights within the family. When an erosion control system was being designed, the technicians consulted only the male household members. During the implementation phase, women demonstrated against the project and refused to permit their fields to be divided by the trench.

A similar failure of policy occurred in the context of a reforestation initiative in the Dominican Republic. The initiative was predicated on the assumption that men and women used wood for the same purposes. Fortmann and Rocheleau (1989) note that this reforestation project did not consider the possibility that men's needs from the forest might differ from women's needs; consequently only men were consulted. As a result, the intercropping of cash and subsistence crops and the planting of indigenous and exotic pines for watershed management and timber were emphasized. Women were consulted only during a midproject evaluation, and it turned out that their needs were not met by the project. Women needed trees for fuel and for palm frond fiber for basket weaving. The scarcity of fuel forced some women to give up their cassava bread processing operations owing to time constraints. These needs were not addressed.

In contrast, a project in Togo to encourage soybean production succeeded precisely because it took into account the collective nature of household behavior (Dankelman and Davidson 1986). At the outset, the project was targeted to women. Exchange visits were arranged between soybean- and non-soybean-growing villages. Workshops were organized in women's homes (it was argued that homes are more effective training places than is an unfamiliar urban center). Women returned to their villages after these workshops to train other women. In addition, soybeans were not introduced as a cash crop. They were promoted as legumes that could be used to make sauces. Thus men did not become interested in cultivating soybeans and even allowed women to utilize small plots of land for soybean cultivation.

The nonadoption of new technology in the area of family planning is another example of the failure of a deliberately targeted initiative to achieve its stated goals. Most fertility research assumes that the household can be treated as a unitary decisionmaking unit (so-called "one-sex" models), even though married men and married women may have very different ideas about how

many children they want. Rao and Greene (1993) model the fertility decision as a “two-sex” decision. They use a bargaining approach to examine how “credible threats” (that is, the ability to support oneself outside marriage) affect fertility decisions and find that increased female earnings decrease fertility, whereas increased male earnings raise fertility. They conclude that men’s characteristics must not be ignored in the study of fertility determinants.<sup>4</sup> Similarly, evaluators found the most successful family planning centers in Thailand to be those that made a point of seeking male participation in classes (ICRW 1990).

### *Ignoring the “Long Reach” of Policy*

Perhaps the most underrated drawback of relying on the unitary model for policy guidance is that a number of potentially powerful policy handles are disabled. Under the unitary model, policymakers affect intrahousehold resource allocation primarily through changes in prices and income. As argued earlier, even the role of income policies is more limited if the unitary model is valid than otherwise. Moreover, some, but not all, collective approaches suggest that additional policy handles, often with a very long reach, are available to the policymaker. The “long-reach” policy handles depend on the existence of rights that are credible in the sense that should they be violated, they obligate action. However, the policy handles do not depend on this action for their effectiveness.

To see this, consider the following model in the context of more equitable access to common property resources (CPRs). Within a household, there are two individuals, each with access to a production function that produces output as the result of two task inputs. There is comparative advantage in the tasks, so it pays to cooperate and specialize in tasks. But how are the gains from cooperation to be divided? Let the fallback option for each individual be identified with the outcome of working alone. Now suppose that the government introduces a scheme that guarantees better access for all to CPRs. How will this affect intrahousehold inequality and, in particular, the well-being of a woman with poorer preintervention access? If the income that could be generated from improved access is higher than what a woman could previously have earned on her own, but is still less than the income from cooperation, the access will result in improved equity in the household. This is the case even if the common property is not actually used. What is remarkable is that the scheme has a long reach—it equalizes intrahousehold allocation by altering outside options, despite the failure to exercise those options (Haddad and Kanbur 1992).

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4. The identification they use to distinguish bargaining from education effects—differences in opportunities to marry due to age-specific sex ratios—is subject to challenge. Nevertheless their approach to the question adds a new dimension to the literature.



Of course the credibility of the guaranteed access is at the heart of the matter. If rationing limits the ability of women to raise their fallback utility, then there will not be an impact on intrahousehold allocation. Other intrahousehold allocation issues also come into play—if improved access is guaranteed only for married women, the threat points outside the marriage are unaffected by the policy choice. Improved access to CPRs for women outside as well as inside marriage will result in CPR reforms that are better able to alter intrahousehold resource allocation.

Similarly, programs that raise the equality of access to credit, even if the credit is not utilized, may affect intrahousehold resource allocation. A number of successful programs allow women to enter into agreements as individuals rather than as wives (often on the basis of shared liability with other women, as in the Grameen Bank program in Bangladesh).<sup>5</sup> This class of programs can be viewed as a subset of the category of programs creating property rights.

More generally, many collective models imply that changes in the legal environment have an indirect impact on family allocation through changes in relative bargaining position as well as the direct impact when the laws are applied. Thus Folbre (Chapter 16, this volume) calls for a review of gender bias in law as a foundation for social policy. She points out pervasive biases in divorce and child support laws that cause intrafamily and intragenerational inequality. Moreover, in many societies, there is a particular need for property rights that allow women to hold assets as individuals rather than as wives and trustees for minor children. Agarwal (1994a,b) provides an extensive discussion of this issue in the context of South Asia.

While concluding, along with others, that legislative reforms can have far-reaching effects on the welfare of children and adult women, Folbre also acknowledges that such biases in civil law often reflect preexisting biases in common law and religious strictures. Sen (1990) takes this observation one step further. Often the legal and social inequalities reflect perceived legitimacy as seen by women as well as men. This situation, in turn, parallels perceptions of relative contributions to the household in which cash earnings are valued more than unpaid labor. Women often do not see themselves as being “entitled” to a larger share of household resources. This view, in turn, leads to inequalities in investments in physical and human capital and a feedback cycle that reinforces inequalities that is difficult to break.

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5. Goetz and Sen Gupta (1994) present evidence that men gain some control over these loans. However, even if this is the case, the implications for a woman’s position in the household depend on the process by which these funds are transferred as well as her potential to retain the funds if the marriage breaks up. The transfer of control over a loan as part of an exchange can have a far different impact on a woman’s well-being than if this control is taken by coercion. Although Pitt and Khandker (1994) do not address the issue of extrahousehold environmental parameters, they show that credit affects human capital investments differently, depending on gender

This situation implies, first, that legislative solutions to intrahousehold inequalities must overcome the biases of male policymakers (Folbre, Chapter 16, this volume). Moreover, it indicates that, were a coalition of advocates of increased rights for women and children able to achieve a success in civil law, enforcement of those laws would most likely be problematic. Thus although “getting the legal environment right” may be a cornerstone in a program to achieve greater intrahousehold equality, other measures that change incentives and that change perceptions of entitlement might be necessary to achieve the full potential of such legal reforms.

So far this discussion of “long-reach” policies has implicitly relied upon McElroy’s extra household environmental parameters (EEPs), a feature of Nash-bargained collective models. However, alternative collective models indicate different roles for EEPs. For example, the most general form of the sharing rule in Browning et al. (1994) does not have the “long-reach” implication, although sharing rules that are Nash bargained can be considered. It should also be remembered that Nash cooperative-bargaining models may indicate no effect if a policy changes the distribution of transfers within a union but has no effect on the threat point. Lundberg and Pollak (Chapter 5, this volume) indicate that this could happen if there were a shift in the distribution of child support supplements from fathers to mothers that left the distribution of support payments to mothers in the event of a divorce intact. In this example, the entitlement influences the woman’s position within a marriage in a manner similar to a CPR. Since the shift does not affect the situation in the event of household breakup (by assumption), it has no influence in the Nash cooperative model.

### **Caveats**

Although a number of policy measures fail to reach their potential because of neglect of intrahousehold decisionmaking processes, there are risks associated with policies that attempt to take these into account. In particular, individuals and households will respond to new positions taken by governments and nongovernmental organizations. Given the difficulty of anticipating all such moves, there is a risk of adverse impacts, even when efforts have been made to address intrahousehold allocation.

An example of this in The Gambia is provided by von Braun and Webb (1989). In the early 1980s, rice irrigation was introduced to an area of swamp rice production in order to raise yields, commercialize the product, and raise women’s share of household income. However, an initiative intended to raise female income ended up reducing it. Previously women had been the rice growers. Yield increases transformed the status of rice from a private crop under the control of women into a communal crop under the control of men. The choice of technology and the attempts by donors to protect female rights were based

on observed outcomes of household decisions, which left the production of rice under the control of women. However, the process of decisionmaking was not fully understood and rights were not sufficiently protected by the project's management. Thus males in the community were able to shift the equilibrium of resource allocation to reflect preproject preferences and to take control over the new resources offered by the project. It is not, of course, clear that a fuller model of household resource allocation would have led to measures to ensure that the donor's intentions were realized. Nevertheless, a perspective that viewed individuals as interdependent (rather than as independent agents) might have led to an expectation of responses by males to changes in women's assets and productivity.<sup>6</sup> Lundberg and Pollak (Chapter 5, this volume) discuss this issue in more detail.

Although more experience and research on intrafamily allocation will lessen the probability of similar unwanted results in the future, considerable uncertainty is likely to remain for some time. Does this mean that it is too risky to use the analyses currently available? Kuhn (1970) points out that whereas the Copernican model of the universe initially resolved a number of the anomalies that had accrued within the Ptolemaic system, it did not immediately offer improved predictive power over the often convoluted ad hoc extensions of the older model. Although it is not claimed that a shift to collective models rivals the Copernican revolution as a change in world view, an analogy to the Ptolemaic view in the unitary model can be seen; despite the accumulated evidence against income pooling, the unitary model, bolstered by ad hoc assumptions, retains an impressive ability to explain the new body of evidence on inequality within the household. Moreover, in many cases, both policy and research will be unaffected by the choice of models; Occam's razor argues that in these cases the simplest approach be taken.

Nevertheless, although the risk of incorrectly analyzing a complex policy measure must always be carefully assessed, it is contended that this judgment must include a scrutiny of the consequences of *not* taking into consideration intrahousehold decisionmaking as well as potential errors that such consideration might introduce. This point is elaborated from the perspective of the implication of collective models for targeting of transfers.

It has been argued that the greater error is the failure to consider intrahousehold allocation in any form, with any tool. However, it is also argued that the unitary approach imposes limitations and that a researcher should be cognizant of those liabilities. Under many circumstances, acceptance of a unitary model of the household, when it is inappropriate, has more serious

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6 It is also not clear that any current model of bargaining or sharing would have predicted the virtual seizure of control that occurred. Nevertheless, the example suggests that in economics, as in chemistry, a disturbance of an equilibrium leads to processes that tend to restore the equilibrium

consequences for policy than the false rejection of such a model (this point is argued in Alderman et al. [1995]).

In the area of targeted interventions, consider the targeting of resources to women. False rejection of the collective model implies (erroneously) that targeting resources to women is pointless; thus an efficient means of directing resources to women and children is foregone. False rejection of the unitary model implies that the costs of targeting could have been avoided. Even if there is a wide confidence interval on the differences entailed by collective models, most imply either more or, at least, no less investment in children from increasing resources controlled by women than the unitary model.<sup>7</sup> Thus, unless there are significantly higher costs to targeting programs to women in poor households, rather than to poor households as a unit, the available evidence may be considered adequate to indicate that false rejection of the collective model is the more serious error. An exception, however, might occur if, in addition to different rates of investment in children, males and females have different gender biases toward these investments (Thomas 1994). Under such a circumstance, a targeting of transfers may leave some children worse off.

To be sure, few programs that target women are costless. For example, they may impose extra time burdens on women, reducing the welfare of the woman herself and possibly that of her children. Although most studies indicate that increased earnings for women offset any negative effects of reduced time for child care—an important factor in the production of nutrition and health (Leslie 1988)—such studies do not analyze the impact of an increased time burden that shifts rather than increases total household resources. Thus greater precision in measuring the benefits of intrahousehold targeting may be necessary to determine optimal program design.

Regarding nonadoption of development initiatives, the consequences of the false rejection of the collective model in terms of nonadoption or adoption with unintended effects have been noted. False rejection of the unitary model again implies that the costs of understanding the needs and constraints of all household members could have been avoided.

For long-reach policy handles, false rejection of the collective model eliminates many policy instruments that could have far-reaching and profound effects on the lives of the most vulnerable of household members. False rejection of the unitary model means that these long handles are not connected to the policy machine, and energy will be wasted in pulling on them. Regarding intergenerational transfers, false rejection of the collective model implies that

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7. Conversely, it may be possible to conceive of cases in which an increase in resources controlled by males has a negative impact on investments in children owing to changes in bargaining or sharing rules that offset the male's (presumed) nonnegative marginal propensity to invest. This has been alleged concerning increases in incomes from cash cropping. However, these scenarios also generally presume a decrease of other incomes.

the effect of the tax policy is the opposite of its intent: instead of reducing urban-to-rural remittance flows, the urban wage tax–rural wage subsidy has increased urban-to-rural remittance flows. A false rejection of the unitary model will again lead to impact's being the opposite of intent, although the relative magnitude of each false rejection is hard to predict.

### **Research Directions**

There is a growing body of empirical work on intrahousehold allocation, but it is still limited in scope. There is not a body of research from which to derive generalizations. More important, since the diversity of social structures almost assuredly rules against such generalizations, few studies have been replicated over a range of conditions and cultures. In addition to examining whether intrahousehold allocation processes are invariant to the policy regime the household faces, there is a need for policy research to focus on other institutions, such as the extended family, community, and other social groupings.

Most econometric studies of intrahousehold allocation are based on cross-sectional data. Generally these studies do not address how households or other social groupings are formed or dissolved. Yet one of the valuable features of the contributions by McElroy and Lundberg and Pollak (Chapters 4 and 5, this volume) is the linkage they establish between allocation within the household and the processes of household formation and dissolution. Though demographers have long been concerned with such issues, within economics there exist fewer empirical studies, based on the framework developed by Becker (1973, 1974a) and Becker, Landes, and Michael (1977), and, with the exception of Handa (1995), these generally pertain to developed countries.<sup>8</sup>

Further work, particularly from developing countries, can be regarded as promising from both a research and a policy standpoint. For example, in very different contexts and using different methodologies, both Ainsworth (1992) and Rosenzweig and Wolpin (1993) indicate that families consider coresidency and transfers across households as part of a continuum of options used to invest in the education of family members. More generally, allocations within households (such as labor usage or the composition of expenditures) may reflect implicit agreements made at the time a union was formed or coresidency established, subject to new information (including unanticipated income and fertility shocks). The process of living in a union reduces asymmetries of information and also creates human and physical capital specific to the partnership.

Furthermore, the time path of transfers and services often creates incentives to renege on agreements—a classic example being a spouse abandoned

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8. Cameron (1995) provides a recent review of the economics literature in this area, particularly for developed countries.

after having invested in the human capital of the other. Although there have been a number of theoretical and empirical advances regarding the importance of extrahousehold links and the dynamic processes of conjugal agreements and incentives to renegotiate, both topics remain a priority for the analysis of both intra- and intergenerational distribution.

This theme relates to the issue of household headship. Female-headed households are often perceived as a vulnerable group and one to which policy measures should be directed. This view is too simplistic. There may be a strong correlation between female headship and poverty as in Buvinic et al. (1992), some correlation as in Quisumbing, Haddad, and Peña (1995), little correlation as in Louat, Grosh, and van der Gaag (1993), or some interaction between headship and welfare at low income levels (Kennedy and Peters 1992). However, the processes by which households become male or female headed are rarely random; instead, they are often the result of conscious decisions made by men and women. Such processes will affect observed outcomes. As Bruce and Lloyd (Chapter 13, this volume) note, existing work rarely takes these processes into account.

An additional specific area for further research is indicated in the review of tests of income pooling and collective models in Chapter 8 (Hoddinott, Alderman, and Haddad). One interesting possibility would be an experiment in which, conditional on having a household qualified for a transfer—say, on conventional means testing criteria—the transfer would be assigned randomly to men and women within the household. The experiment would monitor how the assignment affects spending as well as whether the restriction to a specified family member affects participation or other time allocation. Such an experiment could assist in settling the debate over income pooling, since it would avoid identification on potentially endogenous labor or investment choices.

Another area in which work would be valuable would be empirical studies of labor allocation within a collective framework. There have been a few studies in developed countries, notably Kooreman and Kapteyn (1990) and Kooreman (1994), but these have not been replicated in a developing-country context. As discussed by Carter and Katz and by Dey Abbas (Chapters 6 and 15, this volume), the absence of labor pooling can explain why policies that increase household income, but require reallocation of labor between “male” and “female” activities or crops, often fail. The few econometric studies from this perspective (Jones 1983; von Braun and Webb 1989; Jacoby 1995; Udry 1996) indicate considerable scope for work in developing this issue. A particular advantage of the approach Udry employs is that it deals, in part, with marginal returns on purchased inputs; there is a long empirical tradition of investigating allocative efficiency when prices are exogenous.

A related approach would be to apply the model of labor allocation in cooperatives as set out by Sen (1966), Putterman (1980, 1981, 1986), and Putterman and DiGiorgio (1985) to households. Alternatively, labor allocation

could be thought of in terms of a principal-agent model (Haddad, Hoddinott, and Alderman 1994:22–27).

Finally, there is a need for greater collaboration between economists and social scientists in other disciplines. Much of the literature on households employs concepts based on social interactions that differ from those standard in economic analysis. For example, Sen (1985a) notes that bargaining among members is also a function of their perceived contribution to the household. The individual perceived as making the larger contribution can expect to obtain an outcome more favorable to him or her. This situation may place women at a particular disadvantage, as much of their contribution may take the form of nonmarket labor, which is less visible than wage employment. The distinction between actual and perceived behavior is rarely made in economic models of household behavior, though Woolley (1992) is a recent exception.

A number of studies on intrahousehold allocation recognize the importance of dynamic cultural processes. For example, Hart (1995) argues that distinctions such as sharing versus not sharing or household versus not household are sharper than they need to be. She recognizes a dynamic process in which social aggregations form and reform as well as redefine the norms of interaction.

In another context, Folbre (Chapter 16, this volume) suggests that public policy is not separate from inequalities in the household; policy can easily be shown to cause that inequality, but it is also a reflection of the attitudes that determine household allocation. Similarly, Sen (1990) sees a second feedback loop in which perceptions of self and personal welfare are both causes and results of inequalities. Understanding the first loop may allow one to determine at which points the system is most subject to intervention and at which points economic and legal reforms can work in synergism. From a research standpoint, these interactions imply a broader set of tools than is often used by a single discipline. Promising areas for such work include (1) the use of information collected in a qualitative manner and yet accessible to “quantifiers,” such as the creation of variables for “respect,” “status,” or “apparent prosperity,” and (2) an investigation of the cultural norms that often override the intent of social legislation. These norms link to the second feedback loop depicted by Sen.<sup>9</sup>

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9. Sen's (1990) discussion of perceived interests and perceived legitimacy raises a number of ethical issues that can only be alluded to here. It can be presumed that most readers of this volume are comfortable with the advocacy of individual rights (usually of children or exploited women) implied in most policy prescriptions. However, in some cases, social policy attempts to promote rights that individuals do not currently see as legitimately theirs, although they—or their daughters—may do so once the feedback cycle is reversed. With sense of self, and intrahousehold allocation endogenous over the long run, there is a clear conceptual distinction between dynamic welfare consideration and paternalism. However, the measurement of the effect of interventions in such a context may require new research tools.

Interdisciplinary work may help define the data requirements for research.<sup>10</sup> Hart (1995) argues that the conceptual framework of a researcher limits data collection in a manner that often precludes institutional analysis. This theme is also taken up by Guyer (Chapter 7, this volume). Here again, interdisciplinary work on methods, as well as analysis, might reap rich rewards.

## **Conclusion**

The focus of this concluding chapter has been on the policy implications of intrahousehold resource allocation. Elsewhere in the book, it has been stressed that regardless of the model used, it is incorrect to assume that policies designed to ameliorate household poverty are sufficient for the alleviation of individual poverty, and that individual poverty can be alleviated without due regard to household processes. In this chapter, this claim is extended to contend that errors in understanding intrafamily allocation processes may result in the nonadoption of beneficial policies, in policies having unintended consequences, and in the loss of policy handles.

Although it is acknowledged that the diversity and complexity of human society make it hard to derive universal guidelines on how to incorporate intrahousehold allocation process into policy, it is also ventured that the policy failures associated with accepting unitary models when they are inappropriate are often more serious than those associated with erroneously accepting collective models. In making this claim, the approach has been illustrative rather than exhaustive.

Just over a decade ago, a conference on intrahousehold resource allocation (published in Rogers and Schlossman [1990]) examined whether going inside the “black box” of the household would yield any useful insights. One objective of this book has been to argue that from a policy perspective, the answer is an emphatic “yes.” A second has been to suggest that, in many cases, a broadening of conceptual models (for example, collective rather than unitary models) and research methods (for example, the integration of qualitative and quantitative methods) may reap rich rewards. However, considerable work remains. Although it has been argued that the collective framework may often be the most appropriate means of analyzing intrahousehold issues, the choice of model under different circumstances is still not clear. Such difficulties are compounded by the fact that by their nature, the results of gender and intrahousehold analyses are specific to cultural, social, and institutional settings and are thus difficult to generalize. Perhaps one way forward would be to apply a common conceptual approach to the analysis of a set of policy-oriented case

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10. For more on the data collection implications of intrahousehold research, see Levin, Ralston, and Haddad (1993).



studies from a regionally diverse set of countries. Hypotheses could be developed on the basis of different conceptual models and tested with and without the benefit of additional intrahousehold data. This approach would permit an assessment of the trade-offs between additional policy insights (and the mistakes avoided) and the costs of such an extended analysis. It is hoped that the chapters in this volume will stimulate such work.



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