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WORKING WOMEN IN AN URBAN SETTING: TRADERS, VENDORS, AND FOOD SECURITY IN ACCRA

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ABSTRACT

Data collected from a 1997 household survey carried out in Accra, Ghana, are used to look at the crucial role that women play as income earners and in securing access to food in urban areas. One-third of the households surveyed are headed by women. For all households, women's labor force participation is high, with 75 percent of all households having at least one working woman. The high number of female-headed households and the large percent of working women in the sample provide a good backdrop for looking at how women earn and spend income differently than men in an urban area. Livelihood strategies for both men and women are predominantly labor based and dependent on social networks. For all households in the sample, food is still the single most important item in the total budget. Yet, important and striking differences between men and women's livelihoods and expenditure patterns exist. Compared to men, women are less likely to be employed as wage earners, and more likely to work as street food vendors or petty traders. Women earn lower incomes, but tend to allocate more of their budget to basic goods for themselves and their children, while men spend more on entertainment for themselves only. Despite lower incomes and additional demands on their time as housewives and mothers, female-headed households, petty traders, and street food vendors have the largest percentage of food secure households. Women may be achieving household food security, but at what cost? This paper explores differences in income, expenditure, and consumption patterns in an effort to answer this question, and suggests ways that urban planners and policymakers can address special concerns of working women in urban areas.

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1. INTRODUCTION

Poverty, food insecurity, and malnutrition tend to be viewed as rural problems, with relatively little attention paid to these problems in cities. But rapid urban growth and an increase in urban poverty have forced policymakers, program planners, and development practitioners to take another look at these problems in urban areas. Because of rural/urban differences, lessons learned in rural areas may not be applicable to policy in cities. Urban life affects all the major determinants of food security. Urban livelihoods are characterized by a dependence on cash incomes, often earned in the informal sector. A high proportion of women are in the informal workforce, balancing their roles as homemakers, mothers, and income earners. Child care responsibilities, combined with women's lower education and skill levels may force women into informal sector work, or into jobs in which they can work at home. In urban areas of West Africa, women comprise 60 to 80 percent of the workforce in trading (Ruel et al. 1998). The need for women to save time in food preparation has increased the share of the food budget spent on processed foods, convenience foods, snacks, and meals available as street foods.

A number of recent studies have shown the importance of women's employment for household welfare, but most of these studies are focused on rural areas. Much of the evidence shows that women who control their own or their household's income and resources can effect positive outcomes for household food security and child nutrition (Quisumbing et al. 1995; Kennedy and Peters 1992; Rogers 1996; Handa 1996). In

Ghana, women play a crucial role in the economy, controlling a large share of market activity and commodity trading. There are a small number of studies that have examined the impact of women's employment on the economic and social well-being of the family. Women's access to the cash economy contributed to an improved economic standing of households in which children are being raised—food consumption, measured by adjusted consumption expenditures, were highest in those households where women are the primary head of their household (Lloyd and Gage-Brandon 1993). Two studies of gender and poverty in Ghana found little evidence of gender differences for some measurable indicators of welfare (Haddad 1991, 1993). Each of these studies used data from the Ghana Living Standard Survey (1987/88), but did not focus exclusively on urban areas. Little is known about the effect of women's livelihoods and employment on household food security in urban areas.

In this study of urban household food security and nutrition, one of the key objectives was to identify vulnerable households in an urban environment. While the study was not specifically designed as a comparison of male- and female-headed households, differences in gender and headship emerged as a significant factor in the analysis. Ghanaian women have a strong presence in the urban economy, especially in the rapidly growing informal sector, working as street food vendors and petty traders. They balance their livelihoods with the responsibilities of feeding and caring for their children and other family members. To gain a better understanding of urban women's livelihoods and vulnerability to food insecurity, this paper highlights the main findings of a larger study on

Urban Food and Nutrition Security in Accra, focusing on the differences in employment, income, consumption, and food security between male- and female-headed households.

The data for this analysis come from an integrated household survey in greater Accra covering 559 households distributed among 16 enumeration areas.[1] The questionnaire modules covered information on household demographics, maternal and child anthropometry, individual employment, household income and expenditures, household food consumption and habits, interhousehold transfers and credit, coping and adaptive strategies, healthcare, and hygiene.

The following definitions were used in the survey design, and throughout this analysis. Households consist of a group of people who live together, eat from the same pot when food is prepared at home, and who get money for street food from the same source. Household members are identified with reference to the head of the household who is defined as the person with primary responsibility to see that members are provided for in terms of food and care (even though the person may not be doing the actual provision of food and care). The de facto household head is the person who acts the role of household head in the (temporary) absence of the actual household head. This commonly occurs where the male head of the household is absent for extended periods of

[1] The Accra Urban Food and Nutrition Study (AUFNS) was carried out in Accra, Ghana from January through April 1997. The sampling frame included 879 urban and 33 peri-urban Enumeration Areas in the Greater Accra area. Enumeration areas were then selected using a systematic sample from a random start, with a calculated sample size of 36 households in each of 16 primary sampling units, for a total of 576 households. The sample is representative of households with children under 36 months, so the descriptive statistics are not necessarily a representative picture of all households in Accra. Furthermore, the survey results do not include urban residents who do not live in households—that is, street children or the homeless population.

time, leaving a wife in charge. However, there were no absentee male heads reported in the survey, and only five female-headed households had a resident male living in the households. Therefore, the self-reported head (de jure) is used to classify male and female-headed households in this study.

2. HOUSEHOLD ORGANIZATION IN ACCRA

Urban areas, by definition, include a diversity of peoples, so the definition and organization of households is subject to variation. The indigenous population of Accra (the Ga) have a unique form of household organization. Traditionally, Ga men and women lived separately, even after marriage. Marriage itself was a very weak institution (Kilson 1974). Men traditionally lived with patrilineally related male kin, and women with matrilineally related kin. Children were traditionally raised in the mother's house, with male children going to live with their fathers at about the age of 10 years. Contemporary households in low-income indigenous areas of the city show evidence of much the same pattern today as Kilson noted in the 1960s (Robertson 1984; Fayorsey 1995; Ga Mashie Study Team 1996).

Separate male and female residences, and high male unemployment and migration, have resulted in large compound houses in low-income indigenous communities. These households, labeled “compound matri-complex” households by Fayorsey (1995) are often headed by an elderly woman, and consist of mostly adult women and their children,

although some adult men may be present if it is their mother's residence. Smaller subunits exist within these large compound houses—usually an adult woman and her dependent children. While coresidence does not define these smaller units, shared consumption usually does—not only home consumption, but usually the allocation of money for the purchase of foods prepared outside the household.[2] Because of the heavy reliance on street foods, consumption "from a common pot" alone is not an adequate definition of the household—a situation further complicated by the fact that children in these households often eat somewhere other than with their mothers. This household structure gives women considerable autonomy over their own activities, both productive and reproductive (Fayorsey 1995; Robertson 1984). However, while women greater independence in these situations, their standard of living has not improved. In fact, these communities are among the most economically disadvantaged in the city.

3. DEMOGRAPHIC CHARACTERISTICS OF HOUSEHOLDS

A large proportion of households are headed by women in Accra, and these households have different demographic characteristics than male-headed households. These differences affect households' total available labor resources and, ultimately, the type of income earning activities. Over one-third of all households surveyed are headed by

[2] These "smaller units" in compound households became the definition of the "household" for the survey, since they were defined largely in terms of consumption, and were roughly comparable in terms of composition to households in other areas of the city.

women. Table 1 shows that both male- and female-headed households in urban Accra are heterogeneous groups in terms of size, composition, and other characteristics.[3] Despite their heterogeneity, in the aggregate, female-headed households are significantly different from male-headed households. Male-headed households tend to be larger on the average than female-headed households. Female-headed households have a tendency to constitute a large proportion of small households consisting of two to four persons (58.2 percent compared to 44.3 percent in male-headed households); 18.9 percent of female heads live in two-person households. There is a tendency for female heads to be younger than male heads. The age range for female heads is more widely distributed, running to about age 75 years. For all households, 81 percent of household membership consists of the immediate family of the head. The proportion of more distant relatives sheltering within the household is greater in female-headed households, constituting nearly 30 percent of total household membership compared to 11.1 percent for male-headed households. The ratio of children per adult population in female-headed households is 1.3 times than that of male-headed households. Female-headed households have a low number of working age males. For male-headed households, the dependency ratio[4] is 1.1, while for female-headed households, the ratio is 1.5. Nearly two-thirds of female-headed households are located in family compound houses. Levels of education of the head tend to be higher in male-

[3] There is no distinction between different types of female-headed households (FHH) in the present analysis, accounting in part for the heterogeneity observed within FHH. Kennedy and Peters (1992) distinguish between de jure and de facto female-headed households. Rogers (1995) classifies female-headed households into four categories based on both household composition and female work roles.

[4] Defined as the population 0-14 years and 60 and above divided by the population 15-59 years.

headed households. A significantly higher proportion of female heads have no education or only primary-to-middle levels. The different demographic and household characteristics of male- and female-headed households have significant implications for livelihoods and employment in female-headed households.

4. LIVELIHOODS AND EMPLOYMENT

There are significant differences in the major employment activities of men and women, which affect the level of income earned in male- and female-headed households. Livelihood strategies in Accra are predominantly based on production and exchanges of cash and goods between households. Labor is the most important asset to urban dwellers, and labor-based income-generating activities are the most important source of income in the sample. In 75 percent of households, at least one of the income-generating labor-based activities is under the direct control of women. Across all categories of households, women's income-generating activities are heavily concentrated in petty trading and the preparation and sale of street food—more than two-thirds of women's primary income-generating strategies fall in these two categories. Petty trading and street food vending are almost exclusively women's work in Accra. Over 90 percent of all individuals engaged in petty trading as their primary occupation are women, and almost 100 percent of all street food vendors are women. Men predominate in skilled and unskilled labor, as well as clerical and professional categories. Over 60 percent of men's primary income-generating strategies involve wage labor, whereas over 75 percent of women's primary

strategies involve self-employment. Men are three times as likely to have a protected wage job (in the civil service or with a large firm) than women. However, men and women are equally likely to be engaged in some kind of productive self-employment.

Female-headed households utilize a significantly lower number of income-generating activities than do male-headed households. Total labor resources are fewer in female-headed households, as would be expected given the demographic differences described above. Women, who are not as well educated as men, do not have the skills, opportunities, or access to training necessary to obtain higher wage earning jobs or better paid professional positions. With lower human capital skills and fewer labor assets, it is not surprising that women are engaged in self-employed activities that do not require large investments in human, physical, or financial resources.

INCOME LEVELS AND SOURCES

The differences in employment between men and women determine, in part, the levels and sources of income at the household level. The household's total income portfolio is comprised of labor income, as well as income from other factors of production (such as land and capital) and nonfactor income sources. Nonfactor income includes unearned income sources from the sale of property or other consumer durable goods; pension or other government transfers; net income from gifts, remittances, and lottery winnings; and savings and net borrowing or lending. The sources of income correspond to the following labor-based categories: protected wage labor covers civil service and

large firm employment; unprotected wage labor covers informal employment; self-employed marginal employment is restricted to petty trading; and self-employed productive work covers agriculture and fishing, street food vending and preparation, as well as skilled and unskilled self-employment activities. Two additional categories have been included to capture income from other factors of production and unearned income. The first of these includes unearned income sources from rents, pensions, government transfers, sales of property and consumer durable goods, interest earned on loans, overseas earnings from household members residing away, lottery winnings, and savings. The last income category consists of net interhousehold transfers of gifts and remittances and net borrowing and lending.[5]

Average monthly per capita income is considerably higher for male-headed households than for female-headed households (Table 2).[6] The same holds true when using per capita expenditure, which is often a more reliable indicator of permanent income. Although not all female-headed households are poor, they are overrepresented in the lowest expenditure groups. While female-headed households account for 35 percent of the total sample, they account for over 40 percent of households in the lowest income quintile, and only 23 percent of households in the highest income quintile. However, the

[5] Net borrowing and lending is included in our definition of income because it represents current disposable income used to finance household consumption.

[6] Average monthly income, adjusted by adult equivalent scales to account for differences in family composition between male-and female-headed households, was also higher in male-headed households.

source of income, as well as the level of income, is an important determinant of a household's vulnerability to economic shocks.

Sources of income vary for male- and female-headed households (Table 2). These data suggest that female-headed households rely on interhousehold transfers and earnings from petty trading. Female-headed households receive 43 percent of total income from gifts, remittances, and net borrowing and lending, which is significantly higher than the 8 percent for male-headed households. Income from petty trading contributes 20 percent. Male-headed households rely more on wage labor (protected and unprotected). Male-headed households earn a total of 50 percent of income from wage labor, compared to 19 percent for female-headed households. Male-headed households receive 14 percent of household income from petty trading, which most likely represents other family members' contribution to total household income.

The majority of the money from interhousehold transfers is used for consumption purposes. The flow of these transfers tends to be from husbands to wives in households where partners live separately, and from parents to children; much of the exchange is limited to the urban area. As was the case in other studies in Ghana (Lloyd and Gage-Brandon 1993; Bruce and Lloyd 1997), women rely on remittances and support from the father of their children in situations where the wife and husband live separately. Women's vulnerability to income shocks increases with their dependency on income sources received from individuals outside the household, especially since these sources may not

always be reliable and are based on maintaining strong social relations outside of the household.

FOOD AND NONFOOD EXPENDITURES

Household expenditure patterns are different in male- and female-headed households; however, food is by far the largest item of household budgets for both. The mean household expenditure was by far the greatest for food at 54.5 percent of total expenditures. As income increases, the percent of the budget allocated to food falls, consistent with the Engelian relationship between income and the percentage allocated to food. In households in the lowest expenditure quintile, nearly 60 percent of total expenditures was allocated to food, compared to 40 percent for households in the highest quintile. Female-headed households allocate a larger share of their budget to food than do male-headed households. A number of studies have documented the fact that women tend to allocate a larger share of their own resources for food and other basic needs of their children and family (Kennedy and Peters 1992; Lloyd and Gage-Brandon 1993; Quisumbing et al. 1995; Handa 1996). The results of the Accra study are consistent with these findings. However, given the lower average incomes of female-headed households, it is not surprising to find larger budget shares allocated to food. Expenditures shares for health, utilities, and nondurable goods (such as household goods) are significantly higher for female-headed households. Male-headed households spend significantly more of their

budget on clothing, durable goods, transportation, communication, alcohol and cigarettes, and for donations and ceremonies.

Women make the majority of purchases for nonfood goods and services, cooking fuel and lighting, clothing for themselves and their children, nondurable household goods, transportation, gifts and donations, and contributions to ceremonies (Table 3). The breakdown between men and women shows that women invest more resources for caring for themselves and their children by providing the basic necessities of food and clothing. Men invest in human capital (health, education, and household services), but also invest more heavily in adult goods that include leisure activities and luxury items. While men are responsible for covering the cost of housing, their own personal effects, household durable goods, household services, health and education, and communication, they are more likely to spend their income on gambling, lotteries, liquor, and tobacco. These data show that women allocate household income differently than men and favor the provision of basic goods and services required to meet the needs of their family.

5. DIFFERENCES IN FOOD CONSUMPTION AND HOUSEHOLD FOOD SECURITY

It is generally agreed that urban dwellers consume a more varied diet than their rural counterparts, richer in animal proteins, fats, and processed staple foods. As a result of their proximity to markets and food processing sectors, urban consumers have greater access to processed and packaged foods and are more dependent on local street foods for

snacks and meals, given their constraints on time and the need to substitute labor-intensive foods for more readily available foods (Austin et al. 1976; Chaudhri and Timmer 1986; Drakakis-Smith 1991; von Braun et al. 1993; Atkinson 1995; Boughton and Reardon 1997; Randolph 1997; Tinker 1997). Considering the observed differences in household structure, livelihoods and expenditure patterns, how do consumption levels and patterns vary between male-and female-headed households in Accra?

HOUSEHOLD CALORIE AVAILABILITY

Female-headed households spend proportionally more income on food and allocate their resources to different types of foods, resulting in higher calorie availability. The mean household calorie availability per adult equivalent unit (aeu) for the entire sample is 2,640 kilocalories per aeu per day. Calorie availability in female-headed households is almost 10 percent higher than in male-headed households (Table 4). The mean price per 1,000 calories is 746 cedis, which is equivalent to US$0.39. Low income households had the least expensive diets, while upper income households consumed more expensive diets. A more expensive diet (per 1,000 calories) indicates that as income rises, households are purchasing preferred foods that have a higher cost per calorie.

Given higher income levels, it might be expected that male-headed households have relatively more expensive diets than female-headed households. Yet, there was no significant difference in the cost of the diet between male- and female-headed households. There is some evidence that male-headed households obtain more calories from relatively

expensive sources, such as meat, fish, fruit, and vegetables (Table 4), although none of these differences reaches statistical significance. Female-headed households, on the other hand, obtain 20 percent more calories from street foods, which are an expensive source of calories. In addition, street foods tend to contribute more to dietary bulk than quality, since 80 percent of all street food consumed is in the form of prepared staple food items or staple food-based meals.

HOUSEHOLD FOOD SECURITY

There is no single indicator that best measures household food security, however, a common indicator is calorie adequacy (Payne 1990; Habicht and Pelletier 1990; Maxwell and Frankenberger 1992; Haddad, Kennedy, and Sullivan 1994; Maxwell 1996; Chung et al. 1997). This measures food sufficiency in terms of quantity, but does not address the quality of the diet in terms of protein and micronutrient deficiencies, nor does it address issues of vulnerability or sustainability of access. The traditional approach for measuring household food security, using dietary intakes, has been to select an optimal caloric intake based on a recommended daily allowance (RDA) for the equivalent of a moderately active adult and compare it to observed household caloric intake per adult equivalent. In order to identify food deficient households, a cutoff point is used to identify households that experience energy shortfalls. There are two problems with selecting a cutoff point for this analysis. One is selecting the correct cutoff in the absence of full information for estimating the energy requirements of the sample. It is not possible in this study to

quantify energy requirements because we did not collect data on weights and time allocation for all household members, nor were activity levels measured. Thus, the estimated energy requirements used for this study were derived from the Estimated Average Requirements for the United Kingdom, Department of Health and Social Security 1981 (Gibson 1990).[7] The second, more general issue is whether or not calorie requirements make sense, given fluctuations in inter- and intra-personal dietary requirements and individuals' ability to adjust to inadequate energy intakes (Beaton 1983; Dugdale and Payne 1987; Edmundson and Sukhatme 1990). Given these caveats, calorie adequacy is evaluated using two methods. The first method uses a cutoff of 80 percent of the RDA (2,320 kilocalories/aeu/day). A second method uses both caloric adequacy and food budget share.

Table 5 shows the mean calorie availability as a percent of the requirements by the sex of the head of the household. The overall calorie adequacy for the sample is 91 percent. Female-headed households, who have significantly higher calorie availability (at the same price per 1,000 calories), also have significantly higher mean calorie adequacy.

[7] The reason for choosing these figures were that (1) the recommendations are broken down for 30 different combinations of age, sex, activity level and physiological status, a level of detail not seen in other similar tabulations; and (2) the average required intake for adult women (2,150 kilocalories) closely matched the estimated requirement of Accra women in our sample based on their age, weight, and a Physical Activity Level factor of 1.64. Other tabulations suggested lower intakes for this population group. Since the UK figures did not include recommendations for infants (<1 year), these were taken from *Energy and Protein Requirements (*IDECG 1994, p. S33). The recommended daily allowance used for this study is 2,900 kilocalories/aeu/day.

In order to look at the number of energy deficit households across male- and female-headed households, Table 5 also shows the percentage of households that fall below 80 percent of the caloric adequacy per adult equivalent. Female-headed households do not have the lowest proportion of calorie-deficient households, as one might expect. Among female-headed households, where mean incomes were lower than those of male-headed households, the percentage of calorie-deficient households was significantly lower. Several factors may explain these trends. There is a fairly clear difference in spending priorities between male and female-headed households, as noted earlier. Female-headed households spend proportionally more income on food, and consume more of the cheap, bulky staple foods. As a result household calorie consumption per adult equivalent unit is significantly higher in female-headed households, and female-headed households are more likely to meet recommended daily requirements. Nonetheless, mean income levels may be masking the number of poor households found within the group of male-headed households. For instance, while the mean income for male-headed households may be higher, there are vulnerable households within this group whose income is insufficient to obtain enough food for all household members. Also, the type and source of income, such as cash and in-kind transfers, may play an important role in securing higher calorie availability among female-headed households. For instance, gifts and in-kind transfers of food accounted for 8.7 percent of female-headed households total food budgets, compared to 5.1 percent of food budgets in male-headed households. In female-headed households, one-quarter of the total cash budget spent on food comes from someone

living outside of the household. Among the indigenous female-headed households in Accra, cash remittances used for food come partly from the husband or partner, who often does not live with his wife.

To shed further light on this issue, caloric availability was cross-classified with food shares following the example of Jonnson and Toole (1991). A cutoff of 80 percent of the caloric requirement is combined with a food share greater than 60 percent of total expenditure.[8] Table 5 evaluates households according to four new categories: food secure households have adequate consumption and a small proportion of the budget spent on food—that is, an indication of relative security from shocks; food insecure households have inadequate consumption, and a high share of the budget spent on food. A new group labeled vulnerable has adequate consumption now, but given the high proportion of the budget allocated to food, a relatively small shock could lower consumption in the future. These results give a somewhat different picture of household food security.

Combining caloric adequacy with the food share of the household budget reveals that 32.8 percent of Accra households are food secure; 13.7 percent are food insecure; 26.7 percent are vulnerable to price or income shocks; and 26.8 percent are of questionable status. Although calorie adequacy is mostly adequate in female-headed households, a high proportion of female-headed households are in the vulnerable group;

[8] The amount 2,320 is 80 percent of 2,900 kilocalories, the recommended requirement for an average sized adult in Ghana; and 60 percent is the mean food expenditure for the lowest two expenditure quintiles in the sample.

and female occupation groups (petty trading and street food vending) are also in that category.

Female-headed households have adequate caloric availability levels, but are more vulnerable to shocks because they expend a higher proportion of their disposable income to acquire the calories. Only slightly more female-headed households are in the "food insecure" category than male-headed households. Twice as many male-headed households fall into the "questionable" category, where it is difficult to determine food security status precisely. A higher proportion of migrants also fall into this category. One-third of all households in the "questionable" category trade off short-term consumption to be able to remit greater proportions of their income to someone else.

CONSUMING ENOUGH...BUT AT WHAT COST?

Table 5 noted the proportion of households in the city which had an adequate level of calorie availability at the household level, but which devoted a relatively high budget share to acquiring these calories. This group was labeled "vulnerable" because a small price or income shock could quickly undermine their consumption status. Almost 40 percent of all female-headed households in the city fall into this category, as do a high proportion of the predominantly female occupation groups—especially petty traders and street food vendors.

Female-headed households, whose earnings are lower than their male counterparts, may meet household calorie adequacy, but in doing so they are also putting themselves in

a more vulnerable position to shocks in income or other threats to their livelihoods. Moreover, women's efforts, while meeting current consumption needs, may be at the expense of greater long-term investments in human capital for themselves and their family. The data in Tables 2 and 3 suggest that women have stronger preferences for investing in child centered goods, such as health and education. Mean budget shares for health and education were higher in female-headed households (Table 2), even though most women reported that men hold the responsibility for financing health and education needs (Table 3). Given the high food budget shares for female-headed households, expenditures on other basic needs, such as health and education, may be sacrificed to achieve adequate food consumption in the short-term. The “vulnerable” group receives the highest proportion of income from transfers, as do female-headed households. Women's reliance on interhousehold transfers may increase their vulnerability to income shocks and further threaten their access and control over resources to meet investments in food, health, care, and education for themselves and family members.

6. MULTIVARIATE ANALYSIS: EXPLAINING THE DIFFERENCES IN CALORIE CONSUMPTION, FOOD BUDGET SHARES, AND THE PRICE OF CALORIES

Household food expenditures and consumption are influenced by a number of factors. Household income, demographic structure, food prices, and tastes and preferences are important determinants of household food security. In this study, female-headed households are poorer than male-headed households, and food availability is

significantly better in households-headed by women. However, given that female-headed households tend to be poorer, it is not clear whether the observed differences are due to differences in household income levels or other characteristics associated with female-headed households that affect food expenditures and consumption, or due to different consumption preferences in female-headed households. In order to control for differences in income, household demographics, and tastes and preferences, regression analysis is used to explore the determinants of household food expenditures and consumption.

Three separate regressions are estimated using the household food budget share, total calories per adult equivalent per day, and the price per calories per 1,000 calories per adult equivalent unit as dependent variables. The predicted log of household expenditures per capita is included to capture income effects. Instrumental variables, using the 2SLS method, was used to estimate all equations. In the first stage, the log of per capita expenditure is predicted as a function of exogenous variables and instruments, and of all the exogenous variables in the second stage regression, reported in Table 6. The instruments for predicting per capita expenditures were the age of the head of the household, the education and education squared of the head of the household, assets, assets squared, home ownership, and the log of household size.[9]

In each regression, household composition is captured through linear indicators of the number of people in specified age and sex groups. The mother's age, education, and

[9] The age of the head of the household and assets were positive and significantly related to per capita expenditures. Household size was significant and negatively related to per capita expenditures.

migration status is also included, since expenditure patterns and dietary preferences may be influenced by the mother's experience and background. Food price data were collected, but in a single round survey over an eight-week period, there was little temporal variation across markets in Accra. Mean cluster prices for 16 enumeration areas are included for maize, cassava, yam, plantain, rice, wheat, tomato, and fish, to account for any spatial variation. Two dummy variables are also included for population density at the community level (equal to 1 if the community is classified as low density or if high density). The reference variable is communities with medium density. Density is expected to capture any community level effects that may influence household food availability.

To capture tastes and preferences related to basic household structure and differences in allocation priorities, a dummy variable is included for the sex of the head of the household (equal to zero if the head is male and one if female).

The basic model is

(1) Log of household food budget share

(2) Log of calories per adult equivalent unit

(3) Log of price per 1,000 Kcal/aeu/day

= *g(predicted expenditures per aeu, household structure, sex of the head of the household, mother s age, mother s education, migration status of mother, prices for maize, cassava, yam, plantain, rice, wheat, tomato, and fish, community density).*

The results of the regressions are presented in Table 6. As expected, per capita expenditure is a highly significant determinant of household calorie availability and food budget shares. Increases in income, proxied by expenditures and holding all other factors constant, are associated with higher household calorie availability and lower food budget shares. Household calorie availability decreases with greater numbers of children between the ages of 5 to 14 years, and with greater numbers of young adult men (between the ages 15 to 34 years old), that is, households with school-aged children and men of prime working age have lower food availability. Lower food budget shares are associated with households with fewer children and elderly women. While children between the ages of 5 to 14 may eat less than adults, it is unlikely that young adult men have lower consumption needs, given their participation in wage labor and self-employed productive income-generating activities. Consistent with our findings in the bi-variate analysis, calorie availability and food budget shares, holding income constant, are higher in female-headed households. Holding income and household structure constant, there is a separate impact of female-headed households on household calorie availability and food budget shares, reflecting differences in spending priorities between male- and female-headed households.

Using the food price per 1,000 kilocalories gives an idea of the factors associated with the quality of the food consumed at the household level, and not just with factors associated with greater calorie availability. Higher levels of income and mother's education are significantly associated with more expensive diets. However, there is no significant difference in the mean calorie price between male- and female-headed

households. These results suggest that better-off and better-educated households choose a more expensive diet, either through purchasing more expensive calories from meat, fish, fruits and vegetables, or possibly from purchasing more foods away from home.

A second set of regressions was estimated that included an interaction term between income and the sex of the head of the household. The coefficient on the interaction term between income and the sex of the household head was insignificant, indicating that there was no separate effect of a change in income on changes in the dependent variables if the head of the household is a woman.

7. CONCLUSIONS AND POLICY IMPLICATIONS

For the majority of urban households in this sample, labor and social exchange networks are the primary sources of income. Over 60 percent of men in the economically active age group work, predominantly as skilled and unskilled laborers, and in clerical and professional jobs. Just less than half of women in the same age group are engaged in income-generating activities, predominantly in petty trade and the preparation and sale of street foods. Combined with the observation that there is less labor available in female-headed households, this means that total and per capita income is considerably less in female-headed households. Interhousehold transfers of money and food play a very important role in Accra, especially for female-headed households. These exchanges are predominantly between households living in close proximity in urban areas, and many transfers are from husbands who live in separate residences from their wives. Women's

reliance on these types of interhousehold transfers increases their vulnerability to income shocks. For both food and nonfood expenditures, different spending patterns and priorities exist between male- and female-headed households. Female-headed households, spend more on basic goods and less on luxuries. Female-headed households have higher food budget shares and higher expenditure shares on utilities, nondurable goods, and health.

Food insecurity is not only a function of income, but is also associated with the type of employment and household structure. The largest number of food insecure households are found among the lowest income groups. Female-headed households tend to have higher levels of calorie adequacy, but expend greater proportions of their budget to acquire food. Thus, both female-headed households and those occupational groups that are predominantly female (petty trading and street food vending) have the highest levels of vulnerability to food price rises or income shocks. Multivariate analysis confirmed the bi-variate analysis results that there are differences in household food availability between male- and female-headed households. In addition to the characteristics that are associated with female headship, such as lower incomes and fewer household members, the sex of the head of the household directly affects household food availability.

In terms of policy, enhancing employment, productivity and the possibilities for self-employment should be the first priority for social policy for reducing vulnerability to poverty and food insecurity. Small entrepreneurs, especially women, should be given support to diversify their incomes, to gain access to credit, and to work in a regulatory

environment where they are taxed at a fair rate and are free from harassment by authorities. Female-headed households have fewer labor resources, and need specific programs to enhance income-generating capacity through improved skills and access to capital. Investments in formal education as well as in specific skills training will provide long-term solutions for improving the earning capacity of women in general, and female-headed households in particular. The special needs of working mothers should also be recognized. The increasing necessity of women in the household to generate a cash income in addition to their other responsibilities is an important factor for determining food security. Women are forced to make trade-offs between income-generating and caring roles. While legal reform can help in the formal sector (through such measures as maternity leave, and time allowed for child feeding), such a high proportion of working women in Accra are self-employed outside the formal sector that other approaches must be implemented.

Improving the regulatory environment for the self-employed is another important challenge to policymakers. Self-employed women (both petty traders and street food vendors) are often targets for crackdowns by municipal authorities. An option for improving the work environment is to strengthen the capacity of nascent associations of traders and street food vendors, both to give political voice to the concerns of small-scale entrepreneurs and to help to develop self-regulatory mechanisms for the problems of informal trade activities. Such local associations would be good for both business and

public health and safety, but the formation of such associations would require a new approach by municipal authorities.

In summary, low-income working women and female household heads are among the most vulnerable groups in greater Accra. They are generally able to meet caloric consumption needs, but are very vulnerable to income or price shocks, and sacrifice investment in health and education in order to meet consumption needs. The best options for reducing women's vulnerability is to increase their income earning potential by improving access to credit and skills training, and by improving the regulatory environment.

TABLES

Table 1 Distribution of households by sociodemographic characteristics of head: Accra Nutrition Survey 1997

Characteristic	All		Male-headed households		Female-headed households	
	Number	Percent	Number	Percent	Number	Percent
Household size						
2 person	37	6.6	-	-	37	18.9
3 person	126	22.5	81	22.3	45	23.0
4 person	110	19.7	80	22.0	30	15.3
5 person	82	14.7	59	16.3	23	11.7
6 person	75	13.4	57	15.7	18	9.2
7 or more	129	23.1	86	23.7	43	21.9
All	559	100.0	363	100.0	196	100.0
Mean household size	5.1	--	5.2	--	4.8	--
Composition						
Head	559	19.7	363	19.2	196	20.6
Spouse	363	12.8	358	19.0	5	0.5
Children	1,364	48.1	932	49.4	432	45.5
Parents	28	1.0	1	0.1	27	2.8
Grandchildren	208	7.3	51	2.7	157	16.6
Other relatives	283	10.0	159	8.4	124	13.2
Others	30	1.1	22	1.2	8	0.8
All	2,835	100.0	1,886	100.0	949	100.0
Age groups						
Children < 5 years	740	26.1	498	26.4	242	25.5
Children 5–14 years	654	23.1	385	20.4	269	28.3
Adults	1,441	50.8	1,003	53.6	438	46.2
		(ratio* 100)		(ratio*100)		(ratio*100)
Sex ratio at age						
0–4 years	740	107	477	106	263	109
5–9 years	374	98	251	93	123	108
10–14 years	280	81	180	80	100	82
15–39 years	1,108	50	761	65	347	23
40 and older	328	101	216	243	112	12
All	2,830	76	1,885	91	945	52
Dependency ratio	1.2	--	1.1	--	1.5	--
Type of household						
Compound	234	41.9	109	30.1	125	63.8
Nuclear	325	58.1	254	69.9	71	36.2
All	559	100.0	363	100.0	196	100.0
Migration status						
Indigenous	178	32.0	84	23.3	94	48.2
Born in Accra	121	21.7	86	23.8	35	18.0
Migrant	257	46.3	191	52.9	66	33.8
All	557	100.0	361	100.0	196	100.0
Education						
None	72	12.9	50	13.9	22	11.2
Primary	136	24.5	76	21.1	60	30.6
Middle	203	36.5	140	38.9	63	32.1
Higher	145	26.1	94	26.1	51	26.1
All	556	100.0	360	100.0	196	100.0
Mean education level	10.5	--	12.2	--	7.5	--

Table 2 Household income and expenditures by male- and female-headed households

	Total	Male head	Female head
Income per capita (cedis/month)	44,624.1	51,682.5	31,551.8
Source		(percent)	
Protected wage[a]	9.7	13.2	3.1*
Unprotected wage[b]	29.9	37.5	15.8*
Self-employed marginal[c]	16.0	13.7	20.2
Self-employed productive[d]	20.3	21.7	17.9
Rent/sales/pension	3.9	5.9	0.0
Gifts/remittances/transfers	20.2	7.8	43.2*
Expenditures			
Per capita (cedis/month)	94,591.0	85,681.7	69,188.1
Budget shares		(percent)	
Food	54.5	51.5	60.2*
Housing	2.1	2.6	1.0*
Fuel/light/utilities	7.8	7.6	8.3
Clothing	8.9	9.7	7.5*
Nondurable goods	3.7	3.3	4.4*
Durable goods	1.2	1.7	0.4*
Health	4.5	4.0	5.6*
Education	1.8	1.8	1.9
Transport	5.0	5.9	3.3*
Alcohol and cigarettes	0.9	1.1	0.5*
Other miscellaneous[e]	10.6	11.0	6.8*
N	559	363	196

Note: * Significantly different than male-headed household at ($p < 0.05$).

[a] Protected wage labor includes skilled labor, unskilled labor, clerical and professional jobs.

[b] Unprotected wage labor includes agriculture fishing, laborers working for petty traders, street food vendors, or small and large business, skilled labor, unskilled labor, clerical and professional.

[c] Self-employed marginal includes petty traders.

[d] Self-employed productive includes agriculture/fishing, street food preparation/vending/small/large businesses, skilled labor, unskilled labor and clerical and professional jobs.

[e] Other miscellaneous includes household services, communication, recreation, donations, and ceremonies.

Table 3 Who pays for nonfood expenditures by sex of individual

Nonfood expenditure	Sex		More than one person	Total
	Male	Female		
	(percent)			
Housing	73	13	11	100
Fuel/light	26	51	23	100
Utilities	34	33	32	100
Women/children's	15	47	38	100
Men's clothing	92	5	3	100
Nondurable goods	21	56	23	100
Durable goods	72	15	12	100
Health	42	33	24	100
Education	49	33	24	100
Transport	31	40	29	100
Alcohol and cigarettes	63	22	16	100

Table 4 Household caloric intake, price per calorie, and calorie adequacy

	Total	Male head	Female head
Caloric intake per AEU[a]	2633.2	2,552.9	2,781.5*
Price per 1,000 calories	746.0	749.2	740.3
Calories by source (kilocalories/aeu/day)			
Grains	650	629	689
Roots and tubers	557	546	578
Legumes/vegetables and fruits	195	199	187
Meat and fish	172	183	151
Eggs and dairy	52	50	54
Fats and oils	327	316	347
Street foods and prepared meals	670	618	764*

Note: * = significantly different than male-headed household at ($p < 0.05$).
[a] Adult equivalent unit

Table 5 Household calorie adequacy and household food security

Category	Sex of Household Head	
	Male	Female
Calorie adequacy		
Energy adequacy[a]	88.0	96.0
Energy deficient households[b]	44.0	34.0*
Food security status		
Food secure[c]	35.7	27.7
Vulnerable[d]	20.5	37.9
Questionnable[e]	32.1	16.9
Food insecure[f]	11.6	17.4
N	362	196

Notes: * = significantly different than male-headed household ($p < 0.05$)..

[a] Energy adequacy shows the mean calorie availability as a percent of the requirement. The recommended requirement for an average sized adult in Ghana is 2,900 kcal per adult equivalent unit per day.

[b] Households that fall below 80 percent of the recommended requirement (2,320 kcal/aeu/day) are considered energy deficient.

[c] Adequate caloric availability (>80 percent of requirement); low food budget share (<60 percent of budget share).

[d] Adequate caloric availability (>80 percent of requirement); high food budget share (<60 percent of budget share).

[e] Inadequate caloric availability (>80 percent of requirement); low food budget share (<60 percent of budget share).

[f] Inadequate caloric availability (>80 percent of requirement); high food budget share (<60 percent of budget share).

Table 6 Estimation results for household food budget shares, calorie consumption, and calorie price

Dependent variables:	Log of food budget shares		Log of calorie consumption per adult equivalent unit per day		Log of price per 1,000 calories	
Independent variables	Coefficient	t-statistic[b]	Coefficient	t-statistic	Coefficient	t-statistic[b]
Maternal characteristics						
Level of mother's education	0.001	0.271	-0.003	-1.016	0.004	1.616
Mother's age	0.003	1.590	0.003	1.161	0.000	0.079
1 if mother is indigenous to Accra	0.027	0.715	-0.012	-0.299	0.048	1.561
1 if mother is migrant to Accra	-0.020	-0.607	0.002	0.066	-0.029	-1.082
Household characteristics						
Number of males 0-4 years	-0.048	-1.742**	0.042	1.428	-0.040	-1.791**
Number of males 5-14 years	-0.029	-1.641**	-0.057	-3.078*	0.010	0.711
Number of males 15-34 years	-0.006	-0.289	-0.061	-2.686*	0.000	-0.004
Number of males 35-49 years	-0.028	-0.701	-0.016	-0.379	-0.051	-1.604
Number of males over 50 years	0.007	0.133	0.038	0.699	-0.059	-1.455
Number of females 0-4 years	0.005	0.155	0.050	1.591	0.010	0.421
Number of females 5-14 years	-0.041	-2.230*	-0.037	-1.861**	-0.011	-0.724
Number of females 15-34 years	-0.006	-0.280	-0.022	-1.045	-0.003	-0.192
Number of females 35-49 years	-0.007	-0.225	-0.006	-0.180	-0.035	-1.419
Number of females over 50 years	-0.068	-1.758**	-0.020	-0.490	-0.059	-1.908**
1 if female head of household	0.090	2.188*	0.137	3.110*	0.015	0.446
Log of per capita expenditures[a]	-0.395	-6.381*	0.290	4.387*	0.316	6.345*
Community-level variables						
Price of maize	0.0003	0.890	0.0003	1.075	-0.00003	-0.139
Price of cassava	-0.001	-1.304	-0.001	-2.178*	0.001	1.455
Price of yams	-0.00002	-0.354	0.00003	0.433	-0.00005	-0.880
Price of plantain	0.0002	2.453*	0.00003	0.365	0.0002	2.463*
Price of wheat	-0.000001	-0.086	-0.00001	-1.083	0.00001	1.030
Price of rice	0.00009	0.789	0.0002	2.049*	-0.0001	-1.615
Price of tomatoes	-0.00004	-1.595	-0.00008	-2.647*	0.00003	1.560
Price of red palm oil	-0.00001	-0.178	0.0001	1.523	-0.0001	-2.047*
Price of fish	0.00002	0.902	-0.00001	-0.694	0.00003	1.786**
1 if low density; 0 if medium	-0.008	-0.113	0.064	0.892	-0.070	-1.289
1 if high density; 0 if medium	-0.051	-0.941	-0.026	-0.449	-0.020	-0.467
Constant	9.085	10.883*	3.427	3.845*	-4.517	-6.727*
Adjusted R-squared	.337		.352		.444	
F	7.88		4.64		12.59	
N	550		550		550	

Notes: * indicates significant at .05 level; ** indicates significant at .10 level.

[a] Log of per capita expenditures is instrumented using the level of the head of household education, the level of the head of household education squared, the age of the head of household, household assets, household assets squared and a dummy equal to 1 if own home.

[b] Absolute values of t-statistics are given.

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