Income Generation and Intra-Household Decision Making: A Gender Analysis for Nigeria

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Chapter 11

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Introduction

Household decision making and resource allocation are critical for economic and human development. Many decisions made at the household level influence the welfare of the individuals living in the household as well as their communities. Decisions such as where to live, how to generate income, how much to invest and consume, and how many children to have constitute common dilemmas faced by households. The outcomes of such decisions are often linked to economic performance at the household level as well as in the aggregate for the country as a whole. In households with precarious opportunities (defined as living in a low-wealth environment with limited access to credit and limited labor opportunities), the intra-household dynamics of decision making and resource allocation may have an even greater impact on the welfare outcomes of family members.

Within households, many factors—age, marital status, culture, income level, and education—influence the dynamics of intra-household decision making. If various household members (including male, as opposed to female, members) have different preferences, it is expected that households will behave differently according to who controls household resources. For example, it is often argued that when women have better command over income sources, decisions on how these resources are spent tend to favor children more in terms of human capital investment (for example, Hoddinott and Haddad 1995; Bourguignon and

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Chiappori 1992; Browning and Chiappori 1998; Bussolo, De Hoyos, and Wodon 2009).

Lloyd and Blanc (1996; see also Blackden and Bhanu 1999) argue that children in female-headed households in Sub-Saharan Africa have better enrollment rates than those in male-headed households. Higher involvement of women in decision making within the household has also been shown to lead to better outcomes in terms of nutrition (see Piesse and Simister 2002, among others). Cooperative bargaining theory suggests that expenditure decisions are proportional to resource contribution (for example, Manser and Brown 1980; McElroy and Homey 1981). In this respect, as a woman's income increases as a share of total household income, so does her bargaining and decision-making power. Hoddinott and Haddad (1995) suggest that a doubling of the share of cash income held by women within a household may increase the share of the budget allocated to food by the household by about 2 percent, and may reduce much more significantly the shares allocated to cigarettes and alcohol (by 26 percent and 14 percent, respectively).

In the Uganda gender assessment prepared by the World Bank (2005), the analysis suggested similar differences between male- and female-headed households, with a higher share of consumption spent on alcohol and cigarettes in male-headed households, and a higher share spent on school fees in female-headed households, especially in the case of divorced and widowed heads. Evidence of the effects of female labor income share on household consumption patterns was also found by Backiny-Yetna and Wodon (2010) for the Republic of Congo, but the effects were not large and not always statistically significant.

While there is substantial evidence worldwide about the impact of women's income on intra-household decision making, including consumption allocations, the evidence for Sub-Saharan Africa remains limited, in part as a result of lack of comprehensive household surveys to conduct such analysis in many countries. However, good household surveys are becoming much more common, enabling research on gender-based decision making, as illustrated for Senegal, for example, by Bussolo, De Hoyos, and Wodon (2009), and for the Republic of Congo by Backiny-Yetna and Wodon in Chapter 10 of this volume.

Yet, even without a comprehensive household survey with detailed consumption and income data, it is still often feasible to conduct useful empirical work on these issues. The objective of this study is to document the extent to which income generation affects decision making within households in Nigeria, using the 2003 Core Welfare Questionnaire Indicator (CWIQ) surveys implemented in eight Nigerian states. While these surveys do not have income and consumption data, they do provide information on labor force participation and whether household members generate income for the household, as well as data on who makes the decisions within the household for a wide range of expenditure categories. This type of data can be used to assess, using simple statistical and

econometric methods, the impact of income generation by women on their decision power within the household.

This chapter is structured as follows. The next section provides basic descriptive statistics on the differences in decision making within the household, as well as on differences in access to resources between the household head and spouse. Thereafter, bivariate probit techniques are used to quantify the extent to which income contribution influences a spouse's decision-making power on household expenditures in health, education, food, and on the use of productive assets. A brief conclusion follows.

Data and Basic Statistics

Using data from the CWIQ surveys implemented in eight Nigerian states in 2003, this section provides basic statistics on the roles of men and women in household decision making. The analysis relies on a one-page, special module on gender that was added to the standard CWIQ questionnaire by the National Statistical Office. Among other questions, the gender module asks respondents to answer the following: (1) whether each of the household members engage in a number of income-generating activities (fish smoking, food processing, soap making, crop farming, fishing, and others); (2) whether household members do household chores (fetching water, fetching wood, cleaning toilets, cooking, providing child care, caring for the elderly and the sick, and others); (3) whether household members take decisions in a range of areas (health, education, food, clothing, use of farmland, and sale of farm produce); and (4) whether household members spend most of their time on an economic activity, unpaid household work, child care, recreational activities, or other activities. The survey also provides information on who contributes the most to household income.

This study focuses on an analysis of the correlates or determinants of who is the main contributor to household income, and whether this affects the ability of the household member to participate in decision making in a range of areas. Before focusing on the interaction between income contributions and decision making, a few basic statistics are useful to provide context. The survey provides basic statistics showing whether men and women live in poor or non-poor households. For such statistics, in the absence of consumption data in the survey, poverty is defined using a household-level index of wealth obtained through standard factorial analysis conducted on the assets owned by the households, with a poverty line defined in such a way as to roughly reproduce poverty measures similar to the official figures (according to which, about two-thirds of the population lives in poverty). In conducting the factorial analysis, the first factor (which is defined statistically as a weighted sum of the

various assets used to assess household wealth, in order for that factor to explain as much as possible of the variance observed in asset ownership between households) is used to represent the wealth index.

The 2003 CWIQ data suggest that, as is the case in many other African countries, Nigeria is still a male-dominated society. There are significant differences in roles played by men and women in Nigeria that influence their capacity to earn monetary income, and thus their intra-household decision-making power (see table 11.1). While one of every two men in Nigeria spends most of his time in an income-generating activity, a similar proportion of women spend their time in unpaid household work. The differences in economic roles are most

Table 11.1 Basic Statistics on Employment and Education by Gender in Nigeria

	Women %	Men %	Non-poor women %	Non-poor men %	Poor women %	Poor men %
Employment and access to capital						
Owns land	13.02	46.85	11.19	36.21	15.02	58.96
Employed (6–70 years old)	47.38	54.51	45.79	51.39	49.07	57.94
Main activity (6–70 years old)						
Economic activity	29.41	47.51	37.35	49.75	20.92	45.03
Unpaid household work	40.64	25.61	30.30	19.02	51.69	32.91
Takes care of the children	6.00	0.81	4.68	0.78	7.40	0.85
Recreation	9.15	9.95	9.72	10.10	8.53	9.78
Other activity	14.81	16.12	17.95	20.35	11.45	11.44
Education						
Literacy rate (all individuals)	39.78	62.41	59.20	81.24	17.80	39.30
School enrollment (6–15 years old)	62.40	64.81	83.06	85.94	40.30	43.19
Reasons to be not enrolled						
Too old	1.67	2.03	1.66	2.43	1.69	1.75
Completed school	28.06	34.32	17.37	30.41	39.53	37.03
School is too far	2.43	3.19	2.12	0.00	2.77	5.40
School is too expensive	26.82	29.03	26.24	34.86	27.45	25.01
Work (job / home)	7.89	7.55	9.16	8.32	6.52	7.01
Useless	10.18	12.69	10.64	8.55	9.69	15.55
Illness or pregnancy	5.39	1.31	5.40	1.52	5.38	1.17
Failed exam	2.59	11.13	3.40	6.42	1.73	14.38
Got married	5.27	1.17	4.53	0.00	6.07	1.98
Awaits admission	17.71	13.34	22.72	17.81	12.34	10.24
Other reasons	7.53	5.21	10.97	9.62	3.83	2.17

Source: Authors' estimate using Nigeria's CWIQ 2003.

striking in poor households. While only 30 percent of non-poor women engage in unpaid family work, the proportion is 52 percent among poor women.

The literature on Nigeria suggests that women do the most work in the subsistence agricultural sector, while men are given opportunities in the commercial sector. Households often encourage their male members to migrate in order to generate higher incomes through remittances and also in order to deal with a lack of sufficient farmland and capital in rural areas to make farming profitable (Chukwuezi 1999). In turn, male out-migration from rural areas is leading to the feminization of agriculture. By contrast, in the commercial sector, men are hired more easily than women, including to do weeding and other traditional woman's work. The monetization of a sector often shifts hiring practices in favor of men, with owners of commercial farms justifying the exclusion of women on the grounds that they are not able to work at the same pace as men, which is, however, doubtful. This may explain in part why when women are hired, they are often paid lower wages.

Despite doing a large share of the work in the agriculture sector, rural women often lack control over key farm inputs and decisions. A woman's right to own land is dependent on her relationship with her husband or male relatives. The risk of losing land rights has become a disincentive for women to invest in land. For example, land rehabilitation programs that require years to make land productive are not attractive to women who may have the land taken away once it becomes fertile. Women also lack control over the allocation of the labor of their children and at times even their own labor. In studying tobacco production in the north, Babalola and Dennis (1988) found that husbands controlled the allocation of their wives' labor. That is, women were assigned tasks in producing a labor-intensive crop owned and controlled by their husbands.

Improved farming methods, while increasing productivity, also increase the demand for women's labor. For example, applying fertilizer makes extra weeding necessary, and women do most of the weeding. In contrast, traditional male tasks, such as land clearing and preparation, are being mechanized. Access to credit is much more widespread for men than for women, who despite having better repayment rates, have less access than men. Even when women own resources, they may not have the power to make their own decisions about using these resources, and this may in turn result in the transfer of more woman-specific farm tasks (such as the processing and marketing of palm) to men.

The 2003 CWIQ survey data confirm the existence of differences by gender in decision-making power; these differences are especially pronounced in poor households. The empowerment of women in decision making within the household seems limited in Nigeria, especially regarding decisions for the use of capital goods in the household, such as land use, sale of agricultural produce, and decisions related to shelter. As shown in table 11.1, female land ownership is rare and the share of women who are the main contributors of income in a

household with both head and spouse is very low (at 4 and 3 percent, respectively) for both poor and non-poor households. What is striking is the fact that women in non-poor households have much more decision-making power than women in poor households for virtually all areas of spending. For example, 40 percent of women in non-poor households have a say in decisions made about education spending, versus only 12 percent of women in poor households having this say. The same is true for decisions on land use and crop sales, with poor women again at a disadvantage.

The CWIQ data also show that literacy rates are significantly higher for men (62 percent for men versus 40 percent for women), and boys benefit from higher school enrollment rates than girls. Although net primary school enrollment is high and roughly similar for boys and girls in Nigeria, boys are more likely than girls to be enrolled by approximately 3 percentage points, and differences are larger at higher levels. Family responsibilities affect girls more than boys, even at a young age, and tend to magnify differences in schooling. In particular, while about 11 percent of girls are not enrolled in school because of marriage or pregnancy, this proportion is lower than 3 percent for boys.

Dealing with gender differentials in Nigeria is a complex matter. For example, gender roles are likely to affect human development at the society's level beyond the direct impact of decision making within households. One illustration is the apparent relationship between the sex of teachers and the school enrollment rates of girls as teachers, compared to boys, which is documented in a risk and vulnerability assessment prepared by the World Bank (2004). According to that report, about half the teachers in primary school are female. In secondary school, in contrast, the proportion of female teachers is lower. But in both primary and secondary schools, there is a clear positive relationship between the share of female teachers in a state and the share of female students. This relationship does not imply causality, since, apart from the female share of teachers, other factors may explain the fact that some states have a higher ratio of female-to-male enrollment than others. Still, the relationship suggests that gender patterns in Nigeria are correlated and multi-faceted, as well as deep-rooted in the functioning of society. Therefore, it is important to aim to develop integrated strategies to deal with such inequalities.

Monetary Contributions and Decision Power

In this section, the analysis focuses on the relationship between monetary contributions to household income and decision-making power on expenditure patterns. To do this, we restrict the sample only to male heads and female spouses who belong to a household where there is both head and spouse, excluding households where there is no spouse, as well as female-headed households. The reason for this selection is that in order to compare decision power

between men and women, it is necessary to have both men and women in the household—which, in practice, means that both a household head and a household spouse need to show up in the data. When there is no spouse, decisions are made only by the lone parent, and when there is a female head, in the African context, this essentially means that the father or male household head has died or has migrated. Note that this exclusion does not lead to bias. It is simply that the analysis is carried over a subset of the population, but this subset is very large because most households have both a spouse and a head. For language simplicity, "men" will refer to male household heads, and "women" will refer to the spouses of household heads.

As a consequence of various inequalities between men and women, household decision-making power in Nigeria remains concentrated among men, especially in poor households. Most decisions on the use of productive assets (land use, crop sales, and shelter) are taken by men (see table 11.2). Although women participate more in decision making on food expenditures, heath, and education, men are still the main decision makers in these areas as well. Non-poor women participate more actively in the household decision-making process than poor women, especially in aspects involving health and education. Not surprisingly, non-poor women are also more likely to contribute through income to household expenses (for shelter, education, food, health, and clothing, among other things) than are poor women. The rate of contribution for non-poor women is 37 percent, versus 27 percent for poor women.

Decision patterns among men are roughly similar to those of women, whether or not the household is poor, although non-poor men are less likely than poor men to be involved in decisions involving education and crop sales.

Table 11.2 Contribution to Household Expenses and Decision Making by Gender and Poverty Status in Nigeria

	Women		Men	
	Non-poor	Poor	Non-poor	Poor
Main contributor of household income	0.04	0.03	0.93	0.93
Decides for expenditures on education	0.40	0.12	0.79	0.42
Decides for expenditures on health	0.54	0.33	0.94	0.90
Decides for expenditures on food	0.71	0.53	0.92	0.93
Decides for expenditures on clothing	0.57	0.34	0.90	0.87
Decides for expenditures on shelter	0.22	0.09	0.88	0.85
Decides for expenditures on land use	0.24	0.14	0.72	0.85
Decides for expenditures on crop sales	0.31	0.17	0.58	0.73

Source: Authors using Nigeria's CWIQ 2003.
Note: Sample = Heads and spouses belonging to non–single households.

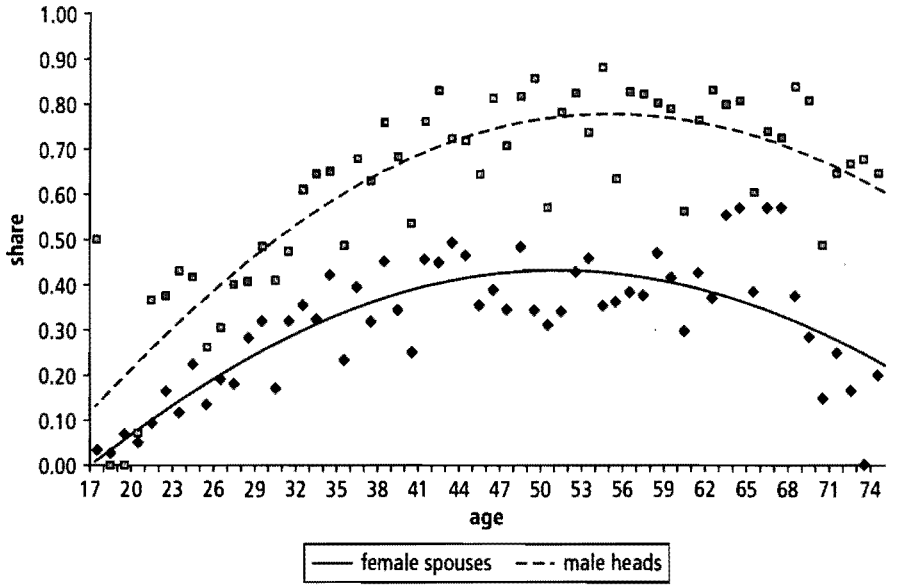
Note that in some cases, the sum of the shares of the decisions made by men and women (that is, under our terminology by household heads and spouses) is below 100 percent. This is because other members of the households may make the decisions in some cases. For simplicity, our analysis here is bivariate, comparing household heads and spouses (who tend to make most decisions), but further analysis could be made regarding areas where other household members play a role.

Figures 11.1 through 11.8 illustrate how decision making evolves for men and women as they age. The graphs show the proportion of men and women involved in various decisions by age. There is a difference between decisions related to education and other decisions. In the case of education, as shown in figure 11.1, as both men and women get older, they are more likely to make decisions regarding education; the likelihood increases up to about age 60 and decreases thereafter (probably because younger individuals inherit the authority of the elder as they become the main providers of household income). Although the concave pattern of the decision curve for education is similar for men and women, the share of men who are decision makers is always larger than the equivalent share of women (the difference between both groups increases up to age 60 and then stabilizes). The probable reason for men's decision-making power on education increasing with age, and why at a younger age, neither men nor women make education decisions, may simply be because younger couples either don't have children yet or their children are not yet school age, so there are no education decisions to make.

The pattern for other goods looks more similar between different goods. As shown in figures 11.2 through 11.5, comparatively few women from early ages are likely to participate in decision making on spending for health, food, clothing, and shelter. In contrast, men's decision curves for these items are higher, flatter, and decrease only slightly with age. Women are likely to get more involved in decision making for these expenditure categories as they grow older, although they often reach a plateau relatively quickly. As for decisions regarding the use of the household's productive capital (land use and sales of productive farm output), women's involvement remains low throughout their life cycle, with only a slight increase with age (see figures 11.6 and 11.7).

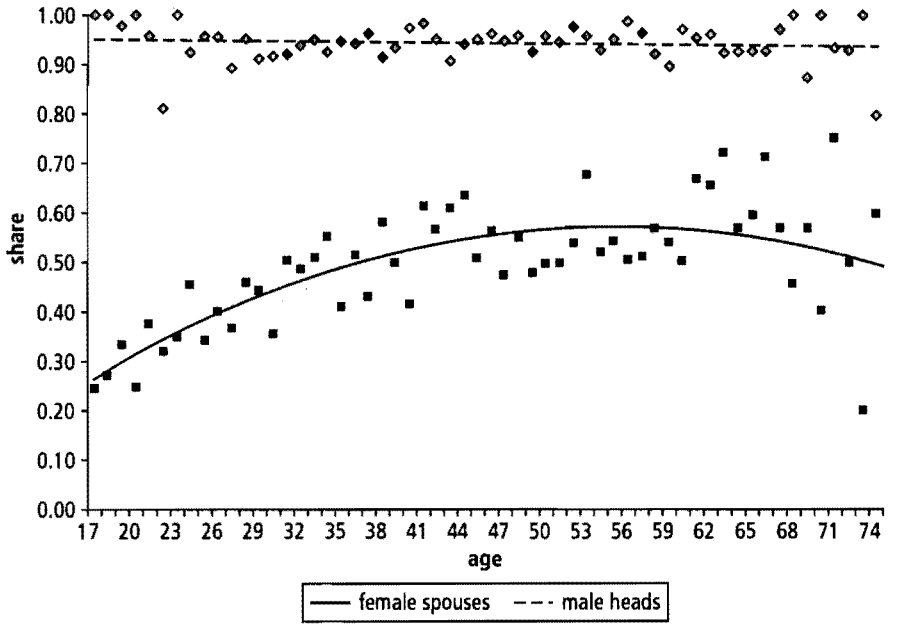
To summarize, this study's findings suggest that women gain in terms of empowerment with age for all types of intra-household decision making that pertains to non-productive household expenditures. This may in part be a result of gains by women in terms of income generating activities as they age. Indeed the share of women who are the main source of income in their households increases from less than 1 percent among women of age 17 to between 5 percent and 10 percent for women above 30 years of age (see figure 11.8). The share

Figure 11.1 Decision Making on Education by Age and Gender in Nigeria (%)



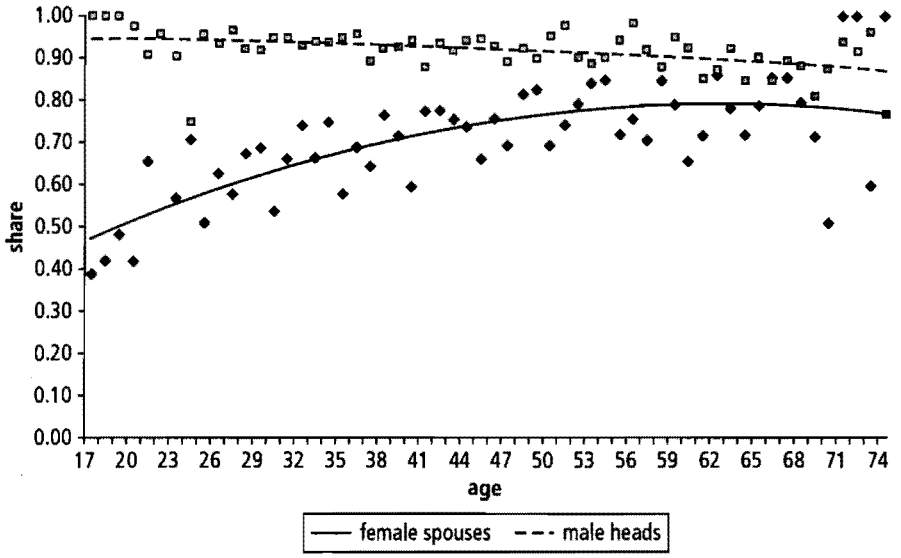
Source: Authors' estimate using Nigeria 2003 CWIQ surveys.

Figure 11.2 Decision Making on Health by Age and Gender in Nigeria (%)



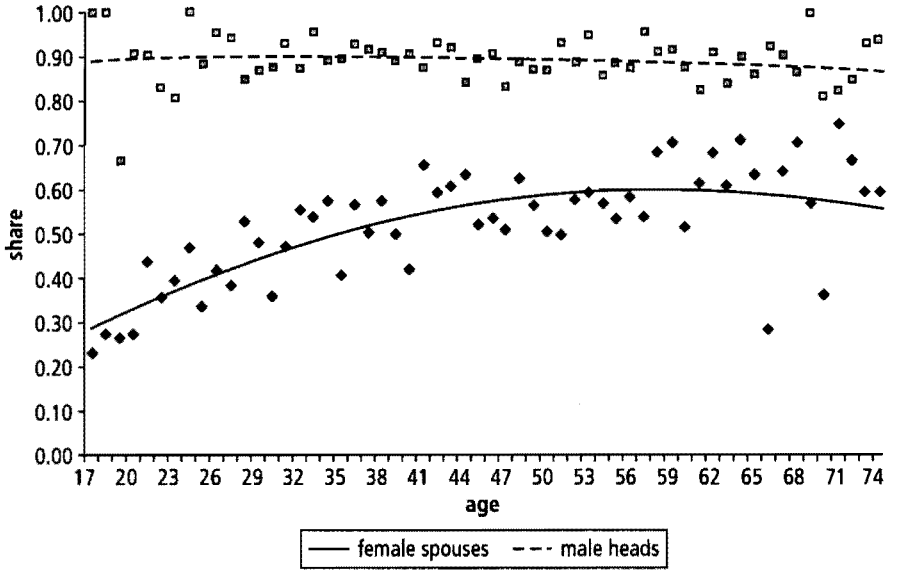
Source: Authors' estimate using Nigeria 2003 CWIQ surveys.

Figure 11.3 Decision Making on Food by Age and Gender in Nigeria (%)



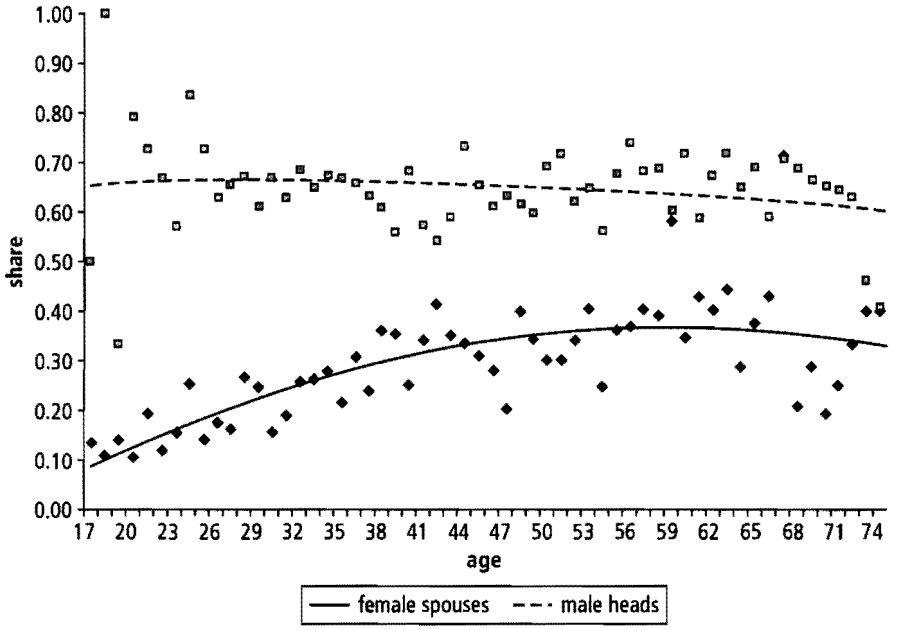
Source: Authors' estimate using Nigeria 2003 CWIQ surveys.

Figure 11.4 Decision Making on Clothing by Age and Gender in Nigeria (%)



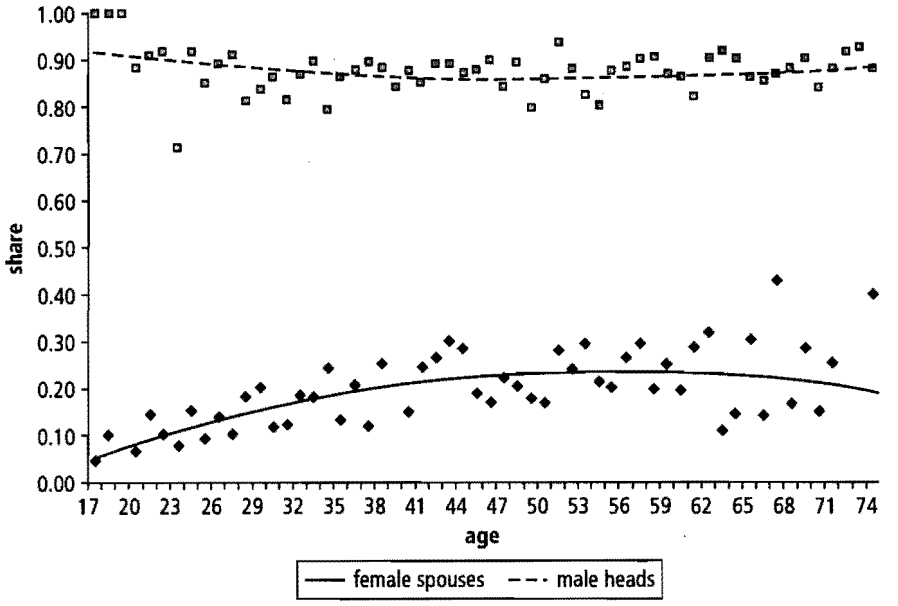
Source: Authors' estimate using Nigeria 2003 CWIQ surveys.

Figure 11.5 Decision Making on Shelter by Age and Gender in Nigeria (%)



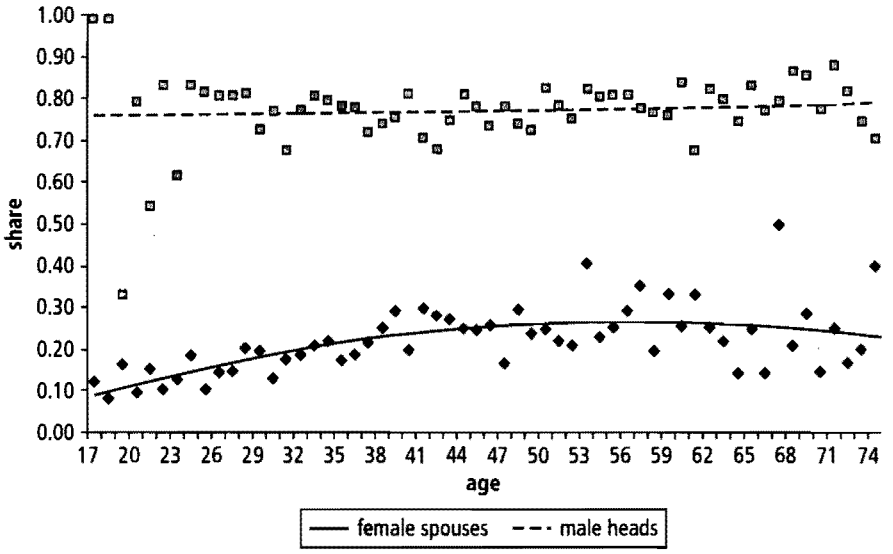
Source: Authors' estimate using Nigeria 2003 CWIQ surveys.

Figure 11.6 Decision Making on Sale of Farm Crop by Age and Gender in Nigeria (%)



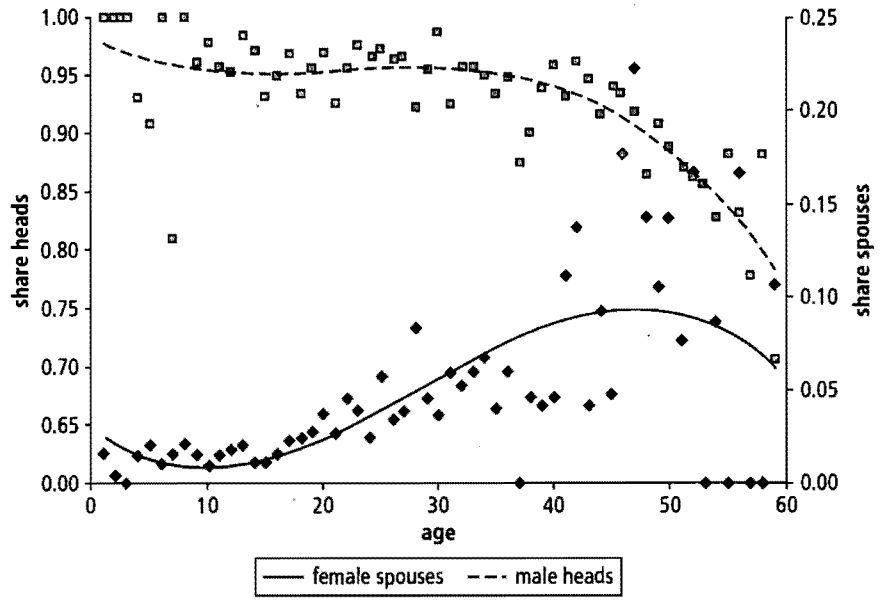
Source: Authors' estimate using Nigeria 2003 CWIQ surveys.

Figure 11.7 Decision Making on Land Use by Age and Gender in Nigeria (%)



Source: Authors' estimate using Nigeria 2003 CWIQ surveys.

Figure 11.8 Main Contributor of Income in the Household by Age and Gender in Nigeria (%)



Source: Authors' estimate using Nigeria 2003 CWIQ surveys

of men as the main provider of household income, on the contrary, decreases significantly after they have reached age 65. The econometric analysis in the next section provides a better assessment of the correlates of decision making and income generation.

Econometric Analysis

In this section, a simple empirical model is developed to quantify how much income contribution by women affects their participation in household decision making. The analysis assumes that decision making and income contribution are jointly distributed outcomes, which means that both outcomes are decided jointly by household members, rather than sequentially. That is, the decision to contribute may be influenced by the decision-making power acquired in doing so, and similarly, the decision-making power depends on the ability to contribute (both outcomes depend on each other). We estimate for men and women separately the likelihood of decision making conditional on their contribution to the household expenditures, controlling for other observable individual and household characteristics that also may influence decision making and the probability that individuals contribute income to the household.

The determinants of income contribution and decision making are analyzed using a bivariate probit model. The need to rely on probits comes from the fact that dichotomic variables are observed as outcomes (that is, we observe only whether the household head or spouse contributes or not, and decides or not). Rather than estimating two probit regressions, we estimate the correlates of both outcomes together, because this enables us to assess the impact of one outcome on the other. In addition, bivariate probits generate efficiency gains in the estimation precisely because they take into account the correlation between the error terms of the two regressions for contribution and decision making, respectively. The estimation procedure enables us to compute the probability of participating in the household decision making conditional on whether the individual contributes to household income or not.

Denoting by D^* and C^* the latent and unobserved continuous decision and contribution variables, by D and C their categorical observed counterparts, and by X the vector of independent exogenous variables, the bivariate probit model is expressed as:

$$\begin{aligned} D^* &= \beta_D' X + \varepsilon_D \qquad D = 1 \text{ if } D^* > 0,\ D = 0 \text{ otherwise} \\ C^* &= \beta_C' X + \varepsilon_C \qquad C = 1 \text{ if } C^* > 0,\ C = 0 \text{ otherwise} \\ E[\varepsilon_D] &= E[\varepsilon_C] = 0 \qquad Var[\varepsilon_D] = Var[\varepsilon_C] = 1 \quad Cov[\varepsilon_D, \varepsilon_c] = \rho \end{aligned} \tag{11.1}$$

The impact of contributing income on the probability of making a decision on a particular issue is computed as the difference in the two conditional probabilities of making a decision:

$$\Delta P = P(D = 1 \mid C = 1, X) - P(D = 1 \mid C = 0, X). \quad (11.2)$$

The set of exogenous variables, X, are age of the individual; household size; religion of the household (proxied by the type of household marriage, that is, whether Customary, Islamic, Christian, or another type of marriage); education of the individual (no education at all, incomplete/complete primary, incomplete/complete secondary, or tertiary education); a number of employment-related variables for the individual (employment status: whether employed, unemployed, or out of the labor force; type of employment: whether wage earner, self-employed, unpaid family worker, or firm owner; sector of employment: whether agriculture, manufacturing-construction-transport, wholesale-retail, public administration, or services); and several other variables such as whether the household owns a house; has access to electricity, water, and sanitation; whether the household head is a temporary migrant; and regional dummies to control for geographic effects.

The detailed results from the estimations are provided in the annex. We focus here on the estimates of the impact of income contributions to decision making using the method outline in equation 11.2. The results are provided in table 11.3. When they are the main contributor of income, women win substantial decision-making power and thus play a more active role of leadership in the household. The differences in decision power brought about by contributing income are largest for food, shelter, and health, where income contributions increase the probability of decision making by approximately 20 percentage points.

For example, in the case of expenditures for health, the predicted probability that women participate in the decision making is 43 percent when they do not contribute income, and this increases to 64 percent when they contribute income. For men, the corresponding reduction in the probability of making decisions for expenditures on health decreases by 18 percent when they do not contribute to the household's income. However, even when they contribute to cover most of a household's income, the probability that women will make decisions regarding the use of productive assets, such as land and the commercial use of agricultural output, remains low. To some extent, this same result is also observed with education.

An additional finding is that income contribution increases the level of decision making among poor women more than among non-poor women for health, food, and clothing. These results are provided in table 11.4. Yet for

Table 11.3 Impact of Income Contribution on Decision Making by Gender in Nigeria

	Men		Women	
	Probability	Standard deviation	Probability	Standard deviation
Education				
Decides if contributes	0.53	0.30	0.39	0.29
Decides if does not contribute	0.36	0.29	0.23	0.25
Difference	–0.17	0.08	–0.16	0.09
Health				
Decides if contributes	0.94	0.07	0.64	0.20
Decides if does not contribute	0.76	0.15	0.43	0.24
Difference	–0.18	0.09	–0.21	0.08
Food				
Decides if contributes	0.94	0.06	0.83	0.14
Decides if does not contribute	0.82	0.12	0.60	0.25
Difference	–0.12	0.07	–0.22	0.13
Clothing				
Decides if contributes	0.89	0.07	0.58	0.24
Decides if does not contribute	0.69	0.12	0.43	0.27
Difference	–0.20	0.06	–0.15	0.05
Shelter				
Decides if contributes	0.88	0.08	0.34	0.20
Decides if does not contribute	0.77	0.12	0.16	0.15
Difference	–0.11	0.04	–0.19	0.08
Land use				
Decides if contributes	0.77	0.23	0.27	0.25
Decides if does not contribute	0.66	0.26	0.16	0.20
Difference	–0.11	0.05	–0.11	0.07
Sell agricultural output				
Decides if contributes	0.65	0.25	0.26	0.30
Decides if does not contribute	0.51	0.25	0.21	0.27
Difference	–0.15	0.04	–0.05	0.04

Source: Authors estimates using Nigeria's CWIQ 2003.
Notes: Estimates based on sample of 10,702 men (household heads) and 13,260 women (spouses); differences in size of both samples are due to missing variables.

decisions involving household productive assets, such as land use, crop sales, and shelter, contributing income increases the level of decision making among non-poor women more than among poor women.

Table 11.4 Impact of Income Contribution on Decision Making by Gender and Poverty Status in Nigeria

	Men				Women			
	Non–Poor		Poor		Non–poor		Poor	
	Probability	Standard deviation	Probability	Standard deviation	Probability	Standard deviation	Probability	Standard deviation
Education								
Decides if contributes	0.72	0.24	0.37	0.25	0.59	0.26	0.23	0.20
Decides if does not contribute	0.54	0.28	0.20	0.21	0.38	0.26	0.10	0.15
Difference	–0.18	0.08	–0.17	0.08	–0.21	0.08	–0.13	0.08
Health								
Decides if contributes	0.96	0.05	0.92	0.08	0.75	0.18	0.55	0.18
Decides if does not contribute	0.81	0.13	0.73	0.16	0.55	0.24	0.33	0.19
Difference	–0.15	0.08	–0.20	0.09	–0.20	0.08	–0.23	0.07
Food								
Decides if contributes	0.93	0.06	0.95	0.06	0.89	0.12	0.77	0.14
Decides if does not contribute	0.80	0.11	0.84	0.11	0.72	0.24	0.51	0.22
Difference	–0.13	0.07	–0.11	0.06	–0.17	0.13	–0.26	0.12
Clothing								
Decides if contributes	0.91	0.06	0.87	0.07	0.72	0.21	0.47	0.19
Decides if does not contribute	0.73	0.11	0.66	0.11	0.58	0.25	0.31	0.21
Difference	–0.18	0.06	–0.21	0.05	–0.14	0.06	–0.16	0.05
Shelter								
Decides if contributes	0.89	0.07	0.87	0.08	0.45	0.20	0.25	0.14
Decides if does not contribute	0.78	0.11	0.75	0.12	0.23	0.17	0.09	0.09
Difference	–0.11	0.04	–0.12	0.04	–0.21	0.07	–0.16	0.07
Land use								
Decides if contributes	0.66	0.27	0.86	0.14	0.34	0.24	0.21	0.24
Decides if does not contribute	0.54	0.29	0.77	0.17	0.21	0.20	0.13	0.19
Difference	–0.12	0.05	–0.09	0.04	–0.13	0.06	–0.09	0.06
Sell agricultural output								
Decides if contributes	0.54	0.27	0.76	0.18	0.35	0.29	0.19	0.28
Decides if does not contribute	0.39	0.26	0.61	0.19	0.28	0.27	0.15	0.25
Difference	–0.15	0.05	–0.15	0.04	–0.07	0.04	–0.04	0.04

Source: Authors estimates using Nigeria's CWIQ 2003.
Notes: Estimates based on sample of 10,702 men (household heads) and 13,260 women (spouses); differences in size of both samples are due to missing variables.

Conclusions

In Nigeria, as in other Sub-Saharan countries, most of household decisions are made by men, who are the de facto household heads. Statistical analysis of CWIQ survey data suggests that men tend to have most of the decision-making power regarding the use of productive assets such as land use, crop sales, and shelter. Women participate more often in decisions on expenditures for food, heath, and education, but even in these areas, men more often than not remain the main decision makers. The decision-making power of women is especially low among poor households, in part, because in such households, the likelihood that women will be the main contributor of household income is much lower as well.

Simple econometric modeling suggests that, as expected, when they are the main contributor of income, women win substantial decision-making power. The differences in decision power brought about by contributing income are as large as 20 percentage points for food, shelter, and health spending. However, the impact is much smaller in relation to the use of productive assets. Finally, contribution income raises decision making more among poor than non-poor women.

Care must be taken not to draw strong policy recommendations from the limited and descriptive analysis in this chapter. Yet, some broad comments or suggestions can be made. This study found that increasing the contribution ability of women to household income leads to higher decision-making power for them within the household. This has also been shown by several other authors to lead to higher investments in the human capital of children, thereby leading to poverty reduction and higher income growth in the future. This result can be used to advocate for policies to increase women's ability to contribute to household expenditures, including policies raising the human capital of women, for example, through training and education programs specifically targeting women. Facilitating access to land (for example, through heritage law reforms or titling mechanisms) or access to credit (for example, through microcredit interventions targeted to women) are all interventions that have proven successful in other countries to promote female entrepreneurship and, thereby, to increase women's income and bargaining power. However, a detailed analysis for Nigeria should be conducted before making any specific policy recommendation in favor of one type of intervention or another to improve the position of women in the household.

Annex Detailed Regression Results

Table 11A.1 Bivariate Probit Regressions for Women in Nigeria

	Decide education	Contrib. income	Decide health	Contrib. income	Decide food	Contrib. income	Decide cloth	Contrib. income	Decide land	Contrib. income	Decide crop sales	Contrib. income
Number of infants under–5	0.212	–0.033	0.054	–0.033	0.042	–0.029	0.050	–0.043	0.042	–0.038	0.087	–0.043
	[4.82]***	[0.42]	[1.59]	[0.43]	[1.35]	[0.36]	[1.40]	[0.54]	[0.98]	[0.48]	[1.93]*	[0.55]
Square of number of infants	–0.044	–0.014	–0.013	–0.011	–0.008	–0.013	–0.014	–0.010	–0.004	–0.010	–0.019	–0.009
	[3.84]***	[0.58]	[1.69]*	[0.51]	[1.24]	[0.55]	[1.65]*	[0.44]	[0.39]	[0.44]	[1.62]	[0.40]
Number of children (age 5–14)	0.295	0.010	–0.012	0.029	–0.003	0.025	0.005	0.026	0.033	0.030	–0.019	0.027
	[7.93]***	[0.18]	[0.58]	[0.48]	[0.15]	[0.42]	[0.24]	[0.43]	[1.12]	[0.49]	[0.64]	[0.45]
Square of number of children	–0.039	–0.007	0.003	–0.011	0.002	–0.010	0.001	–0.011	–0.001	–0.011	0.006	–0.011
	[5.34]***	[0.55]	[0.97]	[0.81]	[0.56]	[0.77]	[0.32]	[0.80]	[0.22]	[0.85]	[1.33]	[0.84]
Number of adults	0.189	–0.015	–0.085	0.005	–0.101	0.010	–0.056	–0.001	0.049	0.007	0.009	0.012
	[5.44]***	[0.20]	[3.53]***	[0.07]	[3.93]***	[0.14]	[1.96]**	[0.02]	[1.26]	[0.10]	[0.24]	[0.15]
Square of number of adults	–0.013	–0.005	0.006	–0.007	0.006	–0.007	0.003	–0.006	–0.005	–0.007	–0.001	–0.007
	[3.96]***	[0.57]	[3.03]***	[0.81]	[2.84]***	[0.85]	[1.09]	[0.75]	[1.36]	[0.81]	[0.39]	[0.87]
Number of elderly (age 65+)	0.096	–0.023	0.055	0.003	0.145	–0.013	–0.088	–0.028	–0.044	–0.016	–0.012	–0.022
	[0.98]	[0.13]	[0.66]	[0.02]	[1.68]*	[0.08]	[1.04]	[0.16]	[0.42]	[0.09]	[0.10]	[0.13]
Square of number of elderly	–0.007	–0.059	–0.058	–0.061	–0.082	–0.058	–0.009	–0.052	0.022	–0.053	–0.008	–0.053
	[0.16]	[0.74]	[1.59]	[0.80]	[2.20]**	[0.77]	[0.25]	[0.69]	[0.49]	[0.72]	[0.18]	[0.71]
Female–headed household	–6.325	2.096	0.684	2.089	6.045	2.120	1.592	2.133	0.094	2.132	0.259	2.089
	[19.05]***	[2.59]***	[0.98]	[2.48]**	[31.09]***	[2.63]***	[2.72]***	[2.65]***	[0.15]	[2.57]**	[0.43]	[2.53]**
Age of household head	0.001	0.025	–0.011	0.025	0.005	0.023	–0.004	0.023	–0.010	0.022	–0.038	0.025
	[0.10]	[1.23]	[0.99]	[1.20]	[0.45]	[1.15]	[0.33]	[1.12]	[0.70]	[1.10]	[2.75]***	[1.22]
Square of age of household head	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	[0.33]	[1.05]	[1.02]	[1.03]	[0.88]	[0.94]	[0.46]	[0.95]	[1.02]	[0.88]	[2.78]***	[1.04]
Age of spouse	0.042	–0.003	0.028	–0.001	0.024	0.000	0.015	–0.001	0.013	–0.001	0.032	–0.004
	[2.78]***	[0.12]	[2.26]**	[0.07]	[1.98]**	[0.01]	[1.19]	[0.03]	[0.81]	[0.07]	[2.14]**	[0.19]

Square of age of spouse	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	[2.23]**	[0.69]	[1.73]*	[0.63]	[1.39]	[0.57]	[0.98]	[0.61]	[1.02]	[0.63]	[1.75]*	[0.78]
Head has customary marriage	0.073	0.177	0.166	0.187	0.228	0.155	0.110	0.185	0.018	0.188	0.088	0.189
	[0.88]	[1.29]	[1.96]*	[1.37]	[2.33]**	[1.17]	[1.21]	[1.37]	[0.18]	[1.38]	[0.98]	[1.38]
Head has Islamic marriage	0.141	0.192	0.068	0.194	0.155	0.143	0.051	0.175	−0.275	0.197	−0.208	0.202
	[1.29]	[1.02]	[0.68]	[1.03]	[1.41]	[0.79]	[0.49]	[0.94]	[2.31]**	[1.06]	[1.76]*	[1.08]
Head has Christian marriage	0.335	0.259	0.405	0.280	0.663	0.246	0.386	0.266	0.172	0.281	0.240	0.270
	[3.40]***	[1.68]*	[4.10]***	[1.81]*	[5.54]***	[1.63]	[3.78]***	[1.74]*	[1.62]	[1.83]*	[2.35]**	[1.76]*
Head incomplete primary education	0.113	0.008	−0.086	0.006	−0.120	0.003	−0.059	0.011	−0.005	−0.004	−0.035	0.006
	[1.20]	[0.05]	[1.03]	[0.05]	[1.25]	[0.02]	[0.70]	[0.08]	[0.06]	[0.03]	[0.38]	[0.05]
Head completed primary education	0.043	−0.256	−0.046	−0.239	−0.003	−0.247	0.059	−0.246	−0.081	−0.251	0.049	−0.245
	[0.64]	[2.26]**	[0.81]	[2.15]**	[0.06]	[2.19]**	[1.05]	[2.17]**	[1.18]	[2.21]**	[0.66]	[2.15]**
Head incomplete secondary education	−0.050	−0.155	−0.139	−0.129	0.207	−0.107	0.002	−0.096	−0.232	−0.113	−0.181	−0.118
	[0.38]	[0.87]	[0.98]	[0.71]	[1.47]	[0.57]	[0.01]	[0.53]	[1.46]	[0.63]	[1.29]	[0.65]
Head completed secondary education	0.157	−0.320	0.055	−0.291	−0.086	−0.267	0.029	−0.295	−0.128	−0.290	0.043	−0.295
	[1.54]	[1.94]*	[0.63]	[1.76]*	[0.92]	[1.60]	[0.34]	[1.77]*	[1.31]	[1.75]*	[0.36]	[1.77]*
Head tertiary education	0.080	−0.171	0.013	−0.147	0.036	−0.132	0.088	−0.142	−0.163	−0.135	0.126	−0.139
	[0.79]	[1.02]	[0.14]	[0.89]	[0.37]	[0.79]	[0.99]	[0.84]	[1.58]	[0.81]	[1.20]	[0.84]
Spouse incomplete primary education	0.108	0.336	−0.001	0.329	0.178	0.324	0.041	0.321	0.076	0.347	−0.048	0.335
	[1.23]	[2.53]**	[0.02]	[2.49]**	[1.81]*	[2.44]**	[0.48]	[2.42]**	[0.81]	[2.61]***	[0.50]	[2.53]**
Spouse completed primary education	0.089	0.211	0.041	0.180	0.004	0.193	−0.055	0.175	0.172	0.210	0.086	0.201
	[1.20]	[1.81]*	[0.63]	[1.56]	[0.06]	[1.64]	[0.90]	[1.50]	[2.24]**	[1.79]*	[1.06]	[1.72]*
Spouse incomplete secondary educ.	0.201	−0.108	0.007	−0.135	0.045	−0.147	−0.021	−0.164	0.252	−0.128	0.073	−0.143
	[1.69]*	[0.47]	[0.06]	[0.56]	[0.33]	[0.61]	[0.16]	[0.68]	[2.03]**	[0.55]	[0.59]	[0.60]
Spouse completed secondary educ.	0.067	0.182	−0.174	0.152	0.014	0.144	0.073	0.154	−0.070	0.154	−0.122	0.162
	[0.64]	[1.08]	[1.82]*	[0.89]	[0.13]	[0.83]	[0.76]	[0.88]	[0.65]	[0.88]	[1.03]	[0.93]
Spouse tertiary education	0.168	0.073	−0.149	0.053	0.075	0.051	−0.007	0.051	0.029	0.079	−0.222	0.081
	[1.12]	[0.32]	[0.99]	[0.24]	[0.46]	[0.23]	[0.05]	[0.23]	[0.19]	[0.36]	[1.46]	[0.37]
Head unemployed	0.041	2.147	−0.208	2.105	−0.016	2.194	−0.340	2.198	−0.067	2.193	−0.245	2.193
	[0.19]	[4.75]***	[0.98]	[4.66]***	[0.07]	[4.86]***	[1.83]*	[4.81]***	[0.29]	[4.83]***	[0.93]	[4.86]***

continued

Table 11A.1 Bivariate Probit Regressions for Women in Nigeria *continued*

	Decide education	Contrib. income	Decide health	Contrib. income	Decide food	Contrib. income	Decide cloth	Contrib. income	Decide land	Contrib. income	Decide crop sales	Contrib. income
Head not in labor force	−0.147	2.123	−0.224	2.090	−0.182	2.166	−0.214	2.202	0.099	2.191	−0.200	2.210
	[0.85]	[4.84]***	[1.21]	[4.80]***	[0.99]	[4.95]***	[1.47]	[4.96]***	[0.49]	[5.00]***	[1.03]	[5.05]***
Head in public or parastatal sector	0.027	0.099	0.232	0.114	0.137	0.120	0.028	0.153	0.143	0.146	0.133	0.140
	[0.16]	[0.40]	[1.72]*	[0.49]	[1.03]	[0.50]	[0.23]	[0.61]	[0.99]	[0.60]	[0.89]	[0.57]
Head wage earner	−0.341	0.252	−0.280	0.216	−0.190	0.254	−0.253	0.245	−0.180	0.246	−0.222	0.250
	[1.71]*	[0.56]	[1.41]	[0.48]	[0.94]	[0.57]	[1.62]	[0.54]	[0.90]	[0.55]	[1.16]	[0.55]
Head self employed	−0.321	0.180	−0.071	0.199	−0.087	0.225	−0.169	0.225	−0.088	0.243	−0.269	0.237
	[2.25]**	[0.44]	[0.44]	[0.48]	[0.53]	[0.55]	[1.36]	[0.55]	[0.58]	[0.59]	[1.78]*	[0.58]
Head unpaid family worker	−0.349	0.822	−0.481	0.832	−0.515	0.844	−0.424	0.862	−0.164	0.908	−0.483	0.899
	[2.11]**	[1.94]*	[2.76]***	[1.94]*	[2.94]***	[1.98]**	[3.10]***	[2.02]**	[0.92]	[2.12]**	[2.77]***	[2.12]**
Spouse unemployed	−0.432	−0.532	−0.518	−0.510	−0.048	−0.427	−0.133	−0.451	−0.082	−0.447	−0.298	−0.468
	[1.77]*	[0.98]	[2.47]**	[0.94]	[0.25]	[0.74]	[0.68]	[0.80]	[0.32]	[0.78]	[1.14]	[0.81]
Spouse not in labor force	−0.107	−0.460	−0.402	−0.457	0.000	−0.327	0.184	−0.411	0.177	−0.370	−0.147	−0.426
	[0.50]	[0.94]	[2.13]**	[0.93]	[0.00]	[0.61]	[1.09]	[0.79]	[0.76]	[0.71]	[0.62]	[0.80]
Spouse in public or parastatal sector	0.093	−0.224	−0.203	−0.231	−0.126	−0.226	0.057	−0.213	0.082	−0.236	0.004	−0.238
	[0.39]	[0.91]	[1.03]	[0.92]	[0.60]	[0.88]	[0.29]	[0.85]	[0.42]	[0.95]	[0.02]	[0.94]
Spouse wage earner	0.160	1.738	0.363	1.742	0.363	1.884	0.355	1.817	0.383	1.856	0.088	1.832
	[0.56]	[3.36]***	[1.45]	[3.36]***	[1.48]	[3.34]***	[1.50]	[3.34]***	[1.48]	[3.40]***	[0.33]	[3.28]***
Spouse self employed	0.143	0.987	0.240	0.964	0.411	1.105	0.271	1.034	0.252	1.056	0.209	1.034
	[0.72]	[2.06]**	[1.33]	[2.01]**	[2.54]**	[2.10]**	[1.67]*	[2.04]**	[1.22]	[2.08]**	[0.97]	[1.98]**
Spouse unpaid family worker	−0.142	0.804	0.271	0.797	0.216	0.917	0.143	0.850	0.189	0.858	−0.103	0.847
	[0.70]	[1.65]*	[1.49]	[1.64]	[1.31]	[1.72]*	[0.88]	[1.65]*	[0.88]	[1.66]*	[0.47]	[1.60]
Head in manuf./constr./ transport	0.041	−0.037	−0.023	−0.037	0.057	−0.036	0.045	−0.025	0.115	−0.032	−0.137	−0.030
	[0.46]	[0.23]	[0.24]	[0.23]	[0.61]	[0.23]	[0.50]	[0.16]	[1.18]	[0.21]	[1.42]	[0.19]
Head in wholesale/retail	−0.035	−0.309	−0.114	−0.314	−0.055	−0.303	0.020	−0.305	−0.348	−0.301	−0.479	−0.294
	[0.42]	[1.90]*	[1.66]*	[1.93]*	[0.82]	[1.84]*	[0.28]	[1.86]*	[3.77]***	[1.83]*	[4.77]***	[1.80]*

Head in service/ education/adm./other	−0.043 [0.51]	−0.385 [1.95]*	−0.093 [1.28]	−0.370 [1.94]*	−0.085 [1.22]	−0.391 [1.98]**	0.027 [0.36]	−0.403 [2.01]**	−0.015 [0.17]	−0.385 [1.99]**	−0.228 [2.48]**	−0.384 [1.99]**
Spouse in manuf./constr./ transport	0.185 [1.18]	0.438 [2.26]**	0.075 [0.73]	0.408 [2.05]**	−0.114 [1.13]	0.397 [2.06]**	0.183 [1.78]*	0.409 [2.09]**	−0.571 [2.58]***	0.435 [2.28]**	−0.739 [3.15]***	0.424 [2.19]**
Spouse in wholesale/ retail	0.002 [0.03]	0.121 [1.34]	−0.069 [1.23]	0.124 [1.37]	−0.205 [3.57]***	0.114 [1.26]	0.027 [0.49]	0.125 [1.38]	−0.543 [8.91]***	0.133 [1.47]	−0.525 [8.48]***	0.127 [1.40]
Spouse in service/educ./ adm./other	0.059 [0.70]	0.324 [2.25]**	0.433 [6.64]***	0.317 [2.21]**	−0.028 [0.45]	0.311 [2.14]**	−0.037 [0.59]	0.304 [2.10]**	−0.645 [6.37]***	0.287 [2.00]**	−0.676 [7.78]***	0.292 [2.02]**
Individual owns house	0.365 [4.54]***	0.395 [3.57]***	0.319 [4.84]***	0.375 [3.36]***	0.851 [10.35]***	0.389 [3.50]***	0.462 [6.88]***	0.367 [3.35]***	1.204 [16.51]***	0.401 [3.64]***	1.078 [12.95]***	0.396 [3.64]***
Head temporary migrant	0.226 [0.80]	1.203 [5.33]***	0.220 [1.19]	1.167 [5.17]***	−0.151 [0.86]	1.163 [5.12]***	−0.120 [0.70]	1.175 [5.20]***	−0.451 [1.87]*	1.194 [5.28]***	−0.328 [1.49]	1.202 [5.39]***
Household has access to electricity	0.046 [2.05]**	0.120 [3.24]***	0.067 [3.19]***	0.121 [3.30]***	0.004 [0.16]	0.123 [3.30]***	0.068 [3.33]***	0.121 [3.26]***	−0.014 [0.52]	0.121 [3.33]***	0.032 [1.31]	0.122 [3.30]***
Household has access to piped water	0.077 [1.03]	−0.174 [1.24]	−0.129 [1.86]*	−0.166 [1.19]	−0.121 [1.73]*	−0.179 [1.27]	−0.011 [0.16]	−0.167 [1.19]	−0.078 [0.81]	−0.164 [1.17]	0.017 [0.17]	−0.164 [1.17]
Household has toilet facility	−0.005	0.122	0.092	0.126	−0.021	0.155	0.047	0.129	−0.479	0.127	−0.336	0.113
Wealth index	0.129 [3.82]***	−0.043 [0.74]	0.022 [0.74]	−0.041 [0.70]	−0.067 [2.05]**	−0.033 [0.55]	−0.028 [0.91]	−0.045 [0.77]	−0.019 [0.52]	−0.041 [0.70]	−0.033 [0.86]	−0.038 [0.65]
Wealth index squared	−0.008 [2.75]***	−0.003 [0.50]	−0.001 [0.41]	−0.003 [0.58]	0.005 [1.65]*	−0.004 [0.74]	0.001 [0.48]	−0.003 [0.53]	0.000 [0.14]	−0.003 [0.63]	−0.001 [0.42]	−0.003 [0.64]
Constant	−2.636 [6.80]***	−4.279 [5.72]***	−0.810 [2.56]**	−4.328 [5.77]***	0.289 [0.92]	−4.470 [5.71]***	−0.446 [1.47]	−4.365 [5.63]***	−1.109 [3.08]***	−4.415 [5.73]***	−0.430 [1.16]	−4.428 [5.69]***
Observations	13225	13225	13225	13225	13225	13225	13209	13209	13209	13209	13209	13209

Source: Authors' estimates using Nigeria's CWIQ 2003.
Notes: State dummy variables included in the regressions but not shown in the tables. (*) denotes coefficient statistically significant at 10% level, (**) at 5% level and (***) significant at 1% level.

Table 11A.2 Bivariate Probit Regressions for Men in Nigeria

	Decide education	Contrib. income	Decide health	Contrib. income	Decide food	Contrib. income	Decide cloth	Contrib. income	Decide land use	Contrib. income	Decide crop sales	Contrib. income
Number of infants under–5	0.232 [5.45]***	0.033 [0.76]	0.016 [0.40]	0.033 [0.74]	–0.079 [2.02]**	0.033 [0.74]	0.029 [0.77]	0.038 [0.85]	0.089 [2.55]**	0.036 [0.81]	0.037 [1.22]	0.038 [0.86]
Square of number of infants	–0.029 [2.79]***	–0.003 [0.53]	–0.009 [1.30]	–0.004 [0.57]	0.001 [0.13]	–0.004 [0.61]	–0.008 [1.05]	–0.005 [0.67]	–0.014 [1.79]*	–0.005 [0.69]	–0.005 [0.84]	–0.005 [0.69]
Number of children (age 5–14)	0.564 [17.04]***	0.035 [0.86]	0.079 [2.02]**	0.033 [0.87]	0.041 [1.05]	0.033 [0.88]	0.052 [1.68]*	0.034 [0.90]	0.055 [1.71]*	0.031 [0.83]	0.015 [0.55]	0.031 [0.82]
Square of number of children	–0.070 [10.44]***	–0.004 [0.45]	–0.008 [1.18]	–0.004 [0.61]	0.000 [0.01]	–0.004 [0.59]	–0.004 [0.79]	–0.004 [0.60]	–0.002 [0.28]	–0.004 [0.56]	0.000 [0.02]	–0.004 [0.56]
Number of adults	0.222 [6.68]***	–0.116 [2.25]**	–0.052 [1.00]	–0.106 [2.15]**	–0.106 [2.00]**	–0.113 [2.22]**	–0.037 [1.07]	–0.110 [2.20]**	0.095 [2.61]***	–0.116 [2.26]**	0.045 [1.36]	–0.116 [2.26]**
Square of number of adults	–0.012 [3.64]***	0.010 [1.86]*	0.007 [1.32]	0.009 [1.79]*	0.010 [1.79]*	0.010 [1.90]*	0.001 [0.30]	0.010 [1.86]*	–0.005 [1.54]	0.011 [1.92]*	–0.001 [0.26]	0.011 [1.93]*
Number of elderly (age 65+)	0.116 [1.08]	–0.135 [1.06]	0.217 [1.46]	–0.147 [1.15]	–0.048 [0.36]	–0.145 [1.11]	0.180 [1.56]	–0.119 [0.92]	0.035 [0.29]	–0.143 [1.09]	–0.130 [1.24]	–0.135 [1.04]
Square of number of elderly	–0.030 [0.57]	0.019 [0.36]	–0.071 [1.13]	0.030 [0.56]	–0.008 [0.14]	0.034 [0.61]	–0.057 [1.10]	0.022 [0.40]	0.015 [0.28]	0.026 [0.47]	0.058 [1.19]	0.024 [0.44]
Female–headed household	–7.759 [26.90]***	–1.265 [1.74]*	–0.711 [1.06]	–1.213 [1.63]	–1.452 [2.18]**	–1.195 [1.63]	–1.369 [1.80]*	–1.224 [1.58]	–0.625 [0.84]	–1.277 [1.68]*	–0.289 [0.38]	–1.250 [1.64]
Age of household head	0.014 [1.11]	0.015 [0.84]	0.047 [3.07]***	0.018 [1.00]	0.012 [0.81]	0.016 [0.93]	0.026 [1.91]*	0.016 [0.90]	0.004 [0.31]	0.019 [1.08]	0.012 [0.92]	0.018 [1.06]
Square of age of household head	0.000 [1.31]	0.000 [1.49]	–0.001 [3.76]***	0.000 [1.65]*	0.000 [1.42]	0.000 [1.56]	0.000 [2.72]***	0.000 [1.56]	0.000 [0.61]	0.000 [1.72]*	0.000 [1.21]	0.000 [1.69]*
Age of spouse	0.022 [1.56]	0.029 [1.52]	–0.031 [1.86]*	0.025 [1.33]	0.000 [0.01]	0.028 [1.47]	0.008 [0.51]	0.027 [1.44]	0.014 [0.98]	0.025 [1.29]	0.006 [0.44]	0.025 [1.32]
Square of age of spouse	0.000 [1.24]	0.000 [2.11]**	0.000 [1.68]*	0.000 [1.96]**	0.000 [0.25]	0.000 [2.14]**	0.000 [0.38]	0.000 [2.08]**	0.000 [1.15]	0.000 [1.92]*	0.000 [0.68]	0.000 [1.96]*

Head has customary marriage	0.316 [3.07]***	−0.343 [2.66]***	−0.152 [1.00]	−0.378 [2.88]***	0.100 [0.86]	−0.376 [2.83]***	0.024 [0.22]	−0.373 [2.89]***	0.089 [0.90]	−0.356 [2.77]***	−0.031 [0.34]	−0.358 [2.76]***
Head has Islamic marriage	0.403 [3.19]***	−0.154 [0.94]	−0.178 [1.16]	−0.182 [1.08]	−0.254 [1.92]*	−0.185 [1.11]	−0.080 [0.66]	−0.178 [1.07]	−0.150 [1.31]	−0.168 [1.02]	−0.210 [2.01]**	−0.160 [0.95]
Head has Christian marriage	0.436 [3.61]***	−0.481 [3.31]***	−0.112 [0.66]	−0.509 [3.50]***	0.150 [1.14]	−0.503 [3.40]***	−0.048 [0.38]	−0.517 [3.58]***	0.062 [0.57]	−0.498 [3.46]***	0.089 [0.89]	−0.490 [3.39]***
Head incomplete primary education	0.254 [2.42]**	−0.006 [0.05]	0.249 [1.44]	−0.012 [0.10]	0.163 [1.40]	−0.013 [0.10]	−0.010 [0.10]	−0.015 [0.12]	0.211 [1.78]*	−0.006 [0.05]	0.114 [1.19]	−0.006 [0.05]
Head completed primary education	0.320 [4.75]***	0.310 [3.21]***	0.093 [1.10]	0.300 [3.10]***	0.193 [2.28]**	0.311 [3.19]***	0.127 [1.59]	0.286 [3.01]***	0.176 [2.46]**	0.309 [3.16]***	0.124 [1.94]*	0.314 [3.20]***
Head incomplete secondary education	0.226 [1.49]	0.077 [0.28]	0.015 [0.09]	0.053 [0.20]	0.115 [0.69]	0.074 [0.27]	0.108 [0.74]	0.043 [0.16]	0.147 [1.09]	0.075 [0.27]	0.093 [0.79]	0.078 [0.28]
Head completed secondary education	0.355 [3.63]***	0.063 [0.45]	0.136 [1.05]	0.102 [0.73]	0.183 [1.49]	0.081 [0.57]	−0.029 [0.24]	0.076 [0.54]	0.061 [0.65]	0.076 [0.54]	0.197 [2.25]**	0.088 [0.62]
Head tertiary education	0.430 [3.69]***	0.085 [0.63]	0.172 [1.13]	0.109 [0.81]	0.220 [1.67]*	0.118 [0.88]	0.128 [1.02]	0.081 [0.60]	0.083 [0.82]	0.113 [0.84]	0.228 [2.37]**	0.119 [0.88]
Spouse incomplete primary education	0.163 [1.54]	−0.208 [1.72]*	−0.051 [0.30]	−0.202 [1.66]*	−0.326 [2.85]***	−0.240 [1.97]**	0.123 [1.01]	−0.212 [1.76]*	−0.048 [0.41]	−0.234 [1.92]*	−0.232 [2.38]**	−0.239 [1.95]*
Spouse completed primary education	0.148 [1.88]*	−0.072 [0.62]	−0.004 [0.04]	−0.102 [0.89]	−0.153 [1.64]	−0.106 [0.92]	0.060 [0.66]	−0.089 [0.79]	0.097 [1.20]	−0.094 [0.81]	0.045 [0.64]	−0.099 [0.85]
Spouse incomplete secondary educ.	0.345 [2.24]**	−0.146 [0.70]	−0.281 [1.55]	−0.111 [0.56]	−0.284 [1.90]*	−0.127 [0.61]	−0.056 [0.38]	−0.105 [0.53]	−0.004 [0.03]	−0.132 [0.65]	−0.081 [0.70]	−0.132 [0.65]
Spouse completed secondary educ.	0.082 [0.72]	0.071 [0.48]	−0.067 [0.45]	0.071 [0.48]	−0.216 [1.56]	0.046 [0.31]	−0.036 [0.26]	0.068 [0.47]	−0.210 [1.97]**	0.050 [0.34]	−0.298 [3.02]***	0.049 [0.34]
Spouse tertiary education	0.095 [0.52]	0.220 [1.15]	0.212 [0.84]	0.188 [0.99]	−0.088 [0.47]	0.164 [0.85]	0.073 [0.42]	0.215 [1.11]	−0.001 [0.01]	0.182 [0.94]	−0.220 [1.56]	0.171 [0.89]
Head unemployed	−0.499 [2.30]**	−1.492 [4.79]***	−0.541 [2.00]**	−1.455 [4.72]***	−0.312 [1.21]	−1.507 [4.88]***	−0.051 [0.18]	−1.455 [4.63]***	−0.160 [0.71]	−1.502 [4.81]***	−0.141 [0.69]	−1.507 [4.80]***

continued

Table 11A.2 Bivariate Probit Regressions for Men in Nigeria *continued*

	Decide education	Contrib. income	Decide health	Contrib. income	Decide food	Contrib. income	Decide cloth	Contrib. income	Decide land use	Contrib. income	Decide crop sales	Contrib. income
Head not in labor force	−0.618	−1.525	−0.858	−1.479	−0.428	−1.522	−0.443	−1.481	−0.358	−1.520	−0.200	−1.509
	[3.34]***	[5.33]***	[3.66]***	[5.25]***	[1.91]*	[5.40]***	[1.81]*	[5.17]***	[1.87]*	[5.31]***	[1.19]	[5.26]***
Head in public or parastatal sector	−0.063	−0.186	0.136	−0.173	−0.201	−0.157	−0.401	−0.169	−0.099	−0.175	−0.270	−0.162
	[0.35]	[0.97]	[0.57]	[0.90]	[1.01]	[0.81]	[2.39]**	[0.89]	[0.81]	[0.92]	[2.06]**	[0.85]
Head wage earner	−0.075	−0.043	−0.452	−0.062	0.061	−0.102	0.297	−0.062	0.041	−0.083	0.188	−0.094
	[0.35]	[0.14]	[1.44]	[0.21]	[0.23]	[0.35]	[1.11]	[0.21]	[0.21]	[0.28]	[1.01]	[0.31]
Head self employed	−0.423	−0.138	−0.277	−0.129	0.177	−0.154	−0.025	−0.143	−0.100	−0.151	−0.069	−0.161
	[2.62]***	[0.55]	[1.37]	[0.52]	[0.89]	[0.62]	[0.11]	[0.56]	[0.58]	[0.59]	[0.47]	[0.62]
Head unpaid family worker	−0.518	−0.486	−0.602	−0.484	0.241	−0.503	−0.139	−0.493	−0.177	−0.494	−0.089	−0.503
	[2.95]***	[1.81]*	[2.83]***	[1.83]*	[1.07]	[1.90]*	[0.56]	[1.84]*	[0.92]	[1.82]*	[0.54]	[1.84]*
Spouse unemployed	−0.160	0.589	−0.007	0.598	0.270	0.619	−0.150	0.564	0.067	0.627	−0.140	0.575
	[0.52]	[2.04]**	[0.02]	[2.10]**	[0.79]	[2.18]**	[0.51]	[1.98]**	[0.26]	[2.20]**	[0.60]	[2.01]**
Spouse not in labor force	−0.112	0.431	0.200	0.415	0.568	0.456	0.293	0.399	0.271	0.440	−0.014	0.395
	[0.39]	[1.63]	[0.63]	[1.61]	[1.77]*	[1.75]*	[1.11]	[1.52]	[1.13]	[1.68]*	[0.06]	[1.50]
Spouse in public or parastatal sector	−0.217	0.069	−0.501	0.036	0.273	0.072	−0.397	0.041	−0.142	0.053	0.161	0.062
	[0.86]	[0.30]	[1.66]*	[0.16]	[1.08]	[0.31]	[1.72]*	[0.18]	[0.63]	[0.23]	[0.83]	[0.27]
Spouse wage earner	−0.322	−0.802	0.059	−0.754	0.093	−0.746	0.256	−0.775	0.166	−0.757	−0.245	−0.808
	[0.95]	[2.56]**	[0.15]	[2.42]**	[0.26]	[2.39]**	[0.83]	[2.45]**	[0.55]	[2.45]**	[0.89]	[2.61]***
Spouse self employed	−0.160	−0.251	0.517	−0.255	0.468	−0.238	0.363	−0.268	0.273	−0.251	0.248	−0.287
	[0.57]	[1.03]	[1.68]*	[1.07]	[1.48]	[0.99]	[1.44]	[1.11]	[1.18]	[1.04]	[1.17]	[1.18]
Spouse unpaid family worker	−0.236	−0.084	0.056	−0.088	0.538	−0.064	0.013	−0.100	0.290	−0.073	0.037	−0.101
	[0.84]	[0.34]	[0.18]	[0.36]	[1.67]*	[0.27]	[0.05]	[0.41]	[1.24]	[0.30]	[0.17]	[0.41]
Head in manuf./constr./ transport	−0.115	0.156	0.029	0.155	0.085	0.156	0.002	0.152	−0.527	0.149	−0.570	0.134
	[1.10]	[1.16]	[0.20]	[1.16]	[0.71]	[1.17]	[0.02]	[1.14]	[5.57]***	[1.12]	[6.57]***	[1.00]
Head in wholesale/retail	−0.011	−0.060	−0.183	−0.089	0.088	−0.076	−0.114	−0.093	−0.426	−0.073	−0.420	−0.083
	[0.13]	[0.48]	[1.67]*	[0.70]	[0.75]	[0.60]	[1.21]	[0.74]	[5.31]***	[0.56]	[5.72]***	[0.64]

Head in service/education/ adm./other	−0.066 [0.78]	0.132 [0.76]	−0.088 [0.72]	0.098 [0.56]	0.044 [0.46]	0.113 [0.65]	−0.114 [1.23]	0.092 [0.53]	−0.397 [4.79]***	0.115 [0.66]	−0.374 [4.70]***	0.103 [0.59]
Spouse in manuf./constr./ transport	0.160 [1.13]	−0.394 [2.29]**	−0.130 [0.90]	−0.411 [2.44]**	0.146 [0.85]	−0.419 [2.48]**	0.109 [0.75]	−0.426 [2.53]**	−0.573 [4.27]***	−0.412 [2.39]**	−0.574 [4.51]***	−0.415 [2.41]**
Spouse in wholesale/retail	0.002 [0.03]	0.098 [1.16]	0.092 [1.16]	0.109 [1.28]	0.140 [1.65]*	0.114 [1.36]	−0.011 [0.17]	0.110 [1.29]	−0.465 [6.88]***	0.118 [1.38]	−0.467 [7.80]***	0.123 [1.44]
Spouse in service/educ./ adm./other	0.103 [1.41]	−0.191 [1.69]*	0.628 [6.44]***	−0.186 [1.63]	0.309 [2.79]***	−0.196 [1.73]*	0.312 [3.49]***	−0.185 [1.62]	−0.256 [3.02]***	−0.199 [1.74]*	−0.110 [1.53]	−0.187 [1.64]
Individual owns house	0.099 [1.84]*	0.034 [0.47]	0.204 [2.95]***	0.041 [0.57]	0.109 [1.76]*	0.033 [0.45]	0.094 [1.57]	0.038 [0.53]	0.800 [16.09]***	0.031 [0.42]	0.736 [15.53]***	0.033 [0.46]
Head temporary migrant	−0.307 [1.55]	−0.778 [3.58]***	−0.149 [0.62]	−0.754 [3.49]***	−0.252 [1.21]	−0.738 [3.39]***	0.247 [1.24]	−0.744 [3.43]***	−0.148 [0.68]	−0.759 [3.54]***	−0.047 [0.24]	−0.761 [3.57]***
Household has access to electricity	−0.029 [1.19]	−0.087 [2.51]**	0.038 [1.07]	−0.093 [2.68]***	0.036 [1.20]	−0.094 [2.72]***	0.017 [0.56]	−0.092 [2.73]***	0.003 [0.12]	−0.092 [2.70]***	0.002 [0.09]	−0.090 [2.61]***
Household has access to piped water	0.183 [2.33]**	−0.221 [1.93]*	−0.244 [2.39]**	−0.237 [2.07]**	−0.072 [0.66]	−0.211 [1.82]*	−0.076 [0.84]	−0.216 [1.89]*	0.043 [0.58]	−0.216 [1.87]*	−0.060 [0.86]	−0.210 [1.82]*
Household has toilet facility	−0.122 [0.76]	0.157 [1.00]	−0.236 [1.17]	0.134 [0.83]	−0.300 [2.03]**	0.137 [0.84]	−0.317 [1.98]**	0.139 [0.86]	−0.178 [1.51]	0.157 [0.96]	−0.134 [1.14]	0.140 [0.86]
Wealth index	0.131 [3.61]***	−0.014 [0.29]	0.112 [2.40]**	−0.004 [0.09]	0.148 [3.36]***	−0.011 [0.22]	0.152 [3.61]***	−0.003 [0.07]	−0.099 [2.61]***	−0.014 [0.28]	−0.035 [0.95]	−0.015 [0.30]
Wealth index squared	−0.005 [1.45]	0.004 [1.00]	−0.005 [1.16]	0.004 [0.85]	−0.011 [2.81]***	0.004 [0.91]	−0.008 [2.12]**	0.004 [0.84]	−0.001 [0.25]	0.004 [0.96]	−0.006 [1.70]*	0.004 [0.97]
Constant	−1.696 [4.10]***	2.159 [4.34]***	0.202 [0.44]	2.158 [4.33]***	0.117 [0.26]	2.194 [4.39]***	−0.575 [1.39]	2.207 [4.41]***	0.199 [0.52]	2.205 [4.41]***	0.085 [0.24]	2.249 [4.48]***
Observations	10671	10671	10671	10671	10671	10671	10671	10671	10671	10671	10671	10671

Source: Authors' estimates using Nigeria's CWIQ 2003.
Notes: State dummy variables included in the regressions but not shown in the tables. (*) denotes coefficient statistically significant at 10% level, (**) at 5% level and (***) significant at 1% level.

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