WHO SHOULD BE INTERVIEWED IN SURVEYS OF HOUSEHOLD INCOME?

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SUMMARY

This study tests the null hypothesis that it is sufficient to interview only the household head to obtain accurate information on household income. Results show that using a husband's estimate of his wife's income does not produce statistically reliable results for poverty analysis. Estimates of the wife's income provided by the husband and wife are in agreement in only six percent of households. While limiting interviews to one person has the advantage of reducing the time and expense of household surveys, this appears detrimental in terms of accuracy, and may lead to incorrect conclusions on the determinants of poverty.

Key words: Africa, gender, household dynamics, household surveys, Malawi, poverty

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1. INTRODUCTION

In recent years, large household surveys, such as the World Bank's Living Standards Measurement Study (LSMS), have adopted the practice of interviewing multiple adult household members for information on time use, income, and expenditures (Grosh & Glewwe, 2001). This trend represents a common sense approach to data collection, based on experience. In the case of household income, for example, a householder may be unaware of the full range of income-generating activities of the wife and other adult members, resulting in underreporting of household income. Even if a householder is aware of income sources of other family members, he may be unable to provide an accurate account of their income, if there is incomplete pooling of information within the household. On the other hand, if information sharing is complete across household members, the household head will be able to provide an accurate account of his household's income, and it is superfluous to interview multiple household members.

The shift in the LSMS surveys toward interviews with multiple household members reflects a larger trend in the study of household economies. In the past, this field was heavily influenced by unitary models of the household. Today, however, most efforts to understand household economies, whether in the economic or qualitative social sciences, seek to understand the different preference orderings of various household members, and how these different preferences are negotiated through cooperative and non-cooperative bargaining (Carr, 2005; Folbre, 1984; Haddad & Hoddinott, 1994; Haddad & Kanbur, 1990; Udry, 1996). To our knowledge, however, there is no empirical evidence that builds on these larger conceptual trends to test their methodological implications.

The current study uses data for rural Malawi to test the null hypothesis that it is sufficient to interview only the household head to obtain accurate information on household income. Like farm households in other parts of Africa, Malawi farm households are characterized by distinct gender roles in livelihood activities, incomplete pooling of resources, and conflict among household members over the distribution of resources (Carr, 2008a; Cloud, 1986; Fafchamps & Quisumbing, 2002; Fapohunda, 1988; Fisher, Warner, & Masters, 2000; Guyer, 1986; Jones, 1986; Whitehead, 1990). In the households sampled in the present study, only agricultural income was widely reported as pooled. The income from other activities, such as operating small businesses or working as wage laborers, was generally viewed as belonging to the person who earned that income, so that any contribution to the maintenance and reproduction of the household from that income was voluntary. Such multiple, gender-based, economic spheres may make it difficult for a single household member to be aware of the household's total economy. Furthermore, differences among household members over the preferred distribution of resources suggest that members have strategic reasons to withhold information on personal income generation from one another. In short, it may not be possible to obtain complete information on household income in rural Africa, if survey interviews are limited to the household head.

The data used in this study come from a 2008 farm household survey conducted in southern Malawi. The data allow us to construct two measures of total household income: *CombinedInc* combines income information from the male household head and his wife, and *HusbandInc* uses income data collected only from the male household head. For a subsample of the households with a spousal couple, we conduct several empirical analyses to determine whether interviewing only the husband would provide accurate results for

certain types of research questions. First, we calculate the percentage difference between the two measures of household income. Next, we use regression analysis to examine the determinants of differences between the two income measures. We then calculate the poverty headcount and the poverty gap index for *CombinedInc* and *HusbandInc*, to assess the degree to which measures of poverty are influenced by how income data are collected. Finally, we investigate whether the factors associated with the incidence and depth of poverty vary according to how household income data are gathered. Results of the study provide insight into the appropriate design of household surveys in developing countries. Specifically, our findings indicate that efforts to understand household income and poverty require survey tools that are designed with at least a preliminary understanding of the income-generating activities and livelihood roles of the different members of the households under investigation.

2. STUDY CONTEXT AND DATA

(a) Survey sites and data collection

Data for the present study come from a household survey conducted in four Southern Malawi villages between January and December, 2008. Two of the authors of the present study were involved in the design and data collection. Southern Malawi has the highest poverty incidence (68.1%) and population density (146 people km^2) in the country (National Economic Council, 2000). The surveyed villages represent a spectrum of market access and household livelihoods. A simple random sample of 50 households was selected for interviews in each village, giving an initial sample size of 200.[1] The survey defined households as a group of people, usually family members, who live in the same dwelling compound, eat food prepared from the same cooking pot, and pool their labor (i.e., no

payment is made for labor exchange). A male-female enumerator team was based in each of the four villages and spent six months interviewing residents of the sample households. Household information collected included income, expenditures, demographics, wealth holdings, food security, agricultural production, forest use, risk attitudes, risk-coping strategies, and perceptions of climate variability.

Before turning to a description of the specific data used in the study's empirical analyses, we here discuss household structure, livelihoods, and decision making in the study area. We focus the discussion on sample households having a spousal couple ($n = 130$) since it is only for these households that the two income measures, *CombinedInc* and *HusbandInc*, can be calculated. The average number of members, number of working-age members (13-59 years of age), and number of elderly (60 years and older) in these households is 5.38, 2.83, and 0.28, respectively.[2] These households generally have two principal earners.

Livelihoods in the study villages are based around five key categories: agriculture, livestock husbandry, collection of forest products, wage labor, and self-employment (i.e., business). Households also receive transfer income in the form of remittances and gifts from relatives or friends, pensions, and aid from the government and NGOs. The mix of livelihood activities varies among villages (Figure 1). Agriculture accounts for about a third of total income in all villages, except Village 4. The high income share from forests in Villages 1 and 2 is largely due to proximity to the Forestry Department, which offers potential employment as forest extension officer, forest guard, mountain guide, or porter. The high forest income share in Village 4 is primarily income from charcoal sales. Charcoal marketing occurs mainly in villages close to a sizable town, where there is charcoal demand, as in Village 4. Wage employment is an important income source, particularly in Villages 2,

3, and 4. In Village 2, wage work is varied and includes school teacher, watchman, road construction worker, among other positions. In Village 3, most wage work is contract agricultural labor, which offers low wages but high availability during the agricultural season. In Village 4, many households have members that work at neighboring tea estates. Differences in the livelihood activities among villages influence the ability of the male head of household to account for the income of every earner (typically himself and his wife) in that household.

*** Figure 1 here ***

In the study area, as in much of rural Africa, the incomes earned by different household members are not uniformly pooled into a single household income. Agricultural incomes are combined into a single pool of "family money." Individuals may contribute part of their earnings from other activities to this pool. Other income belongs to the person who earned it and can be spent on whatever the earner chooses. Men and women in the study sample have different consumption patterns. Men tend to purchase items, like batteries, beer, clothes, mobile phones and units, and tobacco products, or to spend money on girlfriends outside the household. Women, on the other hand, spend their personal earnings mainly on household needs, rather than personal needs or desires. Snuff and hair products are the only reported women's purchases clearly intended for use solely by the purchaser. The purchasing pattern reflects the unspoken role of women in the study area, to reproduce the household before making any personal purchases. These gender-specific patterns of expenditure are mirrored in other parts of Africa (e.g., Carr, 2008a).

(b) Income measurement

Measures of household income, the key variable for the present study, were designed to provide accurate data. First, income information was collected quarterly, to reduce the recall period and to capture seasonal variation. Second, interviews were conducted with multiple household members and, if possible, with all active adult household members. The latter interview arrangement was rarely possible, but all interviews in single-head households included the household head, and in spousal-couple households, the head and his wife. Respondents were asked to report income for their household as a whole, from agriculture, livestock, forest activities, wage work, self-enterprise, and transfers. Third, single-gender interviews were conducted using a uniform questionnaire, because field observations suggested that respondents may withhold income information in the presence of their spouse. In some cases, a group of males or females was interviewed; in other cases, an individual was interviewed. The gender of interviewer was matched to that of the respondent(s). These data collection methods not only insured high quality, but also provided an opportunity to test the null hypothesis that it is sufficient to interview only the household head to obtain accurate information on total household income.

The two measures of total household income, *CombinedInc* and *HusbandInc*, are calculated for a subsample of 99 households with a spousal couple and for which both spouses were present at the interview. The total for both variables is the sum of cash earnings and subsistence income from all sources (agriculture, livestock, forest activities, self-employment, wage work, and transfers) for all household members. Subsistence income is non-marketed agricultural production and collected forest products (e.g., firewood, forest foods, thatching grass) that were consumed at home. Only the husband's income

questionnaire is used to construct *HusbandInc*. Both male householder and wife

questionnaires are used to compile *CombinedInc*. The income questionnaire included

questions about who engaged in and/or controlled earnings from each income-generating

activity. For *CombinedInc*, the person engaged in a given activity for subsistence income, or

who controlled earnings for cash income, is assumed to provide the most accurate

information. For example, if the wife controlled cash earnings from firewood sales, her

response is used to calculate *CombinedInc*. Because household members typically work

together with members of the same sex, it is assumed that a wife (husband) provided the

most accurate response for all female (male) household members engaged in a given

activity. Thus, if a teenage son was reported to earn income from wage employment, the

husband's response is used to calculate *CombinedInc*. There were two major livelihood

activities in the study area that were jointly participated in by husband and wife: subsistence

agricultural production and charcoal marketing. In calculating *CombinedInc*, we use the

wife's response to estimate production of subsistence agricultural goods, because it is

generally women who store, process, and prepare home-consumed agricultural production.

We use the husband's response to estimate charcoal earnings, because men are typically

responsible for charcoal sale in the study area. Charcoal burning is primarily a male activity,

even though women assist by bringing water for the kiln.

The present study uses only income data recorded in June, 2008, which covered the

months of March, April, and May. The use of second quarter data, as opposed to data from

all four quarters or for another individual quarter, provides the largest available sample size.

Due to high geographic mobility among household members, there were few households for

which both husband and wife reported income for multiple quarters of 2008. Data from the

first quarterly income survey were problematic, because enumerators in Village 4 mistakenly revised the questionnaires to make husband and wife responses correspond. A drawback of using second quarter data only is that it may not represent the situation for the year as a whole. The second quarter was the harvest time for the main agricultural crops, including the staple crop, maize, and the bulk of income earned in the second quarter was for agriculture. Agricultural income is largely pooled in the study area, whereas income from other sources tends not to be pooled. Husbands should therefore have better knowledge of agricultural income compared to income from other sources. As a result, the male household head's knowledge of household income should be greater in the second quarter than in other quarters.

3. EMPIRICAL ANALYSIS

(a) What is the degree of difference between *CombinedInc* and *HusbandInc*?

There is perfect agreement between *CombinedInc* and *HusbandInc*, i.e., husbands' responses correspond to their wives' responses, for only 6% of the households in which both husband and wife were interviewed (Table 1). As income interviews were conducted concurrently but separately, there evidently was information sharing between husband and wife. In 28% of households, the husband overestimated the earnings of his wife and, therefore, total household income by an average of 17%. In 66% of households, the husband underestimated his wife's income by an average of 47%. Overall, *CombinedInc* exceeds *HusbandInc* by 26%, on average, and the difference is statistically significant ($p < 0.05$). The implication of these findings is that, at least for the Malawi study sites, interviewing both the husband and the wife appears necessary for accurate estimates of total household income.

*** Table 1 here ***

To some extent, observed differences between *CombinedInc* and *HusbandInc* probably reflect errors in reporting and recording. For example, a husband may strategically underreport his own and his wife's incomes, anticipating development assistance at the end of the survey. Issues of honor/pride may lead a husband to inflate his income relative to his wife's, in order to appear as the main breadwinner. There might also be differences in the ability of the husband and wife to accurately recall income information for the last three months. Furthermore, a husband's estimate of his wife's income could be inflated due to telescoping, a form of reporting bias in which the respondent includes events that occurred prior to the recall period (Deaton & Grosh, 2000). As for recording bias, discrepancies could reflect enumerator recording errors or data entry mistakes. However, the magnitude of the difference between *CombinedInc* and *HusbandInc* suggests that differences are probably not due solely to reporting and recording errors.

(b) What factors explain observed differences between *CombinedInc* and *HusbandInc*?

A regression model is used to examine the factors associated with differences between *CombinedInc* and *HusbandInc*:

$$(1)\ D_i = \alpha_0 + \alpha_1\,A_i + \alpha_2 Eh_i + \alpha_3\,Ew_i + \alpha_4\,Hd_i + \alpha_5\,Ha_i + \alpha_6\,I_i + \alpha_7 Y_i + \delta\,V_i + \varepsilon_i\,.$$

D is the percent difference between *CombinedInc* and *HusbandInc*, calculated as [(*CombinedInc* – *HusbandInc*)/*HusbandInc*] x 100. Various household-level explanatory variables are included in the model. *A* is the age difference between the household head and wife. *Eh* and *Ew* indicate whether the husband or wife, respectively, have at least a primary education. *Hd* and *Ha* are, respectively, the number of household members classified as dependents (children aged 12 and lower and elderly aged 60 and over) or as working-age

members (individuals aged 13-59 years). *I* is a binary variable for whether the household's

main dwelling unit has a corrugated iron roof, an important local indicator of wealth. *Y* is the

number of years the household head has resided in the current village of residence, intended

to proxy for degree of community integration. Vector *V* denotes three dummy variables for

village of residence (Village 4 is the comparison village). Descriptive statistics for these

explanatory variables are provided in Table 2.

*** Table 2 here ***

Results of the regression model show that five of the variables are significant at the

95% probability level (Table 3). Note that a positive coefficient indicates that a husband

underestimated the total income of his household. The education variables suggest that a

husband is less likely to underestimate total household income if he has at least a primary

education (Table 3), probably because education is associated with improved numeracy. In

contrast, the difference between *CombinedInc* and *HusbandInc* is more likely to be large if

the wife has at least a primary education, suggesting that men are less aware of the income

of educated wives. This conforms to prior expectations. Education increases a woman's

probability of employment in the wage labor market (Glick & Sahn, 1997; Vijverberg,

1993), and in the study area, wage earnings tend to be pooled only when the wage earner

chooses to do so.

The head of the household is more likely to underestimate household income as a

whole in households with more working-age members (Table 3). This result is predictable,

because with more members earning subsistence or cash income, it is harder for a household

head to account for total household income. This is an even greater problem in household

economies where part or all of individual incomes are contributed to the household on a voluntary basis.

Heads of households in Village 1 or 2 are more likely to underestimate their wives' income than their counterparts in Village 4. Field observations indicate two possible explanations. The primary remunerative activities in Village 4 are charcoal burning/marketing and wage employment at neighboring tea estates. Charcoal production is a joint activity of husbands and wives, and both men and women work in tea estates, where the salaries are commonly known. Thus, it is probably easier for husbands to account for total household income in Village 4 than in Villages 1 and 2, where spousal income comes from a variety of gender-specific activities. Furthermore, Villages 1 and 2 are located nearer to the main hiking trails up Mulanje Mountain and to the Likhubula Forestry Office where prospective hikers register. Many men work intermittently as mountain porters/guides or woodcraft marketers, and spend considerable time away from home. Thus, householders in those villages may be less aware of their wife's non-agricultural livelihood activities.

*** Table 3 here ***

(c) Do measurements of income poverty depend on how income data are gathered? [3]

CombinedInc and *HusbandInc* are used to calculate poverty indexes. Poverty measurement requires at least four decisions: 1) what welfare indicator to use (e.g., income, consumption); 2) how to make the chosen welfare indicator comparable across households of varying size and demographic composition, i.e., what equivalence scale to use; 3) how to discriminate between the poor and the non-poor, i.e., relative vs. absolute poverty concepts; and 4) what aggregate poverty index to use, e.g., poverty headcount or poverty gap index (Dercon, 2005).

We use annual income per capita in purchasing power parity (PPP) US$ as the

welfare indicator.[3] We convert the quarterly income data to annual figures to allow

comparison with an annualized absolute poverty line (discussed below). To annualize, we

divide each household's second quarter income by the proportion of total annual income it

represented: for the sample households, 42% of annual income was earned in the second

quarter on average. The annualized figures are then converted to PPP US$, using the

International Comparison Program's (ICP) 2005 PPP estimate for Malawi. Finally, the

annual PPP US$ figures are divided by household size.[4]

We use an absolute poverty concept to discriminate between the poor and the non-

poor; the absolute poverty line is the World Bank's US$2 per person per day. Finally,

poverty is summarized using the poverty headcount and the poverty gap index. The poverty

headcount is the proportion of individuals that have income below the poverty line. The

poverty gap index is the average income shortfall of the poor from the poverty line, and

provides a measure of the depth of poverty. The poverty headcount and poverty gap index

are special cases of the Foster, Greer, and Thorbecke (1984) class of poverty measures,

calculated using the following equation

$$(2) \qquad P_{\alpha} \;=\; \frac{1}{n} \sum_{i=1}^{q} \left(\frac{z_i - c_i}{z_i} \right)^{\alpha}$$

where P is a summary measure of poverty, α is a non-negative parameter, n is the sample

size, i indexes individuals or households, $q \leq n$ is the number of poor in the sample, z is the

poverty line, and c is the welfare level ordered from poor to rich. When α is zero, the

calculated poverty measure is the poverty headcount. When α is one, the calculated poverty

measure is the poverty gap index.[5]

The average annual per capita income, poverty headcount, and poverty gap calculated based on *CombinedInc* and *HusbandInc* (Table 4) closely agree with previous estimates. The most recent estimate of Malawi's income per capita, for 2007, is 750 PPP US$ per capita (World Bank, 2009). Recent estimates for the poverty headcount and poverty gap from the Malawi Integrated Household Survey are 0.68 and 0.25, respectively (National Economic Council, 2000). Mean values of the aggregate poverty measures based on *CombinedInc* and *HusbandInc* show no statistically significant differences, suggesting that, for purposes of measuring average poverty levels, at least at the study sites, it may not matter whether only the husband or both husband and wife are interviewed. However, the lack of significant differences in mean values does not necessarily reflect a lack of differences in the distributions of poverty incidence and depth. To get at the potential hidden underlying patterns, one can use regression analysis, which we turn to next.

*** Table 4 here ***

(d) Do the correlates of income poverty depend on how income data are gathered?

To determine whether it is sufficient to interview only the household head when examining why some households are poor and others are not, we estimate probit and tobit regression models of household poverty, which take the form

$$(3) \quad P_i = \beta_0 + \beta_1 Ah_i + \beta_2 T_i + \beta_3 Eh_i + \beta_4 Ew_i + \beta_5 R_i + \beta_6 F_i + \beta_7 C_i + \delta V_i + \varepsilon$$

where P is alternately a measure of poverty incidence or poverty depth for household i. Poverty incidence is a binary variable indicating whether the household has income below the World Bank's US$2 per-person-per-day poverty line, and is estimated with a probit regression. Poverty depth is continuous for those with income less than or equal to the poverty line, equals zero for those with income above the poverty threshold, and is estimated

with a tobit regression. *Ah* is the age of the household head. *T* indicates whether the household head's ethnicity is one of the main ethnic groups in his village. *Eh* and *Ew* indicate whether the husband or wife, respectively, has at least a primary education. *R* is the dependency ratio, calculated as the number of children and elderly divided by household size. *F* is the size of the household's farm. *C* indicates whether the household received a fertilizer coupon from the Malawi government. Vector *V* denotes village of residence (Village 4 is the comparison village).

The empirical model captures the main determinants of human impoverishment highlighted by poverty researchers (e.g., Rank, Yoon, & Hirschl, 2003; Schiller, 1995). One common view is that specific attributes of poor people, such as low levels of education or large number of dependents, are responsible for their poverty. Poverty is viewed as a consequence of individual decisions related to education, employment, and household structure, and these decisions impact economic well being. Other researchers argue that poverty is mainly the result of restricted educational, economic, and political opportunities, which may be related to the individual's place of residence, or originate from discrimination on the basis of age, gender, ethnicity, or class. According to the restricted opportunity viewpoint, poverty is caused by forces beyond the control of individuals and families. In the present study, these two explanations of poverty are considered complementary, as reflected in equation (3).

Tables 5 and 6 present regression results for poverty incidence and poverty depth for the two income measures, reporting marginal effects and *p*-values. Regression results for poverty incidence based on *CombinedInc* and *HusbandInc* show that the marginal effects have the same sign regardless of income measure in all cases except *Ew* (Table 5).

Significant regression results based on *CombinedInc* indicate that only farm size per person

and residence in Village 1 have a significant effect on poverty incidence. In contrast,

regression results based on *HusbandInc* show that the risk of being poor in rural Malawi

increases over the householder's life cycle, is lower for households having relatively large

farm size per person, is lower for households that received a fertilizer coupon, and is higher

for residents of larger villages (Villages 1 and 2).

Regression results based on *CombinedInc* show that poverty depth is negatively

correlated with education of the wife, farm size per capita, receipt of a fertilizer coupon, and

residence in Village 4 (Table 6). In contrast, results based on *HusbandInc* indicate that

poverty depth is significantly influenced by the householder's age and education, farm size

per person, receipt of a fertilizer coupon, and location of residence.

Thus, surveying only the head of the household versus the head and his spouse could

lead to different conclusions about causes of poverty and different policy prescriptions. For

example, if *CombinedInc* is assumed to give the most accurate income measure, appropriate

anti-poverty interventions would focus on female education opportunities, land

redistribution, distribution of fertilizer coupons, and infrastructure development in remote-

rural villages. However, a study using *HusbandInc* to measure income might prescribe

policy programs that remove the emphasis on female education, and instead focus on

education opportunities for males and target households headed by older individuals.

Although the lack of differences in average poverty levels based on *CombinedInc* and

HusbandInc suggest that, at least for the study sites, it is sufficient to interview only the

household head for total income data (Table 4), different results for poverty incidence and

poverty depth (Tables 5 and 6) suggest it is necessary to interview multiple adult household members to understand why some households are poor and others are not.

*** Table 5 and Table 6 here ***

4. DISCUSSION AND CONCLUSIONS

The present study examines whether a researcher can draw valid conclusions about total household income when interviews are limited to the household head. Limiting interviews to a single adult has the advantage of reducing the time and expense of household surveys. For households in rural Malawi, however, using a husband's estimates of his wife's income does not produce statistically defensible results for certain assessments of household economic well-being. Husband-only interviews appear to be valid for calculating aggregate poverty measures, such as poverty headcount and poverty gap indexes. However, analyses of the determinants of poverty are sensitive to whether or not the estimate of household income incorporates the wife's estimate of her income. Furthermore, husbands tend to underestimate their wife's income, and accurately estimate total income in only a small percentage of households.

Readers will need to individually gauge the extent to which our findings generalize to other settings, based on the detailed description of the survey area provided in section 2. Our sense, however, is that many of the study's findings are indeed quite general. For example, we find that the husband is less aware of the household economy when he works away from home at least part of the time; when household livelihoods are more complex, i.e., involve more earners; and when the household is more sophisticated, e.g., has educated female members or is located in a bigger town. These factors probably have similar effects in other regions of the world. Situations in which a husband alone would provide accurate

information about total household income might include, for example, if he is the sole breadwinner, or if his wife's income is readily observable. Those characteristics more closely match the unitary household model, which can be found in some parts of South Asia, where bargaining within households is more subtle. However, in relatively complex household situations, where there is clear evidence of individual incomes and different visibilities for those incomes, interviews with multiple income earners are advisable.

Overall, results of the present study demonstrate that researchers need to understand the income-generating activities of the household economies under investigation, as well as the livelihood roles played by different members of the household, before designing their research methods. This information should allow preliminary assessment of the likelihood that a single member of the household would be aware of all of the incomes and could provide an accurate estimate of total household income.

NOTES

[1] During the survey year, the sample size decreased from 200 to 182 households. Reasons for losses from the sample were that households moved away permanently (11), that enumerators were unable to interview respondents (4), that respondents refused to continue participation because they felt the time required for participation outweighed the survey's benefits (2), and that the female householder passed away (1).

[2] We classify working-age members as those aged 13-59 years, based on the advice of local collaborators. Furthermore, although Malawi is party to several international conventions against child labor, the official minimum working age in the country is 14 years.

[3] The authors recognize that there are many definitions of poverty, and that the very concept of poverty is problematic (see, for example, Carr 2008b). Our goal in this article is to pick one measurable means of thinking about poverty for the purposes of testing a particular methodology, not to make absolute claims about how poverty might be best defined.

[4] A per capita adjustment is standard in the poverty literature and has the merit of simplicity. However, it has drawbacks; for example, it ignores economies of scale in consumption and does not account for differences in household composition. Economies of scale in consumption imply that household needs do not grow proportionally to household size, reflecting that some household goods (e.g., housing, water taps) are non-rival and can be consumed jointly by several people. The sharing of non-rival goods within a household means that the cost per person to achieve a given living standard is lower when individuals live together than apart. Furthermore, the per capita adjustment does not account for the fact that a household's demographic composition influences its needs, because individuals with different attributes differ in their requirements (Slesnick, 2001).

[5] When α exceeds one, the summary poverty measure has the desirable property of sensitivity to income inequality among the poor, but this comes at a cost in terms of ease of interpretation. As a result, such measures are rarely used in practice (Dercon, 2005).

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Table 1. *Summary statistics for CombinedInc and HusbandInc*

Variable	Mean or Proportion	95% Conf. Interval
Percent households in which *CombinedInc = HusbandInc*	6.06	[1.28 to 10.84]
Percent households in which *CombinedInc > HusbandInc*	65.66	[56.14 to 75.18]
Percent households in which *CombinedInc < HusbandInc*	28.28	[19.25 to 37.31]
All households: Percent difference between *CombinedInc* and *HusbandInc* (base income is *HusbandInc*)	26.31	[10.60 to 42.02]

Table 2. *Descriptive statistics for explanatory variables*

Variable	Mean or Proportion	Standard Deviation
Age of household head (years)	44.59	16.76
Difference between the age of the household head and his wife (years)	6.29	7.31
Head has at least primary education (0/1)	0.37	
Wife has at least primary education (0/1)	0.13	
Number of years head has resided in village	25.31	19.21
Head's ethnicity is a main ethnic group in the village (0/1)	0.76	
Number of dependents	2.57	1.56
Number of working-age members	2.95	1.41
Dependency ratio	0.45	0.21
Main dwelling unit has a corrugated iron roof (0/1)	0.42	
Farm size per person (acres)	0.41	0.52
Household received a fertilizer coupon (0/1)	0.84	

Table 3. *Regression results for percent difference between CombinedInc and HusbandInc*

Variable	Coefficient	*p*-value
Constant	-0.99	0.953
Difference in age between household head and his wife (years)	0.78	0.524
Husband has at least primary education (0/1)	-31.32	0.015
Wife has at least primary education (0/1)	24.40	0.053
Number of dependents	2.60	0.343
Number of working-age members	9.31	0.026
Main dwelling unit has a corrugated iron roof (0/1)	-22.34	0.345
Number of years head has resided in village	-0.69	0.131
Village 1 residence (0/1)	38.26	0.035
Village 2 residence (0/1)	29.26	0.015
Village 3 residence (0/1)	41.82	0.307
Number of observations	99	
R-squared	0.12	

Table 4. *Summary statistics for CombinedInc and HusbandInc*

Variable	*CombinedInc*	*HusbandInc*
Annualized household income per capita (in PPP US$)	734 [622 to 847]	703 [578 to 829]
Poverty headcount	0.65 [0.55 to 0.74]	0.66 [0.56 to 0.75]
Poverty gap	0.27 [0.22 to 0.32]	0.33 [0.27 to 0.39]

Note: Bracketed terms are 95% confidence intervals.

Table 5. *Probit regression results for poverty incidence: CombinedInc and HusbandInc*
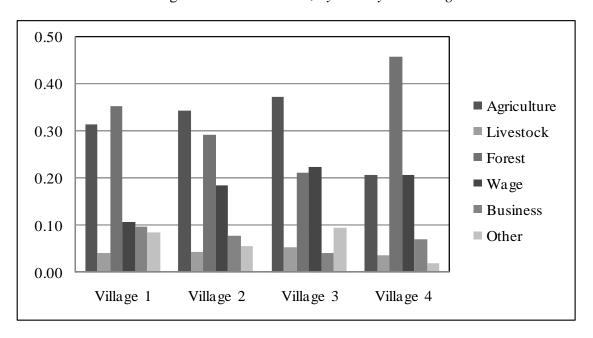
Variable	*CombinedInc*	*HusbandInc*
Age of the household head (years)	0.005 (0.125)	0.010 (0.004)
Household head's ethnicity is a main ethnic group in the village (0/1)	-0.159 (0.178)	-0.115 (0.307)
Husband has at least primary education (0/1)	-0.066 (0.585)	-0.158 (0.175)
Wife has at least a primary education (0/1)	-0.307 (0.117)	0.104 (0.455)
Dependency ratio	0.320 (0.216)	0.174 (0.514)
Farm size per person (acres)	-0.338 (0.006)	-0.238 (0.004)
Household received a fertilizer coupon (0/1)	-0.210 (0.064)	-0.196 (0.053)
Village 1 residence (0/1)	0.286 (0.005)	0.299 (0.001)
Village 2 residence (0/1)	0.175 (0.142)	0.250 (0.022)
Village 3 residence (0/1)	0.172 (0.186)	0.172 (0.165)
Number of observations	99	99
Pseudo R-squared	0.22	0.24

Note: Results shown in the table are marginal effects and *p*-values.

Table 6. *Tobit regression results for poverty depth: CombinedInc and HusbandInc*

Variable	CombinedInc	HusbandInc
Age of the household head (years)	0.004 (0.077)	0.006 (0.009)
Household head's ethnicity is a main ethnic group in the village (0/1)	-0.133 (0.097)	-0.104 (0.142)
Husband has at least primary education (0/1)	-0.062 (0.452)	-0.174 (0.038)
Wife has at least a primary education (0/1)	-0.372 (0.039)	-0.009 (0.945)
Dependency ratio	0.213 (0.260)	0.070 (0.660)
Farm size per person (acres)	-0.342 (0.001)	-0.292 (0.000)
Household received a fertilizer coupon (0/1)	-0.165 (0.017)	-0.127 (0.053)
Village 1 residence (0/1)	0.196 (0.012)	0.216 (0.003)
Village 2 residence (0/1)	0.200 (0.026)	0.224 (0.009)
Village 3 residence (0/1)	0.186 (0.051)	0.132 (0.150)
Number of observations	99	99
Pseudo R-squared	0.38	0.33

Note: Results shown in the table are marginal effects and *p*-values.

Figure 1. *Income shares, by activity and village*