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## Women's Bargaining Power in Household Economic Decisions: Evidence from Ghana

**by**

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**Women's Bargaining Power in Household Economic Decisions: Evidence from Ghana**[1]

Economists have recently begun to examine household economic behavior with the explicit recognition that individual preferences and bargaining power within households may affect the outcomes of economic decisions. This approach is in contrast to traditional economic models of household behavior which assume that households can be treated as a single economic actor. These new approaches offer many policy relevant insights into household decision-making processes. However, researchers face many challenges in empirically modelling households as units composed of individual interdependent actors.

One challenge to those who are involved in formally modelling households is to find quantitative measures of bargaining power within households. A number of factors that could influence bargaining power have been proposed, including the structure of the appropriate marriage market, the cultural acceptance of violence against women, and opportunities for women to earn a living wage outside of marriage.[2]

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[2] Folbre (1992) details some of the factors that could affect women's bargaining power. McElroy (1990) suggests that the competitiveness of the marriage market may affect bargaining power within the household. Rao (1995) examines how spousal violence in India affects intrahousehold resource allocation.

One of the potential economic measures of women's bargaining power -- women's income -- has been found by several studies to be related to women's bargaining power,[3] but these results are problematic to interpret. Labor allocation as well as resource allocation decisions are made within households and both types of decisions may be influenced by women's bargaining power. Thus, evidence that a woman earns no income may be interpreted to mean she has relatively little bargaining power since she is not contributing to household cash income. Alternatively, her lack of a wage income may reflect her high level of bargaining power within the household: a woman with more bargaining power may choose not to work for wages and to be supported by other household members. These examples are the two extremes, with a continuum between them. It is difficult to disentangle the cause and effect relationships between women's bargaining power and women's income.

The second problem with using women's income as a measure of women's bargaining power within households is that as women's wages increase, the shadow prices of home produced goods will change because the opportunity cost of women's time increases. For example, if women are responsible for preparing meals, they may substitute prepared foods or restaurant meals for home cooked meals as their wages increase.[4] The change in expenditure patterns towards more prepared foods could reflect either an increase in women's bargaining power, or the changes in relative prices, or both.

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[3] See Hoddinott and Haddad (1995) and Phipps and Burton (1993).

[4] For example, Senauer, Sahn and Alderman (1986) found that as women's wages increased, the convenience food, bread, was substituted for rice.

Researchers have looked elsewhere for measures of women's bargaining power that would provide less ambiguous results. Several studies have used nonlabor income as one measure of bargaining power.[5] Income that is not related to labor decisions does not affect the relative prices of home produced goods and purchased goods. However, many of the measures of nonlabor income -- such as interest income or pensions -- may reflect past labor decisions. Even inheritance income may reflect past behavior, if the recipient provided care or support to the person leaving the inheritance. Thus, the results of these studies cannot be unambiguously interpreted as nonlabor income increasing women's bargaining power. Lundberg, Pollak, and Wales (1995) examine the impact of a shift in policy in the United Kingdom from a child tax allowance that was primarily realized as a tax credit in men's paychecks to a child benefit scheme that primarily accrued to women. They find that expenditures on women's and children's clothing increased relative to men's clothing as a result of this change. This provides clear evidence that income controlled by women is spent differently than income controlled by men. However, few such natural experiments are available for study. Approaching the issue from another angle, Thomas (1994) uses women's education as a measure of women's bargaining power. In three countries, the U.S., Brazil, and Ghana, Thomas finds that the education level of the mother has a larger effect on daughter's height, and the education of the father has a larger effect on son's height. These differences in the patterns of resource allocation within households between sons and daughters vary depending on the education levels of the child's mother and father.

In this paper, the percentage of assets held by women within the household is used as a

[5] For example Thomas (1993), Thomas and Chen (1993), and Schultz (1990).

measure of women's bargaining power. The assets used in this paper include land, savings, and business assets. Using detailed household survey data from Ghana, I demonstrate that the share of assets owned by women has a significant impact on household expenditure decisions. This provides additional support for the notion that women's bargaining power can be measured, at least in some dimensions, and that women's bargaining power is an important determinant of household economic decisions. It suggests that other measures of women's bargaining power may also be useful for understanding household decisions.

**Ghanaian Households**

This analysis uses data from the 1991-92 Ghana Living Standards Survey (GLSS3). The GLSS3 survey offers a unique opportunity to study intrahousehold issues in Africa, since the income,consumption, and expenditure data are quite detailed and since much of the income and asset ownership data can be disaggregated, in many cases to the level of individual household members.

For the purposes of the GLSS3, a household was defined as a group of people who had usually slept in the same dwelling and had taken their meals together for at least 9 of the 12 months prior to the survey. People who had been away from the household for more than three months were not considered household members, except for the person identified as the head of the household, newly-born children, and students and seasonal workers who had not been part of another household.

Interviewers from the GLSS were asked to identify the head of each household that they interviewed. They were told that "usually the head of the household is the person who provides most of the needs of the household and is familiar with all the activities and occupations of the household

members. He will be the person named when you ask the question, `Who is the head of the household"' (Republic of Ghana Statistical Service, 1990). Thus, interviewers expected the head of the household to be a man. To incorporate important structural characteristics of the household for the purposes of the analysis in this chapter, households are defined as potentially having both a male head and a female head which are the persons defined in the survey as the head and his or her spouse. Over half of the households reported having both a male and a female head. Households reporting only a female head present comprised 32 percent of the households in the survey.

Using the GLSS definitions of households, household size ranged from one to thirty. Mean household size was 4.5 individuals. Six percent of households were polygynous, with most of them reporting two wives present, although up to five wives were reported by some households.

**Expenditure Data**

GLSS3 contains detailed information on expenditure and income. This level of detail on expenditures allows us to examine whether women's ownership of assets affects household expenditure patterns on numerous categories of goods.

Data on frequent expenditures, both food and nonfood, were collected at two-day intervals for rural households over a period of 14 days and at three-day intervals for urban households over a 30-day period. Thus, the information is detailed enough to include, for example, a rural household's expenditures on bambara beans and matches every two days.

Annual expenditures were obtained for other goods, including education. For items infrequently purchased, monthly expenditures were calculated from expenditures over a three-month or twelve-

month period, depending on each household's frequency of purchase of that particular item. Imputed values were calculated for housing, where appropriate, and for consumer durable goods. Monthly education expenses were averaged from reported expenses over the past 12 months on registration fees, uniforms, books and supplies, transportation, and food and lodging at school.

In addition to cash expenses, the survey collected data on the value of certain home-produced goods, including food. It was possible to calculate total monthly expenditures for consumption by including the cash expenses and imputed value of goods produced and consumed by the household. (Expenses on agricultural inputs were not included.) The imputed value of food produced and consumed by the household was calculated based on the household's report of the price obtainable by selling the items in the market.

The GLSS data does not provide information on which household members received the goods. Consumption data cannot be disaggregated. Education expenses and some health expenses are the only category of expenses in GLSS3 that can be assigned to individuals.[6] For many household expenditures, it would be theoretically impossible to determine which household member received the goods, especially for shared goods such as housing and utilities. Although some surveys have measured food consumption by individual household members, it is not possible to assign food expenditures to individual household members. Thus, this chapter examines differences in household expenditure patterns across households with varying levels of women's bargaining power.

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[6] Medical expenses that can be assigned to individuals are the amount spent treating an illness or injury in the two weeks prior to the survey. For children five years and younger, information about expenses on immunization during the past year was collected. Similarly, women were asked about expenses on prenatal care and contraception.

**Asset Ownership**

Information on individual ownership or control of land, savings accounts, and business assets can be obtained from the data. Of the 5,209 plots of land held by 1,372 households, 45 percent were owned by a household member.[7] Of these, 21 percent reported having the right to sell the land, 5 percent reported having the right only to use the land as security, 43 percent reported having the right to do either, and 31 percent reported having neither right.

Savings accounts are attributed to individuals. Each individual was asked the current value of their savings. These savings were to include savings through *susu*, which is an informal savings program. In a typical monthly *susu* plan for market women and petty traders, for example, each person contributes daily and at the end of the month they receive the lump sum of their savings, minus the charge of one day's savings. Individuals may use their *susu* savings to buy relatively small items -- an ice cream vendor told me that he would spend that month's *susu* on a new shirt -- or to save for much larger items. Savings, especially *susu*, are probably widely under-reported. One of the reasons that many individuals, especially women, participate in *susu* is that it provides them a way of saving money without other household members knowing the amounts.

Finally, details were collected for up to three businesses controlled by the household.[8] Business assets included buildings, land, equipment, bicycles, carts, and other vehicles. The survey asked which

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[7] This figure includes all plots which respondents said were owned by a household member, whether or not the household member held a title.

[8] Only 14 households reported that they were involved in four businesses and three households reported involvement in five. These households were asked for detailed information on the three businesses that provided the most income.

person was responsible for the business and knew the most about its operation.[9]

**Table 4.1. Number of Households in which Women, Men, or Both Own Assets.**

| | Land | Savings | Business assets | Any assets |
|---|---|---|---|---|
| Women | 410 | 413 | 1,387 | 1,871 |
| Men | 1,002 | 946 | 579 | 1,956 |
| Women and Men | 40 | 102 | 180 | 577 |

Source: Compiled from Ghana Living Standards Survey, 1991-92.

N=4,552.

[9] The person who was reported as being responsible for the business and knowing the most about its operation was assumed to be the owner of the assets. The person reported as responsible for the business in over 50 percent of the cases was not the household head. When the household reported operating more than one business, in over 75 percent of the cases different people were responsible for different businesses. While this information does not prove that the person responsible owned the assets, it does suggest that the survey was successful in identifying individuals who ran the businesses and that it was not simply assumed that the household head was responsible for all businesses.

**Table 4.2. Mean Value of Assets Owned by Men and Women (in Ghanaian cedis).**

| | Land | Savings | Business assets | Any assets |
|---|---|---|---|---|
| Women | 705,617 | 42,494 | 29,478 | 185,858 |
| Men | 1,838,723 | 64,859 | 244,267 | 1,045,597 |

Source: Compiled from Ghana Living Standards Survey, 1991-92.

Table 4.1 indicates the number of households in which men, women, or both own assets. Many more men reported owning land and having savings accounts, while more women reported having business assets. However, as Table 4.2 demonstrates, the mean value of assets owned by men is significantly higher than those owned by women for all three types of assets.

In spite of the wealth of detail in the data set, additional information would have been useful for intrahousehold analyses. Information on livestock was only collected at the household level. Thus, information on livestock ownership by individuals is not available. Particularly in the savanna zone, livestock are an important asset. In addition, ownership of the house cannot be assigned to an individual within the household with this data. This may be especially important in regions where a man's house is inherited by his brother or nephew rather than his wife. Ownership of housing may be an important determinant of women's bargaining power within households and long-term welfare.

In this analysis, the use of the share of assets owned by women rather than the total

amount of assets owned by women, reflects a focus on the bargaining power in this analysis. Bargaining power of individuals within the household can only be measured relative to that of other household members. The total level of assets owned by women within the household may also affect household decisions, but it is more difficult to model this issue in households that include more than one adult man or woman.

Using the percentage of assets owned by women as a measure of women's bargaining power provides its own ambiguities. Business assets and savings, like nonlabor income, may have been acquired through past labor allocations made within the household.

However, business assets are relatively stable. Of the total businesses, only six percent had been operated by men for less than a year and nine percent had been operated by women for less than a year. Only 25 percent of all businesses reported purchasing any assets during the year prior to the survey and only 0.4 percent reported selling any assets during this period.

Since land is less likely to be bought and sold, the tests of the model using land provide evidence that the model is robust. No household reported selling land in the year prior to the survey and only 15 households reported purchasing land.

**Theoretical Framework**

This section provides the theoretical framework to test whether a model that includes women's bargaining power collapses to a unified model of the household. In a unified household model, the aggregated utility function for the household can be specified as:

$$U = U(X, M; Z) \quad (1)$$

where $X$ is a vector of market goods; $M$ is a vector of nonmarket goods; and $Z$ is a vector of demographic characteristics that would be expected to influence household preferences.

The household faces a budget constraint

$$P_x X + P_m M = \sum_{i=1}^{I} w^i + P_m M \quad (2)$$

where $P_x$ is a vector of prices corresponding to $X$; $P_m$ is a vector of shadow prices corresponding to $M$; and $w^i$ is the wage level of individual $i$ in the household. Maximizing Equation (4.1) subject to (4.2) gives the reduced form demand equation:

$$X = g(P_x, P_m, \sum_{i=1}^{I} w^i, Z) \quad (3)$$

This is a standard demand framework that examines household demand for a commodity based on prices, household income, and preference shifting demographic factors.

In a cooperative bargaining framework, instead of a single household utility function, each household member has a utility function defined as

$$U^i = U^i(X, M; Z) \quad (4)$$

Households solve the Nash bargaining problem:

$$\max N = \prod_{i=1}^{I} [U^i(X, M; Z) - V_0^i(P_x, P_m, w^i, \varepsilon)]$$
$$s.t. \quad P_x X + P_m M = \sum_{i=1}^{I} w^i \tag{5}$$

where $T$ is the total amount of time available to individual $i$. $V_0^i$ represents the threat point of individual $i$; this is the amount of utility that individual $i$ would receive if she or he were not a part of the household. The threat point is based on prices, wage income, and $\varepsilon$, which are other factors that would affect individual welfare if the individual was no longer a household member.

The reduced form demand equation that results is:

$$\sum_{i=1}^{I} X^i = g(P_x, P_m, w^i, \varepsilon^i, Z) \qquad i = 1 \ldots I \tag{6}$$

The reduced form equation for the cooperative bargaining model includes $\varepsilon^i$, which is a parameter affecting the threat point of individual $i$. Previous work has suggested that $\varepsilon^i$ could include nonlabor income or transfer payments that individual $i$ would receive even if the household dissolved. In this analysis, this parameter will be represented by the percentage of assets within the household held by women. This approach assumes that these assets will continue to be controlled by women if the household dissolves.

By estimating the reduced form equation, we can test whether the coefficient on $\varepsilon$ is zero. If so, the reduced form of the bargaining model collapses to that of the unified household model. However, if the coefficient on $\varepsilon$ is not zero, then the model does not collapse to that of the unified model. In this case, we reject the unified model of the household and conclude that

bargaining power is a determinant of household economic outcomes.

**Does Women's Bargaining Power Matter?**

This section presents an analysis of the effect of women's bargaining power on household expenditure patterns in Ghanaian households. The percentage of assets owned by women is used as a measure of women's influence on household decision making. In a unified economic model of the household, individual preferences, incomes, and resources are aggregated into a single household utility function and budget constraint. A prediction of the unified model is that individual ownership will not have a significant effect on expenditure patterns: according to this model, land and business assets will be used to maximize household production, regardless of the name on the title and registration documents.

The unified model was tested by regressing the percentage of assets held by women on budget shares for 14 categories of expenditures. The budget shares are the percentage of total expenditures (including the value of goods received as in-kind payments) spent on the different categories. Using budget shares, rather than expenditure levels, controls for differing levels of expenditure among households. In addition, using budget shares also captures the allocation decisions among different commodities. An increase in the budget share on one commodity will also result in a decrease in the budget share on another commodity. Thus, examining budget shares captures the trade-offs among commodities that households must make.

A number of factors in addition to women's bargaining power are expected to affect household expenditure patterns, including household structure, location, and income. It is

necessary to identify the effects of these other factors in order to isolate the effect of women's bargaining power. (See Table 4.3 for the means of the variables relevant for this analysis.) Household income for the month prior to the survey is used as a the measure of income. Household income includes cash income and the value of in-kind payments and good produced and consumed at home. As noted in Chapter 3, household income received in the form of annual or large lump sum payments is prorated over the appropriate period to give an indication of monthly income. The value of total household assets are also included as a measure of household wealth. In addition to those assets that can be disaggregated by gender -- land, savings and business assets -- this measure also includes the value of livestock. Since 1,237 households have none of the assets that can be disaggregated by gender -- and thus the percentage of assets held by women is undefined -- it is necessary to include a dummy variable to indicate whether the household holds any of these assets. Thus, the percentage of assets owned by women should be interpreted as an interaction variable -- it is the percent of assets owned by women if the household owns any of the assets that can be disaggregated by gender.

The education levels of the male and female household heads (the head of the household and his or her spouse) may affect their preferences. Thus, a vector of dummy variables is included that indicates if the male head of household has attended 4 years of primary school, attended secondary school, or completed secondary school and passed an "O" level examination. Similar dummy variables are included for the female head of household. (No schooling is the omitted category.) In only one of the 298 polygynous households has any of the wives even attended secondary school. There is an extremely high correlation in the

levels of education among the wives; the education level of the first wife is used.

The vector of demographic variables accounts for the age and gender composition of the household. The number of individuals, by gender, in each of the following age groups is included: infant (0-4), child (5-9), youth (10-14), adult (15-49), older adult (50-64) and elder (65+). In addition, a dummy variable is included that indicates whether both a male and a female head of household are present.

Finally, information is included on the location of the households. The location vector includes dummy variables for agroecological zone (coastal or forest, with savanna omitted). The region and date variables together capture much of the influence of location.

Since rural and urban households might be expected to make different economic decisions and since women's bargaining power may result in different outcomes in urban and rural households, a dummy variable for rural households is included and dummy variables for urban and rural location are interacted with the percentage of women's assets. Thus, the effects of the influence of the percent of women's assets are estimated separately for urban and rural households.

The equation that was estimated was:

$$
\begin{aligned}
T_i = {} & \beta_1 (Urban * Percent\ of\ assets\ owned\ by\ wo \\
& \beta_2 (Rural * Percent\ of\ assets\ owned\ by\ wom \\
& \beta_3 Household\ income + \beta_4 Household\ assets \\
& \beta_5 Dummy\ if\ owned\ assets + \beta_6 Demograph \\
& \beta_7 Education + \beta_8 Date + \beta_9 Location
\end{aligned}
\qquad (7)
$$

where demographics, education, date and location are the vectors described above.

**Effects of Women's Assets on Food Expenditure**

OLS estimates are first obtained using the budget share for food as the dependent variable. The budget share is the percent of the total expenditures (described above) spent on food, including both the cash expenditure and the value of the food produced and consumed by the household. Alcoholic beverages are excluded from the food category. Restaurant meals are not included as food but are included as an entertainment/recreation expenditure. Prepared meals, which would include street food and items purchased at "chop bars" -- local places to buy inexpensive food -- are included as food since these are close substitutes to home-prepared meals. The full results of this estimation are presented in Table 4.4.

The variable of interest, the percentage of assets held by women, has a coefficient significantly different from zero for urban households. The mean expenditure on food for urban households is 33,409 cedis and the budget share for food is 47.7 percent. For urban households which own some assets, a one percent increase in the share of assets held by women increases the budget share spent on food to 50.3 percent. Thus a one percent increase in the amount of assets owned by women would result in a increased monthly expenditure on food of 1,202 cedis. This is approximately one extra day's worth of food for the household. For rural households, food is 60 percent of the household budget, with an average monthly expenditure of 35,321 cedis, However, the percent of assets held by women in rural households did not have a statistically significant impact on the budget share spent on food.

The other coefficients in this estimation are consistent with previous findings and

hypotheses. Total monthly expenditure has a negative effect on the budget share on food, which is consistent with Engel's Law. The level of assets and the dummy variable indicating whether the household has any assets also have a negative effect. This result is consistent with the expectation that assets are a measure of wealth and wealthier households spend a smaller share of their budget on food.

Adding a female infant, male child, older adult female (age 50-64) or female elder (age 65+) to the household increases the budget share spent on food. In contrast, an additional adult, either male or female, decreases the budget share spent on food.

Although education is included since it may shift preferences, economic theory does not give us any *a priori* expectations about the direction of the change in expenditures for food relative to other goods. Women's education is often found to be associated with increased nutritional status of children;[10] however, it is not necessarily associated with an increased share of the budget spent on food, holding total income or expenditure constant. Women with better education may be able to provide better nutrition for their children with the same levels of spending on food. All of the coefficients on the variables indicating education levels are negative. These results suggest that in Ghana an increase in education shifts preferences in favor of spending on nonfood items more than it shifts preferences in favor of additional spending on food.

Many of the date variables (dummy variables that indicate the month of the interview)

[10] Behrman and Deolalikar (1988) discuss these studies.

are significant, capturing at least in part the seasonal price variations and any relative price changes over time. People in the savanna zone spend more of their budget on food relative to people in the coastal and forest zone. The urban centers are in the coastal and forest zones and thus this result may reflect the greater availability of consumer goods in these zones. Rural households spend a larger proportion of their budget on food, which may again reflect the smaller number of consumer goods available.

**Effects of Women's Assets on Other Household Expenditures**

The effect of women's ownership of assets on the budget share of other household expenditures is also tested. These expenditure categories include alcohol, clothing, education, household goods, housing (actual and imputed expenses), the imputed value of goods received in-kind[11] and the use value of consumer durable goods[12], medical expenses (including visits to clinics, hospital, or traditional healers and over-the-counter type treatments), miscellaneous goods (including personal care, jewelry, taxes, ceremonies and gifts), recreation and entertainment, remittances, tobacco, transportation and communication, and utilities. The results are summarized in Table 4.5.

For urban households, ten of the fourteen categories of goods are significantly affected

[11] This includes payments received in the form of goods other than food or housing. It could include clothing, transportation, or household items.

[12] Consumer durable goods included appliances, electronic items, and vehicles. Use values were estimated by the Ghana Statistical Service based on the value and age of the goods to reflect the consumption of services from consumer goods by the household.

by women's asset holdings (at the 10 percent significance level or better). Food, education, and utilities are positively related to the percent of assets held by urban women, while alcohol, tobacco, housing, imputed values of in-kind payments and use value of consumer goods, miscellaneous items, recreation and remittances are all negatively related to the percent of assets held by urban women.

For rural households, six of these fourteen categories of goods are influenced by women's asset holdings. Education expenses are again positively related to women's asset holdings along with transportation expenses. Alcohol, recreation, remittances, and tobacco are negatively related to women's asset holdings.

When asked who paid for their education expenses, 61 percent of the respondents who had attended school in the past year said their father, while only 17 percent said their mother. Thus, it is interesting that for both urban and rural households, the bargaining power of women increases the expenditures on education. This may reflect that women use their bargaining power to encourage men to increase education expenses.

Recreation, alcohol and tobacco are considered, in Ghana, to be items that men purchase and consume, and thus we might expect that as women have more influence in household decision-making, the proportion spent on these categories would decrease. The results are consistent with this expectation.

Clothing purchases cannot be broken down by men's clothing and women's clothing, so it is not possible to test whether differential control of assets affects the composition of clothing expenditures among items for men, women and children. The results might be significant for

these different categories.

Medical expenses are not significantly affected by women's bargaining power. Medical expenses are primarily for curative care and thus, any increase in health care provided due to women's increased bargaining power may be offset by increased preventive care and thus less need for curative care. Thus, the offsetting effects may cancel each other out.

**Effects of Women's Ownership of Land on Household Expenditures**

In a second set of estimations, the percentage of farmland held by women and a dummy variable indicating whether the household owned any farmland are substituted for the asset variables. Since in the first estimations, assets are defined as land, savings, and business assets, using only farmland defines the measure of bargaining power more narrowly. This serves as a test of the robustness of the model. Any effects of the marginal productivity of individuals on ownership of business assets and savings would be eliminated. Of the 1,370 households that owned land, women owned land in 369 of them.

The results of these estimations are summarized in Table 4.5. Although the number of households in which women own land is much smaller than the number of households in which women own assets, a number of the coefficients are statistically different from zero. The results are fairly consistent with those of the estimates using land, savings, and business assets.

For both urban and rural households, land ownership by women positively affects household budget share on food. For urban households, a one percent increase in the percent of land owned by women results in a 5.7 percent increase in the budget share on food, to 53.4

percent. For rural households, a similar increase in women's land ownership results in a 2.6 percent increase in the budget share on food to 62.8 percent. The percent of combined land, savings and business assets owned by women in rural areas is not significant in explaining household budget shares on food, but the percent of land owned by women is significant.

For women in rural households, increased land ownership increases household budget shares on education. This corresponds to the results for rural women's ownership of all assets. For urban women, increased land ownership increases household budget shares on medical expenses.

As expected, the coefficient on land owned by women is significant and negative in explaining the budget share spent on alcohol and tobacco, for both urban and rural households. The coefficient on the budget share spent on recreation is also negative for rural women. Increased ownership of land by rural women reduces the budget share spent on utilities. This may reflect that women choose to use their land to produce crops that also provide fuel so that less fuel is not purchased. (The value of fuel produced by the household was not collected in the survey and therefore not included as a fuel expenditure.)

These results indicate that the model is robust and that women's control of assets affects household expenditure patterns. Women's control of assets is positively associated with expenditures on human capital, including food, education, and medical care. It is negatively associated with expenditures on non-essential items, including alcohol, recreation, and tobacco. In addition, it is negatively associated with housing expenses.

**Does Asset Ownership Affect Women's Bargaining Power in Poor Households?**

For policy purposes, it is important to understand if these relationships hold among households at all income levels, and especially if they hold for the poorest households. In particular, since food expenditures are influenced by asset holdings for urban women, we are interested in whether this is true at all income levels. The result that women's asset holdings increase food expenditures in poor households implies that policies aimed at increasing household assets for poor households should pay particular attention to the ownership of these assets.

Households were divided into four expenditure levels. For each household, the per capita household expenditure was calculated, using an adult equivalence scale to sum the number of adults and children.[13] Then the four quartiles of expenditure levels were determined. Expenditure is used here rather than income as a measure of total household wealth and well-being, since it may be measured more accurately. In addition, consumption tends to be less variable over time than income and, thus, is a better measure of the long-run economic status of the household. The model was estimated again, with the dummy variables for each of the four expenditure quartiles interacted with the percent of assets owned by women within the household. The results, presented in Table 4.6, indicate that for the lowest three quartiles, the percentage of assets owned by women has a significant positive effect on household

[13] The following equivalence scale was used: children 0-4 years were considered 0.2 adults, children 5-9 years were considered 0.3 adults, and children 10-14 years were considered 0.5 adults. All individuals over 15 years were considered an adult for the purpose of calculating the number of adult equivalents within the household.

expenditures. For the wealthiest quartile, the opposite is found: the percent of assets owned by women has a negative effect on food expenditures.

Running separate regression estimates for each of the four expenditure quartiles results in similar findings. There is a positive relationship between the percent of assets owned by women and food expenditures for the lower two expenditure quartiles. The percent of assets owned by women was not significant for the upper two expenditure strata (see Table 4.7).

**Conclusion: Assets and Women's Influence in Household Decisions**

The evidence suggests that the relative level of assets owned by women affects the expenditure decisions of households. Therefore, to understand household expenditure patterns, it is important not to treat the household as a single economic actor, but to incorporate individual preferences and bargaining power into the model. Policies that affect individual ownership of assets, such as land titling programs and small business development programs, may have an impact on household expenditures regardless of their effect on household income. Household food expenditures are likely to be particularly sensitive to such policy changes. Conversely, programs that simply target the household as a recipient of income or assets may have unintended consequences, depending on how they affect the relative levels of assets among household members and how they affect intrahousehold bargaining power.

It is important to note that the results presented here depend on the assumption that men and women have different preferences. Only if preferences differ systematically between women and men can we observe differences in the effects of men's and women's bargaining power on household economic decisions.

These results are consistent with any of the disaggregated models of the household (see Doss, 1996 for a description of the models). In a collective framework, the results would be interpreted to suggest that women's ownership of assets is one of the factors that affects the household's sharing rule. In a cooperative bargaining framework, we would conclude from these results that ownership of assets increases women's "threat point," where the threat point is

the amount of utility that they would receive if they no longer participated in sharing resources within the household. In a noncooperative bargaining model, women's ownership of assets would influence their ability to bargain for transfers of resources, including labor transfers, and the provision of household "public" or shared goods by other household members.

This analysis calls attention to gender as a determinant of household decision making. But other ways of disaggregating the household may also be relevant: for example, age and relationship to the household head. Warner, Al-Hassan, and Kydd (1996) suggest that it is important to use other social constructs, such as marital status and seniority, to determine the roles and status of individuals in rural African societies. We would expect that these other social constructs would also affect individual bargaining power.

**Table 4.3. Means of Household Characteristics and Budget Shares for Urban, Rural, and All Households, Ghana 1991-92.**

| | Urban households | Rural households | All households |
|---|---|---|---|
| Total household income (in cedis) | 114,875 | 68,922 | 84,998 |
| Total household assets, including livestock (in cedis) | 305,618 | 897,493 | 690,837 |
| # of male infants (age 0-4) | 0.28 | 0.37 | 0.34 |
| # of male children (age 5-9) | 0.34 | 0.42 | 0.40 |
| # of male youth (age 10-14) | 0.31 | 0.34 | 0.33 |
| # of male adults (age 15-49) | 0.95 | 0.89 | 0.92 |
| # of male older adults (age 50-64) | 0.14 | 0.16 | 0.16 |
| # of male elders (age 65+) | 0.05 | 0.10 | 0.08 |
| # of female infants (age 0-4) | 0.28 | 0.40 | 0.36 |
| # of female children (age 5-9) | 0.32 | 0.38 | 0.36 |
| # of female youth (age 10-14) | 0.33 | 0.29 | 0.31 |
| # of female adults (age 15-49) | 1.16 | 1.0 | 1.06 |
| # of female older adults (age 50-64) | 0.13 | 0.21 | 0.18 |
| # of female elders (age 65+) | 0.07 | 0.10 | 0.09 |
| Female head--completed 4 years primary education | 0.47 | 0.25 | 0.32 |
| Female head-- attended secondary school | 0.16 | 0.04 | 0.09 |
| Female head-- completed "O" level | 0.03 | 0.002 | 0.013 |
| Male head--completed 4 years primary education | 0.46 | 0.037 | 0.40 |
| Male head--attended secondary school | 0.39 | 0.025 | 0.30 |
| Male head-- completed "O" level | 0.11 | 0.03 | 0.06 |
| Location: Forest | 0.31 | 0.47 | 0.41 |
| Location: Savannah | 0.12 | 0.29 | 0.23 |

**Table 4.3 (continued).**

| | Urban households | Rural households | All households |
|---|---|---|---|
| Location: Coastal | 0.57 | 0.24 | 0.35 |
| Location: Urban | 1.00 | 0 | 0.35 |
| Location: Rural | 0 | 1.00 | 0.65 |
| Percent of household's assets held by women | 0.34 | 0.29 | 0.30 |
| Percent of household's land held by women | 0.03 | 0.11 | 0.08 |
| Budget share on food | 0.477 | 0.602 | 0.558 |
| Budget share on alcohol | 0.015 | 0.027 | 0.023 |
| Budget share on clothing | 0.073 | 0.063 | 0.066 |
| Budget share on education | 0.034 | 0.014 | 0.021 |
| Budget share on household goods | 0.041 | 0.047 | 0.045 |
| Budge share on housing | 0.030 | 0.015 | 0.020 |
| Budget share on imputed values | 0.034 | 0.011 | 0.019 |
| Budget share on medical expenses | 0.026 | 0.031 | 0.029 |
| Budget share on miscellaneous goods | 0.062 | 0.034 | 0.044 |
| Budget share on recreation | 0.034 | 0.040 | 0.035 |
| Budget share on remittances | 0.016 | 0.013 | 0.013 |
| Budget share on tobacco | 0.005 | 0.009 | 0.007 |
| Budget share on transport. and communication | 0.037 | 0.027 | 0.031 |
| Budget share on utilities | 0.051 | 0.040 | 0.043 |
| Number of observations | 1,578 | 2,939 | 4,517 |

Source: Compiled from Ghana Living Standards Survey, 1991-92.

**Table 4.4. OLS Estimates of the Determinants of Household Budget Share on Food, Ghana 1991-92.**

| Variable | Estimated Coefficient | T-Statistic |
|---|---|---|
| Intercept | 0.5071*** | 27.10 |
| % assets owned by women*Urban | 0.0361*** | 3.93 |
| % assets owned by women*Rural | 0.0109 | 1.48 |
| Household income ($x10^8$) | -2.046*** | -3.53 |
| Household assets ($x10^{10}$) | -7.68* | -1.87 |
| Dummy if owned assignable assets | -0.018696*** | -3.25 |
| # of male infants | 0.0058 | 1.48 |
| # of male children (age 5-9) | 0.0091*** | 2.68 |
| # of male youth (age 10-14) | 0.0026 | 0.68 |
| # of male adults (age 15-49) | -0.0127*** | -4.58 |
| # of male older adults (age 50-64) | -0.0014 | -0.21 |
| # of male elders (age 65+) | 0.0128 | 1.46 |
| # of female infants (age 0-4) | 0.0109*** | 2.84 |
| # of female children (age 5-9) | 0.0001 | 0.03 |
| # of female youth (age 10-14) | 0.0022 | 0.54 |
| # of female adults (age 15-49) | -0.0098*** | -3.32 |
| # of female older adults (age 50-64) | 0.0227*** | 3.91 |
| # of female elders (age 65+) | 0.0280*** | 3.66 |

**Table 4.4 (continued).**

| Variable | Estimated Coefficient | T-Statistic |
|---|---|---|
| Dummy if male and female head present | 0.0176*** | 2.89 |
| Female head--completed 4 years | | |
| primary education | -0.0153*** | -2.60 |
| Female head--attended secondary school | -0.0605*** | -5.89 |
| Female head--completed "0" level | -0.0783*** | -3.75 |
| Male head--completed 4 years | | |
| primary education | -0.0415*** | -5.35 |
| Male head--attended secondary school | -0.0417*** | -5.17 |
| Male head--completed "0" level | -0.0780*** | -7.59 |
| Interview 9/91 | 0.0187 | 0.82 |
| Interview 10/91 | 0.0393** | 2.08 |
| Interview 11/91 | 0.0445** | 2.40 |
| Interview 12/91 | 0.0547*** | 2.95 |
| Interview 1/92 | 0.053*** | 2.88 |
| Interview 2/92 | 0.038** | 2.10 |
| Interview 3/92 | 0.0638*** | 3.45 |
| Interview 4/92 | 0.0607*** | 3.28 |
| Interview 5/92 | 0.0474** | 2.56 |

**Table 4.4 (continued).**

| Variable | Estimated Coefficient | T-Statistic |
|---|---|---|
| Interview 6/92 | 0.0289 | 1.56 |
| Interview 7/92 | 0.0187 | 1.01 |
| Interview 8/92 | 0.0185 | 0.98 |
| Location: Rural | 0.0961*** | 15.68 |
| Location: Forest | -0.0321*** | -6.05 |
| Location: Savannah | 0.0263*** | 3.95 |

*, ** and *** denote significance at the 0.10, 0.05 and 0.01 levels respectively. N=4,516

$R^2$=.288 F=46.4

**Table 4.5. Selected Results from OLS Estimations of the Effect of the Percentage of Assets or Land Owned by Women on the Budget Shares of Various Commodities.**

| Budget Share | Asset ownership by urban women | Asset ownership by rural women | Land ownership by urban women | Land ownership by rural women |
|---|---|---|---|---|
| Food | 0.036*** | 0.011 | 0.057** | 0.026** |
| | (3.93) | (1.479) | (2.32) | (2.489) |
| Alcohol | -0.008*** | -0.011*** | -0.012** | -0.0193*** |
| | (-3.13) | (-0.011) | (-1.770) | (-6.468) |
| Clothing | 0.002 | 0.0001 | 0.0003 | 0.0001 |
| | (0.671) | (0.261) | (0.034) | (0.029) |
| Education | 0.004** | 0.003** | 0.0005 | 0.007*** |
| | (2.079) | (1.965) | (0.091) | (3.013) |
| Household items | 0.001 | -0.001 | -0.003 | -0.002 |
| | (0.594) | (-1.005) | (-0.558) | (-1.311) |
| Housing[+] | -0.005** | 0.002 | -0.006* | 0.001 |
| | (-3.577) | (1.492) | (-1.844) | (0.728) |
| Consumer durables[+] | -0.008*** | -0.001 | 0.0008 | 0.0008 |
| | (0.002) | (-0.870) | (0.152) | (0.374) |
| Medical | 0.003 | -0.001 | 0.012** | 0.0007 |
| | (1.228) | (0.002) | (1.837) | (0.256) |
| Misc. | -0.007** | 0.004 | -0.019** | -0.0005 |
| | (-2.116) | (1.462) | (-2.281) | (-0.134) |
| Recreation | -0.006** | -0.007*** | -0.008 | -0.008*** |
| | (-2.836) | (-4.030) | (-1.342) | (-3.148) |
| Remittances | -0.004* | -0.004** | -0.003 | -0.0003 |
| | (-1.98) | (-2.342) | (-0.513) | (-0.113) |
| Tobacco | -0.006*** | -0.006*** | -0.006* | -0.008*** |
| | (-4.416) | (-5.279) | (1.674) | (-4.927) |

**Table 4.5 (continued)**.

| | | | | |
|---|---|---|---|---|
| Transport | -0.004<br>(-1.382) | 0.005*<br>(1.893) | 0.001<br>(0.166) | 0.003<br>(0.637) |
| Utilities | 0.011***<br>(5.170) | -0.003<br>(1.485) | -0.008<br>(-1.424) | -0.007***<br>(-2.799) |

*, ** and *** denote significance at the 0.10, 0.05 and 0.01 levels respectively.
[+] Imputed values. N=4,516
Note: T-statistics are in parentheses. A complete list of variables included in these regressions is given in Table 4.4.

**Table 4.6. OLS Estimates of the Effect of Women's Share of Assets on Household Food Expenditures for Four Income Categories.**

| Variable | Estimated Coefficient | T-Statistic |
|---|---|---|
| Intercept | 0.5120 | 7.63 |
| % assets owned by women*lowest quartile | 0.0373*** | 4.01 |
| % assets owned by women*second quartile | 0.0424*** | 4.48 |
| % assets owned by women*third quartile | 0.0240*** | 2.61 |
| % of assets owned by women*top quartile | -0.0327*** | -3.26 |
| Household income ($x10^8$) | -1.92*** | -3.33 |
| Household assets ($x10^{10}$) | -6.64** | -1.69 |
| Dummy if owned assignable assets | -0.0165*** | -2.88 |
| # of male infants (age 0-4) | 0.0052 | 1.34 |
| # of male children (age 5-9) | 0.0084** | 2.49 |
| # of male youth (age 10-14) | 0.0014 | 0.37 |
| # of male adults (age 15-49) | -0.0141*** | -5.09 |
| # of male older adults (age 50-64) | -0.0016 | -0.24 |
| # of male elders (age 65+) | 0.0118 | 1.36 |
| # of female infants (age 0-4) | 0.0111*** | 2.91 |
| # of female children (age 5-9) | -0.0003 | -0.09 |
| # of female youth (age 10-14) | 0.0004 | 0.11 |
| # of female adults (age 15-49) | -0.0112*** | -3.83 |

**Table 4.6 (continued).**

| Variable | Estimated Coefficient | T-Statistic |
|---|---|---|
| # of female older adults (age 50-64) | 0.0198*** | 3.42 |
| # of female elders (age 65+) | 0.0226*** | 2.96 |
| Dummy if male and female heads present | 0.0208*** | 3.38 |
| Female head--4 years primary ed. | -0.0128** | -2.17 |
| Female head--attended secondary | -0.0546*** | -5.32 |
| Female head--completed "0" level | -0.0834*** | -4.02 |
| Male head--4 years primary ed. | -0.0428*** | -5.53 |
| Male head--attended secondary | -0.0418*** | -5.24 |
| Male head--completed "0" level | -0.0756*** | -7.38 |
| Interview 9/91 | 0.0221 | 0.97 |
| Interview 10/91 | 0.0419** | 2.23 |
| Interview 11/91 | 0.0463** | 2.51 |
| Interview 12/91 | 0.0561*** | 3.04 |
| Interview 1/92 | 0.0554*** | 3.01 |
| Interview 2/92 | 0.0409** | 2.23 |
| Interview 3/92 | 0.0686*** | 3.72 |
| Interview 4/92 | 0.0636*** | 3.46 |
| Interview 5/92 | 0.0512*** | 2.77 |

**Table 4.6 (continued).**

| Variable | Estimated Coefficient | T-Statistic |
|---|---|---|
| Interview 6/92 | 0.0308* | 1.67 |
| Interview 7/92 | 0.0198 | 1.08 |
| Interview 8/92 | 0.0196 | 1.04 |
| Location: Rural | 0.0880*** | 17.13 |
| Location: Forest | -0.0319*** | -6.04 |
| Location: Savannah | 0.0256*** | 3.85 |

*, ** and *** denote significance at the 0.10, 0.05 and 0.01 levels respectively. N=4,516

$R^2$=.294 F=45.5

**Table 4.7. Summary of OLS Estimates of the Percent of Assets Owned by Women on the Budget Shares of Food. (Separate samples for each of four income level groups).**

| Expenditure level | Estimated Coefficient | T-Statistic | $R^2$ |
|---|---|---|---|
| Low (0-25 percentile) | 0.0321*** | 2.72 | .1887 |
| Medium-low (25-50 percentile) | 0.0263*** | 2.32 | .2570 |
| Medium-high (50-75 percentile) | 0.0161 | 0.01 | .2882 |
| High (75-100 percentile) | -0.0233 | -1.46 | .3658 |

*** denotes significance at the 0.01 level.
Note: N=1,128 for each of the four samples.

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