

### **Abstract**

This paper presents a critique of the neoclassical economic assumption that joint utility functions are exogenously given and vary randomly, if at all, across households. It proposes an alternative approach based on the proposition that changes in bargaining power between men, women, and children in the family may be a primary determinant of changes in household behavior. The effects of increases in the bargaining power of women and children on the costs of children are described. The approach is illustrated by an empirical analysis of time and goods allocation in rural Philippine households.

### **About the Author**

Nancy Folbre, Ph.D., is currently Assistant Professor of Economics, New School for Social Research, New York. Her primary research interests lie in analysis of changes in household production, both historically and in the contemporary developing world.

## **Household Production in the Philippines: A Non-Neoclassical Approach**

by

**Nancy Folbre**

New School for  
Social Research

**Women and International Development**  
Michigan State University  
202 International Center, East Lansing, MI 48824-1035  
Phone: 517/353-5040; Fax: 517/432-4845  
E-mail: [wid@msu.edu](mailto:wid@msu.edu); Web: <http://www.isp.msu.edu/WID/>

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## HOUSEHOLD PRODUCTION IN THE PHILIPPINES: A NON-NEOCLASSICAL APPROACH\*

The starting point of any economic analysis is a microeconomic theory of the decision-making unit. By providing a set of explicit assumptions regarding individual choices, a microeconomic theory lays the necessary foundation for the explanation of economic behavior. Just as a theory of the firm underlies analyses of market production, a theory of the family underlies analyses of household production. Explanations of long-run trends, such as fertility decline, grow out of assumptions regarding the nature of household decision making.

Developing what they term "the economic approach" to human behavior, Gary Becker and other neoclassical economists forcefully argue that household behavior is motivated primarily by a collective concern for economic efficiency.<sup>1</sup> They assume that households seek to maximize exogenously given joint utility functions and hypothesize that differences in household behavior represent efficient responses to differences in the prices and incomes that households face. This approach provides the foundation for an explanation of fertility decline based on long-run changes in relative prices associated with economic development. Simply stated, the argument runs as follows. As the rate of return to human capital rises and levels of education increase, the cost of rearing children goes up. As higher wages draw women out of the household into the labor force, the opportunity cost of mothers' time goes up, further increasing the cost of children. The demand for children decreases, and fertility levels gradually adjust.<sup>2</sup>

The assumption that joint utility functions are exogenously constant over time and vary randomly, if at all, across households is crucial to this argument. Systematic differences in unobservable joint utility functions could seriously confound the interpretation of observed relationships between changes in household behavior and changes in relative prices. Explanations of fertility decline based on the neoclassical theory of the family must explain why and how such joint utility functions are constituted.

Much of neoclassical welfare economics is preoccupied with the difficulty of aggregating individual utilities in a larger social utility function.<sup>3</sup> How then do neoclassical economists explain the aggregation of individual household members' tastes and preferences within a household joint utility function?

In an early formulation of the problem, Samuelson notes that the conventional theory of demand would be simplified if "one titular head has sovereign power within the family," but points out that "where the family is concerned the phenomenon of altruism inevitably raises its head."<sup>4</sup> The concept of altruism has been developed further by Gary Becker, who defines it as the positive dependence of one person's utility function on the well-being of another person.<sup>5</sup> Conceding that there may be some conflict over the distribution of household income, Becker concludes that altruism is a sufficient condition for the existence of a joint utility function. In his words, "an altruistic family can be said to have a family utility function that is voluntarily maximized by all members regardless of the distribution of family income."<sup>6</sup>

The existence of an altruistic joint utility function does not necessarily imply that it is exogenously given or constant over time, and many critics of the neoclassical approach to family behavior question the plausibility of its basic assumptions.<sup>7</sup> Nevertheless, as Becker and Stigler note, the strength of the neoclassical approach lies in the fact that it provides an economic explanation of behavior rather than a simple description of tastes, preferences, cultures, or traditions.<sup>8</sup> Further, it generates empirically testable hypotheses. Few if any critics offer an alternative approach to household decision making that is both consistent with the principle of economic rationality and accessible to empirical analysis.

In the following pages I outline such an alternative, based on four propositions: (1) altruism in the family coexists with conflict of interest over the distribution of goods and leisure time; (2) individual shares of the family's or household's total income are determined in part by individual bargaining power within the household; (3) the relative bargaining power of men, women, and children changes in the course of economic development; and (4) changes in bargaining power lead to changes in the distribution of goods and leisure time and affect the price of goods, including children, produced in the household. These propositions provide the microeconomic foundation for a theory of fertility decline that not only includes changes in relative prices, but also encompasses economic and political changes that affect the bargaining power of women and children within the household.

The bargaining power perspective is illustrated by an analysis of the distribution of income and leisure time within rural households of the Laguna Province of the Philippines. The first section of the paper provides a review of several analyses of the Philippine data which exemplify the neoclassical approach to household production. The second section documents the importance of income flows from older children to parents in Laguna households. It explains how cross-sectional differences in income flows may be related to differences in wealth and argues that historical decreases in parental wealth relative to children's income diminish the bargaining power of parents relative to children. The final section demonstrates inequality in the distribution of goods and leisure time between men and women in Laguna households and shows that women bear a disproportionate share of the costs of rearing children. Cross-sectional differences in inequality are related to bargaining power variables, and political and legal changes that may influence women's bargaining power in the long run are described.

## I. Neoclassical Economic Analyses of the Household

The paradigmatic neoclassical economic approach to the household is clearly displayed in a number of studies based on data collected in a 1975 survey of 576 households in the Laguna Province of the Philippines and an intensive resurvey of 99 of these households.<sup>9</sup> (A description of the Laguna data is provided in Appendix A.) Most of these studies deal with factors affecting the demand for children. Following the conventions of the genre, the authors pass lightly over the assumption of an exogenously given joint utility function. In one paper, Evenson simply asserts that the

presumption of joint utility function seems appropriate to "the male dominated families of much of the low income world."<sup>10</sup> In another paper, Evenson, Popkin, and King-Quizon write that the assumption "means simply that the household members agree to certain household management rules regarding the distribution of income within the household, and the allocation of household member's time."<sup>11</sup>

These analyses center on the development of a theoretical structure which generates first- and second-order conditions for optima from which demand functions can be derived. Hours of work and market wages are directly observed. The "prices" of children and the "wages" for household labor, however, are not determined by the market, and various methods are used to estimate shadow prices. In some instances a methodology developed by Gronau is used to estimate the parameters of a home production function.<sup>12</sup> In Gronau's approach the female market wage, assumed to represent a lower bound on the value of women's work in the home, is employed as an approximation of the value of their time.<sup>13</sup> Because relatively few women or children in Laguna actually work outside the home, their potential wages are estimated by predictive equations using such factors as education and age as independent variables.<sup>14</sup> The shadow price of children is calculated as a weighted sum of the direct cost of inputs such as food, clothing, and education and the shadow price of time devoted to their care. Shadow prices of children differ among families of different incomes because their costs rise with the value of mother's time, which tends to increase with income.<sup>15</sup>

Neoclassical analyses of the Laguna survey data provide a number of interesting and important results. They confirm the suspicion that household production outside the market is quite significant in Laguna. While the average market income of families amounted to only 5,783 pesos per year in 1975, average home production was valued at 7,554 pesos, bringing their average total "full income" to 13,337 pesos.<sup>16</sup> These estimates also confirm the intuition that the opportunity cost of time is the most important component of the total cost of children. The average annual cost of food, clothing, and medical expenses for a child two years of age and under was 206 pesos. For a middle-income family the average total annual cost, including time, was 1,880 pesos. Some of this cost, however, was effectively defrayed by children's contributions to the household, which averaged about 15 percent of market income and 30 percent of household production time among farm families.<sup>17</sup>

Estimates of shadow prices provide the basis for testing the hypothesis that the household's demand for goods such as child number and child quality is a function of their shadow prices. Banskota and Evenson derive compensated elasticity relationships (holding full income constant) for number of children, investment in schooling, child leisure, parent leisure, and a composite of other commodities.<sup>18</sup> Several of the estimated price effects are consistent with the hypotheses.<sup>19</sup> Child wages had a significantly positive impact on number of children, with an elasticity of .74; mother's wages had an important negative impact, with an elasticity of -.27.<sup>20</sup>

Cross-sectional results such as these lend support to the neoclassical theory of fertility decline articulated by Schultz, Willis, and others.<sup>21</sup> If differences in fertility between households can be attributed to differences in relative prices, changes in the price of children over time may account for fertility decline. Viewing the expansion of market production as a natural outcome of the superior efficiency of market economies, these economists emphasize the effect of increases in female wages on the opportunity cost of children. Explaining the growth of education as a natural outcome of increases in the rate of return to human capital, they stress consequent increases in the cost of rearing children. In their view, fertility decline is primarily the result of technological change.<sup>22</sup>

But if social change is held constant by assumption, technical change is the only possible explanation of fertility decline. The assumption that joint utility functions are constant and exogenously given is tantamount to the assumption that no social change takes place. It implies that the degree of dictatorship and/or the degree of altruism in the family remain constant over time. It requires that the family itself be treated as a naturally given, ahistorical institution.

An alternative approach treats the family as a socially constructed institution that differs substantially between groups and evolves significantly over time. A first step in developing this approach is to go beyond the assertion that dictatorship or altruism exist in the family and move toward an analysis of factors that may affect the relative role of women and children in household decisions. Data from the Laguna household survey provide a starting point for such an analysis.

## II. Relations Between the Generations

Parental authority over young children is consistent with an altruistic dictator theory of household decision making. Since children are not capable of making decisions until they reach a certain age, decisions are often made for them. Such decisions are normally made in their own interest, although this is not always the case.<sup>23</sup> Young children who are capable of making independent decisions are often subject to the household's joint utility function whether they like it or not, since parents normally have legal authority over minors.

There is a significant cross-cultural and historical variation in the degree to which young children contribute to household income. In some societies they begin to work in the household at the ages of seven or eight, with little or no interruption for education.<sup>24</sup> In others, school attendance may begin at the ages of five or six and absorb most of children's time until well into adulthood. These variations are clearly linked to differences in the technological character of work and returns to education. Therefore, it might be plausibly argued that parents everywhere have similar interests in the well being of their children but pursue different means of realizing these goals in large part because they operate in different economic contexts.

It is far more difficult to explain relations between parents and their adult children in these terms. Children living outside the household seldom fall under the power of an altruistic dictator, and flows between them and their parents are determined partly by their own preferences. Perhaps because of the theoretical difficulty of aggregating these preferences with those of parents, many analyses of the household, including the Laguna studies reviewed above, assume that children leave the family (and the family's joint utility function) when they leave the home.

More recent studies document the important economic contributions of non-resident children in a number of different cultural contexts.<sup>25</sup> Although data on income remittances were not collected in the Laguna survey, information was gathered on the number and ages of surviving family members not residing in the household. The mean difference between the number of surviving family members and the number residing in the household was .613, with a standard deviation of .48. These data made it possible to estimate the empirical significance of contributions from both resident and non-resident family members. The following equation was specified:

$$\ln I = a_1 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + \sum_{i=5}^{15} b_iX_i$$

- Where I = Household income  
X<sub>1</sub> = Household wealth  
X<sub>2</sub> = Education of father  
X<sub>3</sub> = Age of father  
X<sub>4</sub> = Age<sup>2</sup> of father  
X<sub>5</sub>-X<sub>15</sub> = Number of family members in discrete age groups

The sample was restricted to those families in which both mother and father were present. Household wealth was defined equal to the sum of the values of farm assets, owned land, consumer durables, house, tools, pensions, business capital and interest, less outstanding debts.<sup>26</sup>

The results are reported in Table 1. The number of children ages 25 to 34, unlike the number of children in any other age category, had a significant positive effect on household income. Children between the ages of 16 and 24 had a positive but insignificant effect. When the sample was restricted to families who had one or more children ten years of age or older, the results were similar. The elasticity of household income with respect to number of children ages 25 to 34 was .22. A 100 percent increase in the number of children in that age category, in other words, was associated with an increase in income (calculated at the sample mean) of 742.4 pesos (an amount roughly twice as large as Cabañero's estimate of the net benefits of children over age 18 residing in the household). Unless these results reflect some life-cycle effect not fully captured by the age variable, children who were mature enough to be earning a substantial income, but who were not yet burdened with large families of their own, made a significant contribution to their parents' income.

These results have significant implications for the interpretation of the results of the Laguna studies cited earlier. In the first place, they suggest that Cabañero and others overestimated the shadow cost of children by failing to deduct their adult remittances from their cost. More importantly, these results cast doubt on the conventional interpretation of the effect of education on the costs of children. Education clearly increases the net costs of young children. But if increased education leads to increased earnings (as neoclassical theory suggests it should) and leaves the propensity of adult children to contribute to parental income unchanged, it should decrease the net cost of children.

This raises an important question. What determines the propensity of adult children to contribute to parental income? Willis has recently emphasized the importance of reciprocal altruism.<sup>27</sup> Altruism, however, comes in varying degrees and other forces may affect income flows between the generations. Becker in fact acknowledges at least one economic factor that may influence intrahousehold altruism-wealth. "Parents may use contingent transfers of wealth to provide children with a long run incentive to consider the interests of the whole family."<sup>28</sup> Becker does not seem to recognize that use of wealth as a source of bargaining power may render the joint utility function endogenous to the household.

Joint utility functions in families where parents control substantial wealth may be very different from decision making in other families. The estimates of the effect of non-resident family members on household income described above are consistent with this possibility. The effect of non-resident family members ages 25 to 34 (in all families with mother, father, and one or more children over age ten) was much more pronounced among families with greater than average wealth, with a coefficient of .321 relative to a coefficient of .195 for all families. In families with less than average wealth, by contrast, none of the age groups of children had significant effects (see Table 1). It may be that the modest levels of wealth which were above average in this sample provided a pecuniary incentive for children to share their income with their parents.

The differential effect of household wealth may also be explained by differences in children's earning capacities, differences related to transfers of human and/or physical capital. Since information was not collected in the Laguna household survey on the educational level or earnings of non-resident children, this possibility cannot be explored.

Cross-sectional differences in the relative influence of parents and adult children on household decisions could easily confound empirical estimates of the effects of relative prices on households. Historical changes in household joint utility functions have even more significant implications for understanding the outcome of the decision-making process. In fact, such changes provide the basis for an alternative theory of fertility decline.

In the Philippines as a whole, parents' expectations regarding the potential contribution of children have been well documented. In the Value of Children sample survey conducted in 1973, parents emphasized the economic



benefits of children, and 29 percent singled out assistance in old age as most important.<sup>29</sup> In response to a question regarding sources of financial support in old age that were currently being relied on, 62 percent spontaneously mentioned children and 24 percent expected to rely on children a great deal in the future. Unlike numerous respondents in many other countries, a majority of Filipinos (73%) said they believed children of their generation were at least as willing as those of the previous generation to support parents in old age.<sup>30</sup>

Will these expectations remain stable over time? The Value of Children Survey shows that economic development is associated with a decline in the magnitude and reliability of children's contributions to parental income.<sup>31</sup> Caldwell argues that such changes in intergenerational income flows are a result of modernization and education.<sup>32</sup> In Becker's vocabulary such a shift might be described as an exogenous decline in children's altruism toward their parents or as an exogenous increase in parents' altruism toward their children.<sup>33</sup> In either case it constitutes a significant historical transformation of joint utility functions.

This transformation need not be pictured as an exogenous cultural event. If the process of decision making in the family is pictured as a bargaining process in which relative individual endowments determine distributional outcomes, changes in income flows between the generations can be seen as the result of changes in patterns of ownership and control of wealth and access to income.

In an economy based on elder male ownership and control of land, older people wield considerable bargaining power.<sup>34</sup> The process of capitalist development is associated with a decline in the percentage of households that own and farm their own land as well as an increase in wage labor. Increasing landlessness among farm families diminishes the relative value of parental assets, while the potential for market employment, particularly in the modern sector, makes many children less economically dependent upon inheritance of parental assets.<sup>35</sup>

During this transformation, altruism in the family continues to provide family members with a certain amount of security and protection against risk, but actual income flows from adult children to parents decline. The development of social security systems by the state may both result from and accelerate this decline.<sup>36</sup> The end result is identical to that in the neo-classical story. Families reduce their fertility. But the plot of this story is much thicker. The process of decision making within the family is changed. By asserting their economic independence, children raise their own "price."

### III. Inequality Between the Sexes

Changes in the distribution of goods and income between the sexes in the household may also have an effect on the household's joint decisions. Neo-classical theorists have provided a good explanation of the economic benefits

that men and women may enjoy if they cooperate within the household. There are a number of reasons why women may choose to "specialize" in home production, and there are a number of reasons why this specialization may be reproduced over time.<sup>37</sup> Nevertheless, while neoclassical theorists provide a good explanation of differences in the type of work men and women do, they do not provide an explanation of inequality in the amount of time men and women spend working or of inequality in the amount of goods they consume.

The concept of altruism embodies many of the ideals of married life. Like most ideals, however, these are seldom fully realized. Unequal participation in family decision making is widely recognized and a growing body of literature documents unequal distribution of income and leisure time between men and women in the household.<sup>38</sup>

Analyses based on the Laguna survey data reveal a distinct pattern of inequality. Valenzuela reports considerable inequality in household diets, observing the mean nutrient intake of household members and calculating this consumption as a percentage of sex and age-specific Recommended Daily Allowances (RDAs).<sup>39</sup> As can be seen in Table 2, males in every age category consumed a greater percentage of their estimated protein requirement than females. Men typically consumed a greater percentage of their recommended caloric allowance as well, although male preschoolers received one percentage point less than female preschoolers.

The most striking differences pertain to adult consumption. Adult males received 101 percent of their RDA of calories and 116 percent of their RDA of protein, while adult females' diets were deficient, providing only 87 percent of the caloric RDA and 79 percent of the protein RDA. The validity of these comparisons hinges on the accuracy of the RDA assessments. Nevertheless, as Evenson, Popkin, and King-Quizon note, there is little or no evidence of a serious age-sex bias.<sup>40</sup>

Although the available data do not describe the distribution of household expenditures between men and women, Cabañero's analysis of the Laguna survey data included a comparison of expenditures on food, clothing, and medical services for children by sex and age. As can be seen in Table 3, average expenditures on girls were slightly greater for children under the age of nine (645 pesos compared to 638 pesos), but after that age boys received far more than girls. In addition, boys enjoyed substantially more direct child care time from their mothers in every age category but the 12 to 14 years group and the 18 years and over group.

Despite the fact that girls received less from the parental household than boys, they worked longer hours (see Table 4). One of the most notable results of the Laguna study was the documentation of the extent of children's labor, both in the household and in the market. Girls ages 12 to 17 spent much less time in market work than boys did, but they more than compensated for this by time spent working in the household. Further, at age eighteen, girls not only substantially increased the time spent in housework but they also devoted a substantial amount of time to market work. As a result, girls age 18 and over worked, in total, a remarkable 33 percent more than boys.

It is possible that both boys and girls pocketed a significant percentage of their market earnings. Nevertheless, girls who performed more work at home were less likely to benefit personally from their labor, suggesting that this inequality may have been even more pronounced.

A sex differential in the amount of time devoted to work was as apparent among adults as among children.<sup>41</sup> The adult women in Laguna worked unequivocally longer hours than adult men. The size of the differential, however, varied a great deal across samples of the population. The most extreme differences in the amount of time adults spent working emerged in the larger sample based on interviews in which respondents were asked to recall their time allocation. As can be seen in Table 5, mothers in this sample worked an average of 68.46 hours per week (51.56 hours in the home, 16.9 hours in the market), while men worked an average of 52.85 hours (3.44 hours in the home, 49.41 hours in the market). It is curious to note that differences between the sexes among farm families within this sample were relatively low (11.4 hours per week), while differences among non-farm families were much larger (21.7 hours per week). This variation may be attributable to the greater prevalence of unemployment among non-farm males.<sup>42</sup>

Differences in hours worked do not necessarily imply inequality in work effort, since they might be compensated for by differences in the intensity of work. Women might work more hours than men simply because the particular type of work they do is less demanding or less onerous.<sup>43</sup> Household production and child care tend to be performed in the absence of direct supervision, and although children impose fairly stringent requirements in terms of timing, the mother probably sets her own work pace. Some time devoted to child care may be pleasurable enough to serve as a fair (or better than fair) substitute for leisure time. Therefore, it is important to explore both the qualitative and the quantitative dimensions of household time allocation in more detail.

Almost all adult women in the Laguna survey were mothers, since the survey was based on households. The age composition of the household's children had a far more significant effect upon mother's time than the presence or absence of an additional child. While the average woman surveyed worked 69.4 hours per week, mothers with children under age three worked an average of 84.67 hours (see Table 6). Time devoted to children is largely responsible for differences in work time between the sexes. If the average child care time was subtracted from total work time, the average woman's hours worked would not be significantly different from her husband's (61.3 hours and 59.6 hours, respectively). Similarly, among households with a child age three or younger, a woman's work week net of child care time would be 64.4 hours in comparison to her husband's 64.5 hours (see Table 7 for father's hours).

If child care time was labeled leisure rather than labor, the Laguna household would regain some semblance of equality. But if child care in and of itself provided psychic benefits, one can only wonder why men denied themselves such pleasures. Fathers spent an average of less than one hour a

week caring for children. In households with a child under age 3 present, time devoted to child care was slightly greater at 1.19 hours per week (see Table 7).

One reason why fathers spent so little time caring for their children was that they specialized in types of work less complementary to child care. If this specialization fully explained the allocation of their time, one would expect men who spent relatively more time in income-producing activities at home or on the farm to spend relatively more time with their children. Although several different models of the relationship between time spent in care of poultry and livestock, crop production, and father's child care time were tested, none revealed any significant relationship. Even those fathers who were unemployed or employed less than 20 hours a week devoted very little time to child care. These results suggest that men not only had no taste for child care, but may have had an aversion to it.

Since women bore most of the direct time costs of young children, one might expect a large proportion of the indirect costs to have been shouldered by the father. As mothers reallocated their time toward child care, men might have increased the amount of time spent in non-income-producing home production (housework) or increased the amount of time spent in market work in order to purchase additional food and clothing or to provide substitutes for the goods and services that the otherwise occupied mother could not provide. This hypothesis was tested via a multiple regression model treating total hours worked as the dependent variable and using household wealth, household income, number of children under age one, number of children ages one to three, and participation in market work (a dummy variable) as explanatory variables.<sup>44</sup>

The estimated coefficients for both men and women are shown in Table 8. Children ages one to three had a significant effect on the total work hours of both mothers and fathers, but the effects were quite different in magnitude. A doubling of the number of children in that age category increased women's work time almost twelve percent, but increased men's work time only five percent.

Women bore a disproportionate share of the total time costs as well as the direct time costs of infants. This does not necessarily mean that they bore a disproportionate share of the total costs, since the father's level of consumption could have been reduced. If the time that mothers devoted to children replaced time that had previously been allocated to market work or housework, the household's full income would have been lowered. Did this in fact occur?

The relationship between child care time and income earning activities in Laguna has been explored by Ho. She shows that time spent by mothers in the care of young children drew very little time from their market production. Although mothers with a child under one year of age spent only half as much time in the market as other women, mothers with a youngest child one to six years old worked almost as many hours in the market (15.4 hours) as mothers without any young child (15.1 hours).<sup>45</sup> Ho argues convincingly

that child care time was less likely to diminish market activities in the home or close to home than to diminish wage employment outside the home. My own estimates show that children under age one had a significant negative impact on time devoted to wage work, although no children of other age groups had a significant effect. In a model controlling for household wealth, the estimated coefficient on number of infants was  $-4.279$ . The elasticity of hours devoted to wage work with respect to number of infants (calculated at the sample means) was relatively small, at  $-.90$ . A doubling of the number of infants was associated with a reduction in wage work of only nine percent.

Even more striking is the fact that time allocated to child care had only a negligible effect on the amount of time devoted to non-income-producing household work (housework). As can be seen in Table 6, in which households are grouped according to the presence of young children and participation in wage labor, the amount of time women devoted to housework was quite similar in all households. Although average total hours worked varied from 60.38 to 106.45, time devoted to housework varied only from 40.09 to 47.84 hours per week.

Women who worked for a wage outside the home spent slightly less time caring for children than the average woman (9.5 vs. 10.7 hours), spent virtually the same amount of time doing housework (39.55 vs. 39.39 hours), but worked almost 27 hours more per week. One would expect at the very least that the demands of young children or market employment would result in a greater variance in time devoted to housework. Yet the standard deviation is remarkably similar for all groups.

The time that mothers devoted to children, in short, had a surprisingly small effect on their contribution to the household's full income. It was paid for largely by a sacrifice of their own leisure. The possibility remains that women did not consider such a substitution a sacrifice. But if child care time is construed as an activity that imposes some of the burdens or responsibilities of work, the household's distribution of work responsibilities must be deemed quite unequal. As Evenson, et al. note, "it is difficult to make the case that differences in the taste for work and leisure exist."<sup>46</sup> It is even more difficult to make the case that women have a different "taste" for meeting their RDA for protein. The juxtaposition of inequality in household distribution of consumption goods and leisure seems more than coincidental.

Such inequality suggests that while husbands receive some utility from their wife's consumption and leisure, they obtain even more utility from their own. It further suggests that the utilities of husband and wife may not be given equal weight in the "household's" joint utility function. Why would women enter such a household? Perhaps because they face a relatively unattractive alternative.

In the Philippines as a whole in 1974, the average weekly earnings of all salary and wage earners in government and private enterprise were 69 pesos for men and 44 pesos for women.<sup>47</sup> The wage differential between married men and married women in the Laguna sample, an indicator of relative earning

ability in the event of separation or divorce, was pronounced. Women's average wage was 1.15 pesos in comparison to men's 1.72. This differential was actually less than that typical of non-wage forms of market work. Mothers who operated businesses of their own devoted more hours per week to running them than did fathers (see Table 9). Despite their efforts, women earned significantly lower profits per hour worked than did men (.98 and 4.07 pesos, respectively).

Recognizing a dimension of potential conflict in the household, Manser and Brown, as well as Horney and McElroy, argue that a joint utility function might be more realistically described by a Nash bargaining model in which market wages for men and women are "threat points" in a bilateral bargaining process.<sup>48</sup> While this approach retains the neoclassical emphasis on individual optimization, it raises the prospect of endogenous joint utility functions that vary across families.

The potential effect of relative wages on bargaining power in the household suggests a negative relationship between women's wages/men's wages and women's total hours worked/men's total hours worked. There were only 55 Laguna households in which both mother and father worked for a wage. Within this small sample, the coefficient on relative wages was negative but insignificant. Although the sample size might have been increased by predicting men's and women's earnings, none of the estimating equations explained very much of the variation in either men's or women's wages.<sup>49</sup>

Another household specific factor with a potential impact on bargaining power is wealth. In household with above average wealth, women are likely to enjoy relatively high productivity in household production which may diminish the impact of the male-female wage differential. In case of divorce or separation, women have a legal claim on household wealth that is virtually commensurate with men's legal claim. The Laguna survey data show that inequality of work effort was in fact much less pronounced in the wealthiest families. Within families with greater than average wealth (N = 168), men worked an average of 60.6 hours, women an average of 65.4 hours. Within families with less than average wealth, men worked an average of 56.4 hours a week, women an average of 73.2 hours.

As in the case of intergenerational bargaining power, cross-sectional differences in household decision making, while significant, have less far reaching implications than potential sources of historical change. For instance, certain provisions of Philippine law limit the bargaining power of women in all households. Married Filipino women's power over property in the conjugal partnership is legally subordinate to that of their husbands. Husbands may determine the household's domicile and according to Philippine law "a husband may prevent his wife from exercising any profession or occupation or engaging in any business if (a) his income is sufficient for the family according to its social standing and (b) his opposition is founded on serious or valid grounds."<sup>50</sup> These laws are the product of a relatively recent revision of the Penal Code, replacing an earlier, less equitable body of legislation.

Mitigation of such institutional inequalities, as well as explicit efforts to overcome labor market discrimination, could influence women's age at marriage, increase women's market wages, and/or directly improve their bargaining power in the household.<sup>51</sup> Increases in women's influence on household decisions clearly represent changes in joint utility functions. Such changes affect the entire range of household production decisions. If women demand more leisure, for instance, the marginal product of their labor is increased and goods that are female labor-time intensive, such as child-rearing, become more expensive to other family members. By shifting some of the costs to fathers, mothers may help motivate a "joint" decision to limit family size.

### Conclusion

Neoclassical economic analyses of household production do not represent "the economic approach" to household behavior. They represent one economic approach. It is an approach that tends to ignore economic inequalities or to explain them as an incidental result of a collective quest for efficiency. It is an approach that seldom acknowledges the importance of non-market institutions such as patterns of property ownership or rules of law. It is an approach that offers what is at best an incomplete explanation of the demographic transition to lower fertility rates.

The claim that political struggle over the allocation of resources affects economic outcomes has a long and distinguished history in economic theory.<sup>52</sup> Recently, economists have begun to use game-theoretic approaches to show how individual optimization may shape the formation and evolution of non-market institutions.<sup>53</sup> This paper shows how and why a bargaining power approach is relevant to an understanding of household production and its changes over time. It explains how changes in access to wealth, income, legal rights, and political power may change the nature of decision making in the household.

Further development of this approach clearly requires a more formal specification of a bargaining power model. The effects of such factors as wealth, education, and relative wages on an individual's bargaining power within the family require further study. Nevertheless, the empirical results presented here clearly illustrate a credible agenda for future research. They also offer a strong rationale for the development of household surveys that could provide additional data describing the distribution of the household's full income among its members.

APPENDIX A  
The Laguna Household Survey

The Laguna Multipurpose Household Survey was designed and implemented by an interdisciplinary group of scholars based at the University of the Philippines. In 1975, five hundred seventy-six rural households in Laguna Province were selected at random from thirty-five barrios, representing four main types of occupational groupings. These four types were (1) lowland farming; (2) upland farming; (3) fishing; and (4) semiurban industry. A very long, multipurpose questionnaire was utilized, and most of the time data were collected by the recall method. In 1975 and 1976 an "intensive" subsample of 99 households was re-surveyed and emphasis was placed on direct observation of time allocation and dietary intake.

Because of its proximity to Manila, Laguna is one of the more economically developed provinces of the Philippines. Fertility levels in Laguna in 1970 were close to the national average: the average number of children born to ever-married women ages 45 to 59 was 5.3 in Laguna and 5.4 in the country as a whole.



Table 1

Effect of Age Composition of Surviving Children  
on Household's Annual Income  
(t-Statistics in Parentheses)

	All Households with Mother and Father Present  (1)	Subset of 1: Households with One or More Children Older than 10  (2)	Subset of 2: Households with Above Average Wealth  (3)	Subset of 2: Households with Below Average Wealth  (4)
Intercept	7.221	7.560	9.127	7.000
Education of father	.120* (4.48)	.171* (2.90)	.109* (2.15)	.149 (1.89)
Age of father	.069 (.80)	.153 (1.28)	-.031 (-.12)	.132 (.90)
Age <sup>2</sup> of father	-.034 (-.25)	-.239 (-1.01)	-.444 (-1.09)	-.123 (-.41)
Wealth	.119* (5.27)	.120* (3.35)	.096* (2.70)	.906* (1.94)
Age of children: 35+ years	-.097 (-1.22)	-.190	-.450 (-2.89)	-.092 (-.57)
25-34 years	.173* (2.66)	.195* (2.06)	.321* (2.52)	.133 (.96)
20-24 years	.015 (1.20)	-.108 (-.99)	.168 (1.01)	-.213 (-1.44)
16-19 years	.126 (1.62)	-.028 (-.20)	-.208 (-1.12)	.144 (.78)
13-15 years	-.029 (-.35)	-.136 (-.81)	-.367 (-1.59)	-.052 (-.24)
10-12 years	.093 (1.19)	.043 (.26)	.157 (.61)	-.026 (-.13)

	All Households with Mother and Father Present  (1)	Subset of 1: Households with One or More Children Older than 10  (2)	Subset of 2: Households with Above Average Wealth  (3)	Subset of 2: Households with Below Average Wealth  (4)
7-9 years	.065 (.92)			
4-6 years	.092 (1.28)			
1-3 years	-.045 (-.55)			
1 year	-.132 (-.97)			
N	539	247	77	170
F-ratio	6.72	2.17	2.73	1.36
R <sup>2</sup>	.162	.118	.293	.08

Elasticities of Variables with Significant Coefficients  
in Households with Children Older than 10

Variables	Sample Mean	Calculated Elasticity
Education	2.263	.876
Wealth	1.324	.209
Children aged 25-34	1.073	.224

\*Significant at .05 confidence level.

Table 2

Nutrient Intake of Children Grouped According to Age and Sex

Nutrients	Mean Nutrient Intake Expressed as % RDA							
	Male				Female			
	Group 1 (N=55)	Group 2 (N=70)	Group 3 (N=47)	Group 4 (N=15)	Group 1 (N=64)	Group 2 (N=61)	Group 3 (N=33)	Group 4 (N=12)
Calories	81	79	73	101	82	70	70	87
Protein	111	119	78	116	96	88	64	79
Diet rating	56	57	54	65	55	53	50	56
Calcium	58	66	57	84	63	60	46	94
Iron	121	161	120	180	132	142	89	61
Vitamin A	16	17	21	24	27	15	22	19
Thiamin	47	39	32	49	50	43	35	45
Riboflavin	66	40	34	46	53	42	33	52
Niacin	71	76	74	112	71	66	76	82
Vitamin C	22	52	38	40	62	64	56	42

Source: Rosario Valenzuela, "Adequacy of Nutrient Intake within the Filipino Family," MS thesis, Pennsylvania State University, 1978.

Note: Group 1 = pre-schoolers, group 2 = school age, group 3 = adolescents, group 4 = adults.

Table 3

Distribution of Average Annual Expenditures by Sex and Age:  
Food, Clothing, Medical Services, and Mother's Child Care Time

Age Group (Years)	Expenditures on Food, Clothing, Medical Services (pesos)			Mother's Time Devoted to Child Care (hours)		
	Male	Female	Male/ Female	Male	Female	Male/ Female
0-2	182.87	220.66	.83	464.9	381.51	1.22
3-5	274.39	195.45	1.40	268.36	226.48	1.18
6-8	210.42	228.47	.92	116.32	59.31	1.96
9-11	242.37	228.8	1.06	48.02	44.36	1.08
12-14	257.26	236.28	1.09	36.32	48.84	.74
15-17	272.06	202.04	1.35	29.87	3.96	7.54
18 and over	312.13	241.17	1.29	16.49	38.46	.43
Sample size	211	197		208	195	

Sources: T. Cabañero, "The 'Shadow Price' of Children in Philippine Rural Households," MA thesis, University of the Philippines, 1977; "The 'Shadow Price' of Children in Laguna Household," Philippine Economic Journal, no. 36, vol. XVII, nos. 1, 2, 1978.

Table 4

Children's Time Contributions to the Household  
(Average Annual Hours per Child)

<u>Age Group</u> (Years)	<u>Work in Market</u>		<u>Work at Home</u>		<u>Total Work</u>		
	Male	Female	Male	Female	Male	Female	Male/ Female
3- 5	0	0	92	137	92	137	.67
6- 8	218	116	200	274	418	390	1.07
9-11	302	434	306	473	608	907	.67
12-14	885	464	351	790	1,236	1,254	.98
15-17	1,148	979	454	633	1,602	1,712	.94
18 and over	1,523	1,320	170	925	1,693	2,245	.75

Source: T. Cabañero, "The 'Shadow Price' of Children in Philippine Rural Households," MA thesis, University of the Philippines, 1977.

Table 5  
Allocation of Adult Work Time in Laguna Households  
(Hours per Week)

Activity	Father's Time	Mother's Time	Father's Time/ Mother's Time
All households:			
Market work	49.41	16.90	2.92
Home production	3.44	51.56	.07
Total	52.85	68.46	.72
Farm households:			
Market work	52.1	16.3	3.20
Home production	3.2	50.3	.06
Total	55.3	66.7	.83
Nonfarm households:			
Market work	45.5	17.7	2.57
Home production	3.8	53.3	.07
Total	49.3	71.0	.69

Source: Robert E. Evenson, Barry Popkin, and Elizabeth King-Quizon, "Nutrition, Work, and Demographic Behavior in Rural Philippine Households," Economic Growth Center Discussion Paper no. 308, January, 1979, pp. 34-35.

Table 6

Allocation of Women's Time: Housework, Child Care, and Market Work  
(Hours per Week)

		Total Worked		Housework		Child Care		Market Work	
		$\bar{M}$	6	$\bar{M}$	6	$\bar{M}$	6	$\bar{M}$	6
All households	573	60.38	-0-	42.42	24.82	10.08	17.33	6.20	15.43
All households where both parents were present	539	72.00	39.55	43.29	24.66	10.68	17.69	5.84	15.08
All households with child under age 3	246	84.67	39.88	47.84	24.12	20.75	20.27	4.89	13.66
All households where mother engaged in market work	82	98.67	39.39	40.09	24.17	9.50	18.03	38.13	15.76
All households where both parents engaged in market work	55	106.45	40.40	43.77	22.48	11.21	19.18	39.35	15.42

Note: Housework is defined as non-income producing household production; present is defined as having worked more than 0 hours.

Table 7  
Allocation of Father's Time

	Observations	Child Care (Hours per Week)		Housework (Hours per Week)		Work (Hours per Week)	
	(N)	$\bar{M}$	$\sigma$	$\bar{M}$	$\sigma$	$\bar{M}$	$\sigma$
All households	573	.686	4.39	2.75	6.92	58.63	34.81
All households where mother and father were present	447	.864	4.95	2.60	6.56	60.42	33.49
All households with mother and children < 3 years old	246	1.10	5.66	2.75	6.74	65.64	33.56



Table 8

Effect of Young Children on Mother's and Father's Total Hours Worked  
(Standard Errors in Parentheses)

	N	Total Hours Worked  ( $\bar{M}$ )	Children Ages 1-3  ( $\bar{M}$ )	Household Wealth  Pesos	Household Income  Pesos	Partici- pation in Wage Labor	Children Aged < 1	Children Aged 1-3
Mothers <sup>1</sup>	531	72.06	.5	-.112 (-.15)	-.215 (-1.16)	33.140* (7.67)	6.388 (1.44)	19.475* (8.08)
Elasticity of Mother's Total Hours Worked with respect to Children Ages 1-3 = .118								
Fathers <sup>2</sup>	531	60.15	.5	.292 (.45)	.366* (2.28)	24.506* (8.92)	2.126 (.55)	5.095* (2.43)
Elasticity of Father's Total Hours Worked with respect to Children Ages 1-3 = .047								

Note: The sample is restricted to those households in which both mother and father worked more than 0 hours.

<sup>1</sup> Mothers:  $R^2 = .20$ ;  $F = 26.48$ .

<sup>2</sup> Fathers:  $R^2 = .16$ ;  $F = 19.93$ .

\* Statistically significant at .02 level.

Table 9

Production for Market: Hours Worked and Hourly Earnings of Mothers and Fathers

Type of Work	Fathers (N)	Mothers (N)	Fathers (Mean)		Mothers (Mean)	
			Hours per Week	Hourly Earnings	Hours per Week	Hourly Earnings
			( $\bar{M}$ )	( $\bar{M}$ )	( $\bar{M}$ )	( $\bar{M}$ )
Wage work	248	80	43.06	38.13	1.72*	1.15*
Care of poultry and livestock	298	211	15.94	10.40	.25 <sup>a</sup>	.07 <sup>a</sup>
Crop production	283	27	25.51	16.34	2.35	1.98
Professional	3	2	36	18.5	1.33	1.5
Business	36	52	39.03	44.29	4.07 <sup>b</sup>	.98 <sup>b</sup>

\* Hourly earnings in primary job.

<sup>a</sup> The Laguna survey variable codebook mistakenly computed this variable by dividing the number of hours worked in a day by the daily wage, rather than vice versa. The numbers reported here are the reciprocals of these numbers.

<sup>b</sup> These means are based on actual profits and actual hours worked, unlike the computed codebook variable which arbitrarily set men's work week equal to 50.1 hours, women's work week at 42.8.

Table A.1.  
Summary Income Statistics for All Households  
(Laguna 1975 Survey)

	Net Income All Sectors	Rice	Other Crops	Live- stock	Fishing	Wages	Business	Profes- sional	Home Pro- duction	Gar- dening	Other
No. of households with income	575	180	163	345	55	390	87	10	121	287	490
% of households with income	99.83	31.25	28.30	59.90	9.55	67.71	15.10	1.74	21.01	49.83	85.07
No. of households with negative income	14	13	28	174	2	0	0	0	0	0	0
Mean	5,762	1,016	242	636	253	1,718	779	27	226	58	808
Household income decile:											
10	696	83	-102	-374	110	240	69	30	20	5	100
20	1,181	224	29	-96	235	504	240	100	72	12	140
25	1,456	375	73	-60	306	626	300	110	100	16	180
30	1,662	599	113	-40	335	800	576	120	144	20	230
40	2,259	920	189	-13	664	1,080	1,080	160	269	28	275
50	3,182	1,281	349	-2	986	1,680	1,440	220	396	45	360
60	4,255	2,112	521	38	1,408	2,304	2,200	240	672	75	500
70	5,674	3,289	655	192	1,966	2,072	3,360	2,764	1,008	110	600
75	6,862	4,590	736	266	2,498	3,456	3,960	2,962	1,248	125	782
80	8,713	6,054	923	559	3,726	3,844	5,040	3,160	1,690	150	1,200
90	12,890	9,404	2,300	1,350	5,738	6,120	8,760	3,600	2,760	290	1,800
100	88,298	34,347	19,416	59,945	40,437	26,439	87,000	5,400	11,011	3,027	13,659
% of income by source	100.0	17.63	4.20	11.04	4.39	29.81	13.52	.47	3.92	1.01	14.02

Source: R. E. Evenson, Barry Popkin, and Elizabeth King-Quizon, "Nutrition, Work, and Demographic Behavior in Rural Philippine Households," Economic Growth Center Discussion Paper no. 308, Yale University, January 1979.

Table A.2.

Distribution of Major Occupations of Fathers and Mothers  
(Laguna Barrios, May-June 1975)

Occupation	Total N = 576	
	Fathers (%)	Mothers (%)
Unemployed or housework only	8.3	59.9
Farmer	36.3	3.1
Hired farm laborer	19.4	6.4
Weaving	.3	8.9
Buy-and-sell entrepreneur	2.3	8.0
Sari-sari storekeeper	.3	4.7
Fisher	6.4	.3
Manual laborer	5.4	.3
Private business employee	4.0	.2
Jeepney or tricycle operator	3.8	--
Government employee	3.1	.2
Carpenter	3.0	--
Livestock raiser	4.2	.9
Laundry woman	--	1.6
Garments maker	.2	1.9
Teacher	--	1.4
Factory worker	1.4	1.0
Mechanic	.5	--
Shopkeeper	.5	.2
Food-beverage preparer	.3	.5
Others	<u>.2</u>	<u>.2</u>
	100.0	100.0

Source: R. E. Evenson, Barry Popkin, and Elizabeth King-Quizon, "Nutrition, Work, and Demographic Behavior in Rural Philippine Households," Economic Growth Center Discussion Paper no. 308, Yale University, January 1979.

NOTES

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1. Gary S. Becker, The Economic Approach to Human Behavior (Chicago: University of Chicago Press, 1976); A Treatise on the Family (Cambridge: Harvard University Press, 1981); T. W. Schultz, ed., Economics of the Family, Marriage, Children, and Human Capital (Chicago: University of Chicago Press, 1974). Following the conventions of this literature, I use the terms "household" and "family" synonymously. Although there is an important distinction between them, it has no direct bearing on the issues discussed here.
  2. T. Paul Schultz, Economics of Population (Reading, Massachusetts: Addison-Wesley Publishing Company, 1981).
  3. Kenneth Arrow, Social Choice and Individual Values (New Haven: Yale University Press, 1951). For a more recent discussion see E. J. Mishan, Economic Efficiency and Social Welfare (London: George Allen and Unwin, 1981).
  4. Paul Samuelson, "Social Indifference Curves," Quarterly Journal of Economics 70 (February 1956) p. 9.
  5. Becker, 1981 (See n. 1 above), p. 173.
  6. Ibid., p. 191. For an interesting example of this approach see M. R. Rosenzweig and T. P. Schultz, "Market Opportunities, Genetic Endowments, and Intra-family Resource Distribution," American Economic Review 72 (September 1982):803-815.
  7. Gary Becker and George Stigler, "De Gustibus Non Est Disputandum," American Economic Review 67 (March 1977):76-90.
  8. Many of the "Comments" in T. W. Schultz (n. 1 above) speak to this issue.
  9. Theresa Cabanero, "The 'Shadow Price' of Children in Philippine Rural Households," M.A. Thesis, University of the Philippines, Quezon City, 1977; Theresa Cabanero, "The 'Shadow Price' of Children in Laguna

Households," Philippine Economic Journal 36, nos. 1 & 2 (1978):5-32; Robert E. Evenson, "Time Allocation in Rural Philippine Households," American Journal of Agricultural Economics 60 (May 1978): 322-30; Robert E. Evenson, Barry Popkin, Elizabeth King-Quizon, "Nutrition, Work, and Demographic Behavior in Rural Philippine Households," Economic Growth Center Discussion Paper no. 308, Yale University, January 1979, subsequently published in Hans P. Binswanger, Robert E. Evenson, Cecilia A. Florencio, and Benjamin N. F. White, eds., Rural Household Studies in Asia (Singapore: University of Singapore Press, 1980); Elizabeth King and Robert E. Evenson, "Time Allocation and Home Production in Philippine Rural Households," in Mayra Buvinic, Margaret A. Lycette, William Paul McGreevey, eds., Women and Poverty in the Third World (Baltimore: Johns Hopkins Press, 1983).

10. Robert E. Evenson, "On the New Household Economics," Journal of Agricultural Economics and Development 6 (January 1976):87-103.
11. Evenson, et al. (n. 9 above), p. 20.
12. Reuben Gronau, "The Intrafamily Allocation of Time: The Value of Housewife's Time," American Economic Review 63 (September 1973):634-651.
13. Evenson, et al., p. 19.
14. Ibid., pp. 60-61.
15. Cabanero, pp. 115-125.
16. Evenson, et al., Table 20.
17. Ibid., p. 20.
18. Compensated elasticity is appropriate since increases in wages lead to increases in the households' income which should have a positive effect on the demand for all normal goods, including children. These Banskota-Evenson estimations are described in Evenson, et al. (n. 9 above).
19. In the Banskota-Evenson estimates, the effect of full income on children ever born and on completed education of sons and daughters was not significant. Neither father's wage nor father's education had a significant effect on children ever born. Curiously, mother's education had a significant positive effect on number of children born. Most of these empirical relationships are complicated by the effects of such factors as education on productivity in home production and child care. Overall, the statistical results are difficult to assess since relatively few studies of this type have been performed.
20. Evenson, et al. (n. 9 above), Table 24.

21. Schultz (n. 2 above), Robert J. Willis, "The Direction of Intergenerational Transfers and Demographic Transition: The Caldwell Hypothesis Re-examined," in Yoram Ben Porath, editor, Income Distribution in the Family, supplement to Population and Development Review 8, 1982:207-234.
22. See, for instance, Yoram Ben-Porath, "Individuals, Families and Income Distribution" in Ben-Porath (n. 21 above) who writes "What is the moving force behind the transition? For Caldwell it is Westernization, essentially a cultural revolution. For Willis and other economists it is technological change." p. 9.
23. See Nancy Folbre, "Comment on 'Market Opportunities, Genetic Endowments, and Intrafamily Resource Distribution' by Mark Rosenzweig and T. Paul Schultz," unpublished manuscript, Department of Economics, New School for Social Research.
24. M. Nag, B. White, R. C. Peet, "An Anthropological Approach to the Study of the Economic Value of Children in Java and Nepal," Current Anthropology 19 (June 1978):292-306; Marta Tienda, "Economic Activity of Children in Peru," Rural Sociology 44 (Summer 1979); Mead Cain, "The Economic Activities of Children in Bangladesh," Population and Development Review 7 (September 1981):35-48.
25. Mark Rosenzweig, "The Value of Children's Time, Family Size, and Non-Household Child Activities in a Developing Country: Evidence from Household Data," Research in Population Economics 1 (1978):331-47; John C. Caldwell, African Rural-Urban Migration (New York: Columbia University Press, 1960); Henry Rempel and Richard A. Lobdell, "The Role of Urban-to-Rural Remittances in Rural Development," Journal of Development Studies 14 (April 1978):324-31. For an interesting discussion of cultural determinants of intra-family income flows see Ronald Angel and Marta Tienda, "Determinants of Extended Household Structure: Cultural Pattern or Economic Need?", American Journal of Sociology 87 (May 1982):1360-1383.
26. This is not a particularly strong specification, since the independent variables are not perfectly exogenous. Levels of education, wealth, and number of children may all be affected by household income. But the specification conforms almost exactly to the standard neoclassical estimating equation except for the addition of the number of children variables, which capture the effect of members of different age groups on household income. While total number of children may be a function of income, it is difficult to see why total number of children in an older age group should be a function of income, if the effects of parental age and education are controlled. The problem is analogous to the neoclassical practice of treating fertility as an exogenous factor affecting labor supply. Thus, while a simultaneous equation model might be preferable, this formulation is at least as strong as those with which many neoclassical hypotheses are tested.
27. Willis (see n. 21 above).

28. Becker, 1981 (see n. 1 above), p. 188.
29. Rodolfo A. Bulatao, The Value of Children: A Cross-National Study, vol. 2, The Philippines, 1978 (Honolulu: East-West Population Institute), p. 20.
30. Bulatao, p. 23.
31. Fred Arnold, Rodolfo Bulatao, Chalis Buripakdi, Betty Jamie Chung, James T. Fawcett, Toshio Iritani, Sung Jin Lee, Tsong-Schien Wu, The Value of Children: A Cross-National Study, vol. 1, Introduction and Comparative Analysis (Bangkok: East-West Population Institute and Institute of Population Studies, 1978).
32. John Caldwell, The Theory of Fertility Decline (New York: Academic Press, 1982).
33. Willis (see n. 21 above).
34. For a more detailed discussion of restrictions of female ownership of land see Nancy Folbre, "Of Patriarchy Born: The Political Economy of Fertility Decisions," forthcoming in Feminist Studies.
35. W. J. Goode, World Revolution and Family Patterns (New York: Free Press, 1970).
36. See, for instance, James T. Patterson, America's Struggle Against Poverty, 1900-1980 (Cambridge: Harvard University Press, 1981).
37. Gronau, 1973 (see n. 12 above); Edmund Phelps, "The Statistical Theory of Racism and Sexism," American Economic Review 62 (September 1972): 656-61.
38. See, for instance, Constantina Safilios-Rothschild, "The Study of Family Power Structure: A Review 1960-1969," Journal of Marriage and the Family 34 (May 1972):239-44; Heidi Hartmann, "The Family as Locus of Gender, Class, and Political Struggle: The Example of Housework," Signs: Journal of Women in Culture and Society 6 (Spring 1981):366-94; Jane Guyer, "Household Budgets and Women's Incomes," African Studies Centre Working Paper No. 28, Boston University; Gail McSweeney, "Collection and Analysis of Data on Rural Women's Time Use," Studies in Family Planning 10 (Nov.-Dec. 1979):379-32; Alexander Szalai, "Women's Time: Women in the Light of Contemporary Time-Budget Research," Futures 7 (October 1975):385-99; Gail Lapidus, Women in Soviet Society: Equality, Development and Social Change (Berkeley: University of California Press, 1978), pp. 232-84; Grace Horowitz, "Inter-Family Distribution of Food and Other Resources," Draft Report to the Nutrition Economics Group under Contract 5331919-9-60, Office of Nutrition, Development Support Bureau, Agency for International Development.



39. Rosario Valenzuela, "Adequacy of Nutrient Intake within the Filipino Family," MS thesis, Pennsylvania State University, 1978.
40. Evenson, et al. (see n. 9 above), p. 7.
41. Some types of household work may have overlapped in time--for example, may have been conducted simultaneously. Evenson, et al., however, note that the amount of simultaneous activity recorded by observers was relatively small. The recall data described in the text may reflect a tendency for women to report and double-count simultaneous activity. In the sampled households where time spent at work was directly observed, the differential between adult men and women was less pronounced, with women working .44 hours more per day rather than 2.3 more hours per day. Unfortunately the two sets of data are not directly comparable, since the recall data were based on hours per week, the observation data on hours per day, and the recall data converted to a daily basis by the arbitrary assumption of a six-day work week. It is also important to note that the observation data included only rice-producing farms--precisely that part of the sample of recall observations in which differences between the sexes were lowest. The possibility remains that the recall data overstate the relative amount of work performed by women, although the potential bias on the part of observers should also be explored.
42. Elizabeth King, personal communication.
43. Robert A. Pollak and Michael L. Wachter, "The Relevance of the Household Production Function and Its Implications for the Allocation of Time," Journal of Political Economy 83 (April 1975):255-77.
44. In this, as in previous models, the presumably independent variables are actually interrelated and participation in market work is probably significantly affected by the number of children under age one. A model in which the coefficients are not susceptible to bias lies beyond the scope of this analysis.
45. Theresa Ho, "Time Costs of Child Rearing in the Philippines," Population and Development Review 5 (December 1979):643-62. My discussion of Ho's results neglects consideration of the effect of older children on the allocation of mother's time. She clearly demonstrates that the average amount of time mothers devoted to child care was reduced by about eight hours when an older child was present. Consideration of this very important relationship is beyond the scope of this paper, though it should be noted, in passing, that the effect of older female children was probably much greater than the effect of older male children. Ho's analysis does not distinguish between the two.
46. Evenson, et al. (see n. 9 above), p. 11.
47. United Nations, Economic and Social Commission for Asia and the Pacific, Population of the Philippines (New York: United Nations, 1978):Country Monograph Series No. 5.

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