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Intra-household Resource Allocation in Ghana: The Impact of the Distribution of Asset Ownership within the Household

Economists have recently begun to examine household economic behaviour with the explicit recognition that individual preferences and access to resources within households may affect the outcomes of economic decisions. This approach contrasts with economic models of household behaviour which treat a household as a single economic actor and it is able to offer many policy relevant insights into their decision making (Alderman *et al.*, 1995). In addition, recent literature has stressed the importance of the ownership of property within the household (Agarwal, 1994; Udry, 1996), suggesting that the distribution of property rights may affect production and consumption decisions and the relative well-being of household members. The research presented in this paper explores how the distribution of asset ownership among household members affects household expenditure patterns. Using detailed household survey data from Ghana, the intention is to demonstrate that the share of assets owned by women has a significant impact on household expenditure decisions.

GHANAIAN HOUSEHOLDS: EXPENDITURES AND ASSETS

The analysis uses data from the 1991–2 Ghana Living Standards Survey (GLSS3). The income, consumption and expenditure data are quite detailed and much of the income and asset ownership data can be disaggregated 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 nine of the 12 months prior to the survey. Household size range from one to 30, with a mean of 4.5. Over half of the households reported having both a head of household and spouse present. Households reporting a female head of household and no spouse present comprised 32 per cent of the surveyed households, while 6 per cent of households were polygynous.

GLSS3 contains detailed information on expenditure and income. Data on frequent expenditures, both food and non-food, 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. Annual expenditures were obtained for goods infrequently purchased. Imputed values were calculated for

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housing, where appropriate, and for consumer durable goods. In addition to cash expenses, data on the value of food and other home-produced goods were collected.

Data on individual ownership or control of saving accounts, land and business assets are also included. Each individual was asked the current value of their savings held in both formal and informal accounts. The identity of the owner and the value of the land are provided for each plot of land. Finally, details were collected on the assets for up to three businesses controlled by the household.

THEORETICAL FRAMEWORK

This section provides the theoretical framework to examine the impact of the distribution of asset ownership on household expenditures and to test whether a model that disaggregates asset ownership collapses to a unified model of the household.

In a unified household model, the utility function for the household can be specified:

$$U = U(\mathbf{X}, \mathbf{M}; \mathbf{Z}) \tag{1}$$

where $\mathbf{X}$ is a vector of market goods, $\mathbf{M}$ is a vector of non-market goods and $\mathbf{Z}$ is a vector of demographic characteristics that would be expected to influence household preferences. The household faces a budget constraint

$$P_x\mathbf{X} + P_m\mathbf{M} = \sum_{i=1}^{I} w^i l^i + \sum_{i=1}^{I} t^i (L^i - l^i), \tag{2}$$

where P_x is a vector of prices corresponding to $\mathbf{X}$; P_m is a vector of shadow prices corresponding to $\mathbf{M}$; w^i is the wage level of individual I in the household; l^i is the amount of time spent in the labour force; t^i is the shadow wage rate for person I producing outside the labour market; and L^i is the total amount of labour time available to person I. Maximizing equation (1) subject to (2) gives the reduced form demand equation:

$$\mathbf{X} = g(P_x, P_m, \sum_{i=1}^{I} w^i l^i, (L^i - l^i), \mathbf{Z}) \tag{3}$$

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

In a cooperative bargaining framework, each household member has a utility function

$$U^i = U^i(\mathbf{X}^i, \mathbf{M}^i; \mathbf{Z}). \tag{4}$$

Households solve the Nash bargaining problem:

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

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. It is based on prices, wage income and α, 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:

$$\sum_{i=1}^{I} \mathbf{X}^i = g(P_x, P_m, w^i, t^i, L^i, \alpha^i, \mathbf{Z}) \quad i = 1 \ldots I \tag{6}$$

This equation includes α^i which is a parameter affecting the threat point of individual I. Previous work has suggested that α^i could include non-labour income or transfer payments that individual I would receive even if the household dissolved (Schultz, 1990; Thomas, 1993). In this analysis, this parameter is represented by the percentage of assets within the household held by women.

By estimating the reduced form equation, we can test whether the coefficient on α is zero. If so, the reduced form of the bargaining model collapses to that of the unified household model. However, if the coefficient on α is not zero, we reject the unified model of the household and conclude that the distribution of assets among household members is a determinant of household economic outcomes.

DOES THE DISTRIBUTION OF ASSET OWNERSHIP MATTER?

The influence of the distribution of property ownership was examined by regressing the percentage of assets held by women on budget shares for 14 categories of expenditures, where shares are the percentage of total expenditures, including the value of goods received as in-kind payments. Using budget shares, rather than spending levels, controls for differing standards of living among households and captures the trade-offs among commodities that households must make.

A number of other factors are expected to affect household expenditure patterns. The variables included are monthly household income, total household assets, a vector indicating the age and gender composition of the household (number of individuals in 12 age/gender categories), education levels of the head of household and his or her spouse, and dummy variables indicating the month of the interview, location in one of three agroecological zones, urban or rural location, and whether or not the household owned any assets.

Since rural and urban households might be expected to make different economic decisions for any specified distribution of assets among household members, dummy variables for urban and rural location are interacted with the

percentage of women's assets. Thus the effects of the influence of the ownership share of women's assets are estimated separately for urban and rural households.

EFFECTS OF WOMEN'S ASSETS ON FOOD EXPENDITURE

OLS estimates are first obtained using the budget share for food, including both cash expenditures and the value of food produced and consumed by the household, as the dependent variable. The full results of this estimation are presented in Table 1.

The estimated coefficient on the percentage of assets held by women is 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 per cent. For urban households which own some assets, a 1 per cent increase in the share of assets held by women increases the budget share spent on food to 50.3 per cent. For rural households, food is 60 per cent of the household budget, with an average monthly expenditure of 35 321 cedis. However, the percentage 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 of 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.

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 associated with increased nutritional status of children; however, it is not necessarily associated with an increased share of the budget spent on food, holding total income or expenditure constant. Educated women may be able to provide better nutrition for their children with the same level of expenditure. All of the coefficients on the variables indicating education levels are negative, suggesting that in Ghana an increase in education shifts preferences in favour of spending on non-food items more than it shifts preference in favour of additional spending on food.

Many of the dummy variables that indicate the month of the interview are significant, capturing the seasonal price variations and any relative price changes over time.

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 (Table 2). For urban households, ten of the 14 categories of goods are significantly affected by women's asset holdings (at the 10 per cent significance level or better). Food, education and utilities

TABLE 1 *OLS estimates of the determinants of budget share on food, Ghana, 1991–2*

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 ($\times 10^8$)	–2.046***	–3.53
Household assets ($\times 10^{10}$)	–7.68*	–1.87
Dummy if owned assignable assets	–0.018696***	–3.25
# of male infants (age 0–4)	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
Dummy if male and female head present	0.0176***	2.89
Female head: 4 years' primary education	–0.0153***	–2.60
Female head: attended secondary school	–0.0605***	–5.89
Female head: completed 'O' level	–0.0783***	–3.75
Male head: 4 years' primary education	–0.0415***	–5.35
Male head: attended secondary school	–0.0417***	–5.17
Male head: completed 'O' 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
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

Note: *, ** and *** denote significance at the 0.10, 0.05 and 0.01 levels, respectively; $N = 4{,}516$, $R^2 = 0.288$, $F = 46.4$.

TABLE 2 *Selected results from OLS estimations of the effect of the percentage of assets or land owned by women on budget shares*

Budget share	Assets, urban women	Assets, rural women	Land, urban women	Land, 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	0.001	–0.001	–0.003	–0.002
items	(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	–0.008***	–0.001	0.0008	0.0008
durables†	(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)
Miscell.	–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)
Transport	–0.004	0.005*	0.001	0.003
	(–1.382)	(1.893)	(0.166)	(0.637)
Utilities	0.011***	–0.003	–0.008	–0.007***
	(5.170)	(1.485)	(–1.424)	(–2.799)

Note: *, ** and *** denote significance at the 0.10, 0.05 and 0.01 levels respectively;
† indicates imputed values; $N = 4{,}516$; t-statistics are in parentheses.

are positively related to the percentage of assets held by urban women, while alcohol, tobacco, housing (actual and imputed expenses), the imputed value of goods received in kind and use value of consumer durable goods, miscellaneous items (including personal care, jewelry, taxes, ceremonies and gifts), recreation and entertainment, and remittances are all negatively related to the percentage of assets held by urban women.

For rural households, six of these 14 categories of goods are influenced by women's asset holdings. Education expenses are again positively related to

women's asset holdings along with transport expenses. Alcohol, recreation, remittances and tobacco are negatively related to women's asset holdings.

When asked who paid for their education expenses, 61 per cent of the respondents who had attended school in the past year said their father, while only 17 per cent said their mother. Thus it is interesting that, for both urban and rural households, women's asset ownership increases expenditures on education. This may reflect the fact that women use their increased influence from owning assets to encourage men to increase education expenses, rather than that women pay for education out of their earnings.

In Ghana, recreation, alcohol and tobacco are considered 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 type for men and women, 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 (including visits to clinics, hospital or traditional healers and over-the-counter treatments) are not significantly affected by the distribution of asset ownership. Medical expenses are primarily for curative care, and, thus, increases in health expenditure due to women's increased bargaining power may be offset by increased preventive care which lessens the need for curative care.

CONCLUSION: ASSETS AND WOMEN'S INFLUENCE IN HOUSEHOLD DECISIONS

The evidence suggests that the distribution of assets among men and women within Ghanaian households affects expenditure decisions. 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 access to resources into models. Policies that affect individual ownership of assets, such as land titling programmes and small business development programmes, may have an impact on household expenditures regardless of their effect on household income. Conversely, programmes that are simply aimed at the household may have unintended consequences, depending on how they affect the relative levels of assets among household members and how they affect intra-household bargaining power.

The results presented in this paper are consistent with other disaggregated models of the household (see Doss, 1996, for a description of the models, or Schultz, 1990, and Thomas, 1993, for background). In a collective framework (Chiappori, 1992) the results suggest that women's ownership of assets is one of the factors that affects the household's sharing rule. In a cooperative bargaining framework, such as the one presented in this paper (see also Lundberg and Pollak, 1993; McElroy, 1990), we would conclude from these results that ownership of assets increases women's 'threat point', or the amount of utility that they would receive if they no longer participated in sharing resources within the household. In a non-cooperative bargaining model (Woolley, 1993),

women's ownership of assets would influence their ability to bargain for transfers of resources, including labour transfers, and the provision of household 'public' or shared goods by other household members.

REFERENCES

Agarwal, Bina (1994), *A Field of One's Own: Gender and Land Rights in South Asia*, New York: Cambridge University Press.

Alderman, H., Chiappori, P-A., Haddad, L., Hoddinott, J. and Kanbur, R. (1995), 'Unitary vs. collective models of the household: Is it time to shift the burden of proof?', *World Bank Research Observer*, **10**, 1–19.

Chiappori, P-A. (1992), 'Collective labour supply and welfare', *Journal of Political Economy*, **100**, 437–67.

Doss, Cheryl R. (1996), 'Testing among models of intrahousehold resource allocation', *World Development*, **24**, 1597–1609.

Lundberg, S.J. and Pollak, R.A. (1993), 'Separate spheres bargaining and the marriage market', *Journal of Political Economy*, **101**, 988–1010.

McElroy, Marjorie (1990), 'The empirical content of Nash-bargained household behavior', *Journal of Human Resources*, **25**, 559–83.

Schultz, T. Paul (1990), 'Testing the neoclassical model of family labour supply and fertility', *Journal of Human Resources*, **25**, 599–634.

Thomas, Duncan (1993), 'The distribution of income and expenditure within the household', *Annales d'Economie et de Statistique*, **29**, 109–36.

Udry, Christopher (1996), 'Gender, agricultural production and the theory of the household', *Journal of Political Economy*, **104**, 1010–6.

Woolley, Frances (1993), 'A Cournot–Nash model of family decision making', mimeo, Carleton University, Department of Economics, Ottawa.