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Gendered Impacts of the 2007–08 Food Price Crisis

Evidence Using Panel Data from Rural Ethiopia

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ABSTRACT

This paper provides empirical evidence on the gendered impact of the 2007–08 food price crisis using panel data on 1,400 households from rural Ethiopia that were initially surveyed before the onset of the crisis, in 1994–95, 1997, and 2004, and after food prices spiked, in 2009. It investigates whether female-headed households are more likely to report experiencing a food price shock, and whether female-headed households experiencing a shock are more (or less) likely to adopt certain coping strategies, controlling for individual, household, and community characteristics. Our findings suggest that female-headed households are more vulnerable to food price changes and are more likely to have experienced a food price shock in 2007–08. Because female-headed households are also resource poor and have a larger food gap compared with male-headed households, they cope by cutting back on the number of meals they provide their households during good months and eating less preferred foods in general. Our findings that land—particularly better quality land—has a protective effect against food price shocks also highlight the role of strengthening land rights of the poor, particularly poor women, to enable them to cope better with food price increases.

Keywords: food price crisis, gender, coping mechanisms, Ethiopia

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1. INTRODUCTION

Although estimates of the magnitude of impact vary, there is broad consensus that the 2007–08 food price crisis was detrimental to the welfare of the poor all over the world. For example, in its 2008 State of Food Insecurity publication, the Food and Agriculture Organization of the United Nations (FAO) (2008) estimates that the number of chronically hungry people in 2007 increased by 75 million over its estimate of 848 million undernourished in 2003–05, with much of the increase attributed to high food prices. Ivanic and Martin (2008), based on averages from their nine-country study, estimate that 105 million people could be thrown into dollar-a-day poverty because of the global food price increases.¹ Because of the global nature of the food price crisis, it is not surprising that many studies have attempted to analyze its causes and assess its consequences (see, for example, a special 2008 issue of the journal *Agricultural Economics* (Headey and Fan 2008, 2010).

One glaring lacuna in assessments of the crisis, however, is the lack of empirical evidence on gender and intrahousehold impacts. As evidence of the impact of the crisis began to emerge, concerns were expressed that not enough attention had been placed on examining the differential effects of the crisis on women and men (Quisumbing, Meinzen-Dick, and Bassett 2008; Espey and Harper 2009). Drawing on the literature on gender-specific responses to crisis, particularly the large body of evidence on structural adjustment and on the Asian or Mexican economic crises, which show women to be disproportionately affected by shocks, Quisumbing, Meinzen-Dick, and Bassett (2008) suggest that impacts of the 2007–08 crisis on female consumers and producers could be analogous to those of the previous crises. Espey and Harper (2009), citing a report by FAO, argue that “harmful household coping strategies and compounding vulnerabilities threaten to push many, particularly many women and their dependents, into chronic poverty.” However, as Fontana and Paciello (2010) point out, most of the conjectures about differential impacts are based on newspaper accounts (King Dejardin and Owens 2009) or small qualitative studies (for example, Hossain et al. 2009). Many case studies focus exclusively on the impact on women (King and Sweetman 2010), which does not enable one to ascertain whether women were hurt more than men.

Reviews of the impact of coping mechanisms and impacts of past crises (for example, Sabarwal, Sinha, and Buvinic 2010) are useful for pointing out possible impacts but also recognize that conditions may have changed between the past and more recent crisis—export and credit markets are now larger, women are more integrated into them, and remittances are a larger part of household incomes. Although quantitative analyses of gendered impacts have been undertaken, they typically identify at-risk groups based on existing (pre-crisis) datasets (see King Dejardin and Owens 2009) and simulations based on pre-crisis datasets (Zezza et al. 2008; Friedman and Schady 2009), or, where pre- and postcrisis data are available, do not have any gender disaggregation (d’Souza and Jolliffe 2010).² This is not to underestimate the usefulness of these exercises: one cannot help but take notice of Friedman and Schady’s (2009) estimate that as a result of the expected growth slowdown in 2009, there would be between 28,000 and 49,000 excess infant deaths in Sub-Saharan Africa, most of which would be infant girls.³

This paper is among the first to provide empirical evidence on the gendered impact of the food price crisis using panel data on 1,400 households from rural Ethiopia that were initially surveyed before

¹ Headey and Fan (2010) critique both the FAO (2008) and Ivanic and Martin (2008) estimates. The latter estimates, for example, are flawed because they do not take into account the diversity of country circumstances (for example, net buyers/net sellers and degrees of transmission) and that many of the largest poor countries (China, India, and Indonesia) were scarcely affected at all.

² An exception is Jensen and Miller (2008), discussed below.

³ Friedman and Schady (2009) pool birth-level data as reported in female adult retrospective birth histories from all Demographic and Health Surveys collected in Sub-Saharan Africa nations, resulting in a dataset of 639,000 births to 264,000 women in 30 countries. Using regression models with flexible controls for temporal trends, they assess an infant’s likelihood of death as a function of fluctuations in national income. They then apply this estimated likelihood to expected growth shortfalls as a result of the 2007–08 food, fuel, and financial crisis.

the onset of the crisis, in 1994–95, 1997, and 2004, and after food prices spiked, in 2009. It investigates whether female-headed households are more likely to report experiencing a food price shock, and whether female-headed households experiencing a shock are more (or less) likely to adopt certain coping strategies, controlling for individual, household, and community characteristics. It then examines the impact of the food price shocks on consumption habits and perceptions of poverty and well-being, controlling for the possibility that reporting a food price shock is endogenous to household characteristics and accounting for differential impacts across male- and female-headed households. Finally, because headship is, at best, an imperfect indicator of gender relations, we examine changes in poverty perceptions among female heads and male heads and their spouses—allowing us to differentiate women who are heads of households from those who are spouses in male-headed households. We conclude with implications for the design of gender-sensitive social protection systems.

This paper differs from the previous literature by

1. using data on the same households (and individuals within those households) collected before and after the 2007–08 food price crisis;
2. having a large sample size, drawn from 15 villages that are representative of the country's main ethnic groups and agroecological conditions;
3. having detailed information on individual and household characteristics, including gender of the household head and individual-specific information on husbands and wives within those households; and
4. including a variety of indicators of food security, coping mechanisms, and measures of well-being.

Our findings suggest that female-headed households are more vulnerable to food price changes and are more likely to have experienced a food price shock in 2007–08. Because female-headed households are also resource poor and have a larger food gap compared with male-headed households, they cope by cutting back on the number of meals they provide their households during good months and eating less preferred foods in general. Our findings that land—particularly better quality land—has a protective effect against food price shocks also highlight the role of strengthening land rights of the poor, particularly poor women, to enable them to cope better with food price increases.

The paper is organized as follows. Section 2 presents a critical review of the existing literature on the consequences of the economic crisis, pointing out the paucity of research on gender-related impacts. Section 3 describes the setting and the data and presents selected descriptive statistics. Section 4 estimates the probability of experiencing a food price shock, conditional on household and village characteristics, while Section 5 estimates the gendered impact of the food price shock on consumption habits and poverty perceptions. Section 6 concludes.

2. GENDERED IMPACTS OF THE 2007–08 FOOD PRICE CRISIS: WHAT WE KNOW AND WHAT WE DO NOT KNOW

Gender Implications of the Food Price Crisis: Conjectures and Possibilities

Why would we expect the impact of the 2007–08 food price increases to affect individuals differently, depending on gender?⁴ High food prices affect households differently, depending on their production and consumption patterns and what commodities are produced and consumed, the share of household income dedicated to food, and the degree to which world prices are transmitted to local markets. Most of the justification for expecting that impacts differ between men and women come from experience with past crises, and from the evidence that, in most countries, women have less access to and control over resources than men (FAO 2011) and experience gender-based vulnerabilities—including limited legal benefits and protections, decisionmaking authority, and control of financial resources; extensive time burdens; and threats or acts of violence—and are thus less able to cope with and overcome crises. A recent empirical analysis of the effects of natural disasters in 141 countries from 1981–2002 found that natural disasters lowered the life expectancy of women more than that of men (Neumayer and Plümper 2007). Studies of the gendered impact of structural adjustment policies in Africa (Due and Gladwin 1991; Haddad et al. 1995) argue that under structural adjustment, reduced government expenditures on education and health shifted the burden of service provision to households and communities, adding to the already high demands on women’s time. Rising prices can also tighten women’s time constraints by forcing them to travel longer distances to obtain lower prices and to prepare cheaper but more time-intensive foods. If women have less education, they may be less sectorally mobile than men and unable to respond to new opportunities arising from changes in relative prices.

A recent review of past crises on how women have been affected by and responded to aggregate shocks differently from men (Sabarwal, Sinha, and Buvinic 2010) also suggests that the first-round impacts of the crisis will result in a reduction in women’s income and an increase in the risk of household poverty as a result of employment in export-oriented industries, a tightening of microfinance lending, and a reduction in remittances. Second round impacts result from households’ use of strategies that may have gender-differentiated effects. In low-income countries and households, women tend to enter the labor force and/or work more hours, while discouraged-worker effects prevail in higher-income countries and households. Women also tend to reduce fertility during times of crises. In high-income countries, the review found that children’s schooling and health tend to improve during economic downturns, while the reverse is the case in poorer countries. However, the impact on health during times of crisis is likely to be worse for girls than boys. For example, in rural South India, Behrman (1988) finds that parents favor older children over younger children and sons over daughters, resulting in better anthropometric outcomes for favored children. Using Demographic and Health Surveys for 59 developing countries in Africa, Asia, and Latin America, Baird, Friedman, and Schady (2007) estimate that a 1 percent decrease in per capita GDP is associated with an increase in mortality of between 0.24 and 0.40 infants per 1,000 children born, with female infant mortality more sensitive than male infant mortality to economic fluctuations.

The impact of food price crises on the food and nutrition security of vulnerable household members may differ from the impact of other price shocks, such as high electricity or transport prices. The poorest people dedicate the largest share of their budget to food, so when food prices rise, they have the least ability to decrease nonfood expenditures to compensate for the increased cost of food. Women often end up being the shock absorbers of household food security, reducing their own consumption to leave more food for other household members. In Bangladesh, a joint FAO/World Food Programme (WFP) mission in 2008, after the onset of the global food price increase, found that a majority of all sampled households (58 percent) reported that women consumed fewer meals than other household members, and that nearly two-thirds (63 percent) of sampled households reported that not everyone in the

⁴ This section draws heavily on Quisumbing, Meinzen-Dick, and Bassett (2008).

household consumed the same number of meals.⁵ Among households that reported unequal meal consumption, nearly all reported that it was women who consumed fewer meals (FAO/WFP 2008). Moreover, as food prices rise and staples account for more of the food expenditures, households frequently cut back on both quantity (caloric intake) and quality (dietary diversity) that provide the micronutrients that girls and women particularly need. Switching from rice and maize to cheaper starches like millet and cassava increases processing and cooking time. This in turn increases women's energy expenditure and time burdens, often at the expense of time for other productive activities, childcare, and needed rest. Pregnant and lactating mothers are among the groups considered most at risk of food insecurity and poor nutrition induced by crisis, with implications for their health and nutritional status, and the future health and productivity of their children.

The impacts of the food price crisis will also differ according to a household's production, consumption, and marketing patterns. In general, net purchasers of food are most vulnerable to food price increases. This is why the urban poor are more vulnerable, in general, than rural people, who can grow some of their food. This, combined with higher population density in cities, may account for why urban women have been active in protests against rising food prices. But rural people are not the same: those who are net buyers of food will suffer from input price increases, and net sellers of food may gain.

Evidence on the Impact of the Food Price Crisis

Despite the now abundant number of studies on the consequences of the food price crisis, there is very little *direct* evidence of gender-differentiated impacts. Studies on the consequences of the food price crisis have taken two basic approaches (Headey and Fan 2010). The first approach looks at macroeconomic effects, such as the strength of transmission from international to domestic prices (Dawe 2008), or the impact of rising food prices on import bills (IMF 2008). The second approach uses microeconomic data to simulate the impacts of rising food prices on a number of household-level outcomes, such as poverty (Ivanic and Martin 2008; Wodon et al. 2008; Dessus, Herrera, and de Hoyos 2008), and reduction in per capita expenditure (Zezza et al. 2008). All of these studies use data collected prior to the global increase in food prices to simulate the impact of higher food prices—that is, what the likely impacts on poverty or per capita expenditure would be, given price changes.⁶ Headey and Fan (2008) point out that the simulations only indicate who *would* be vulnerable to rising prices but not which populations *actually* experienced hardship as a result of the food price increase, because none of the experiments use actual food price increases nor use data gathered after the onset of the crisis (emphasis in the original).

Among these studies, only Zezza et al. (2008) examine what *types* of households are more likely to be vulnerable. This is the only study that differentiates impacts by gender of the household head, finding that, among urban households, who are primarily net buyers of food, female-headed households suffer a larger proportional drop in welfare as a result of an increase in food prices than male-headed households. The only significant exception in the 13 countries studied was Pakistan, where female-headed households represent a larger proportion among the wealthier income groups. Among rural households, female-headed households face considerably higher welfare losses in nearly all countries. Using ordinary least square (OLS) regressions on the percentage change in welfare (defined as per capita expenditure), they find that households with a larger share of females experience negative impacts in 6 out of 11

⁵ The Mission used a purposive sampling approach: a total of 37 of Bangladesh's 64 districts were visited, covering all major livelihood and agroecological zones. A total of 244 households were interviewed, with the large majority of respondents being women (that is, those most informed about food consumption and food utilization within the household) (FAO/WFP 2008).

⁶ Ivanic and Martin (2008) simulate the impact of the food price increases on poverty in 9 developing countries; Wodon et al. (2008) undertake simulations for 12 African countries; and Dessus, Herrera, and de Hoyos (2008) examine the urban sector of 73 developing countries. Zezza et al. (2008) estimate the reduction in per capita expenditure owing to higher food prices for 13 developing countries.

countries, and female-headed households are negatively affected in 8 out of 11 countries.⁷ The authors argue (Zezza et al. 2008, 15) that female-headed households are more vulnerable to food price increases because they tend to consume proportionally more food than male-headed households, and thus they are hit harder by the impact of high food prices on consumption, and because they face gender-specific obstacles (such as lower levels of land and credit and access to services) that limit their ability to produce food and thus to potentially benefit from an increase in food prices. Friedman and Schady's (2009) estimate of the differential impact of slower GDP growth as a result of the crisis on male and female infant mortality in Africa is also based on simulation approaches, not data collected after the onset of the crisis.

To our knowledge, only two previous studies use pre- and postcrisis household-level data. Because the price increases were sudden, and detailed household-level surveys are time-intensive to design and administer (Jensen and Miller 2008), there are very few large household surveys that were fielded at the time of the food price increases and even fewer with pre- and postcrisis rounds. Jensen and Miller (2008) use a panel of 1,300 urban poor households in two Chinese provinces to measure the nutritional effects of the crisis. Among the studies reviewed, this is the only study that estimated the intrahousehold impact of the crisis, finding that in Hunan, there was no decline in nutrient intakes for any age/sex group, while in Gansu, there was no evidence of any differential treatment for boys and girls. The authors even find that, in fact, the point estimates for girls are positive, while those for boys are negative (although one cannot reject equality of the two, and intake is 100–130 calories lower for girls, on average). This stands in contrast to the literature suggesting a preference for boys over girls in the intrahousehold allocation of resources, which is often found to become even more pronounced during an adverse economic event such as large food price increases (see, for example, Behrman 1988). In the short run, it appears that China was able to avoid the severe nutritional consequences of the increase in food prices because its consumption is dominated by grains and because the country itself is a large producer of grains. D'Souza and Jolliffe (2010), however, argue that the Jensen and Miller (2008) data, which cover the period from April to December 2006, do not fully reflect the extent of the price increase in staples. D'Souza and Jolliffe (2008), while not using a panel, have data that cover pre-crisis and crisis price levels from a cross-sectional, nationally representative survey of 20,000 households from all 34 provinces of Afghanistan that took place over a 13-month period, from August 2007 to September 2008. While the survey was able to capture consumption patterns prior to and after the onset of the 2007–08 price shock, there was no attempt to disaggregate the sample by gender of the household head, nor to examine the effect of age–sex composition of the household on the impacts of the food price crisis.

The above brief review indicates that there has been relatively little done on measuring the *actual* gendered impacts of the food price crisis using household-level datasets, and even fewer that use pre- and postcrisis data. Because of this gap, analysis of coping strategies and policy responses tend to be based on simulations, whose plausibility depends on the validity of the underlying assumptions. Also, because gender relations are context specific, the particular circumstances of the crisis are different from previous crises, and differ from country to country, it is difficult to extrapolate from past experience. This implies that the evidence base for crafting policy responses to the crisis is inadequate.

⁷ They also find that the most vulnerable households are those that are urban or rural nonfarm, larger, less educated, more dependent on female labor, less well served by infrastructure, within the rural sector, and households with limited access to land and to modern agricultural inputs (Zezza et al. 2008).

3. COUNTRY CONTEXT, DATA, AND SAMPLE DESCRIPTIVES

Context

Ethiopia is a poor, drought-prone economy where weather fluctuations have serious consequences for the food security of its people. As the third most populous country in Africa, the people of Ethiopia are characterized by substantial ethnic and religious diversity, with over 85 ethnic groups and most major world religions represented, as well as animist belief systems (Webb, von Braun, and Yohannes 1992). This diversity extends beyond the people and culture of Ethiopia to their environment, since the agroecological zones, and consequently, farming systems, vary dramatically around the country. There is also considerable diversity in gender norms related to property ownership, inheritance, and the division of assets after divorce, with men favored in the majority of cases (Fafchamps and Quisumbing 2005). Such gender disparities have important welfare consequences for Ethiopia. Dercon and Krishnan (2000) found that poor women in the southern part of Ethiopia, where customary laws on settlement at divorce are biased against women, fare worst when illness shocks occur. Fafchamps, Kebede, and Quisumbing (2009) find that the relative nutrition of spouses is associated with correlates of bargaining power, such as cognitive ability, independent sources of income, and devolution of assets upon divorce, and that several dimensions of female empowerment benefit the nutrition and education level of children. Analyzing the impact of covariate and idiosyncratic shocks on per capita consumption, Dercon, Hoddinott, and Woldehanna (2005) find that drought shocks have a more severe effect on female-headed households. Because of widespread poverty, chronic food insecurity, and gender disparities, it is reasonable to hypothesize that the food price crisis had different impacts on men and women in Ethiopia.

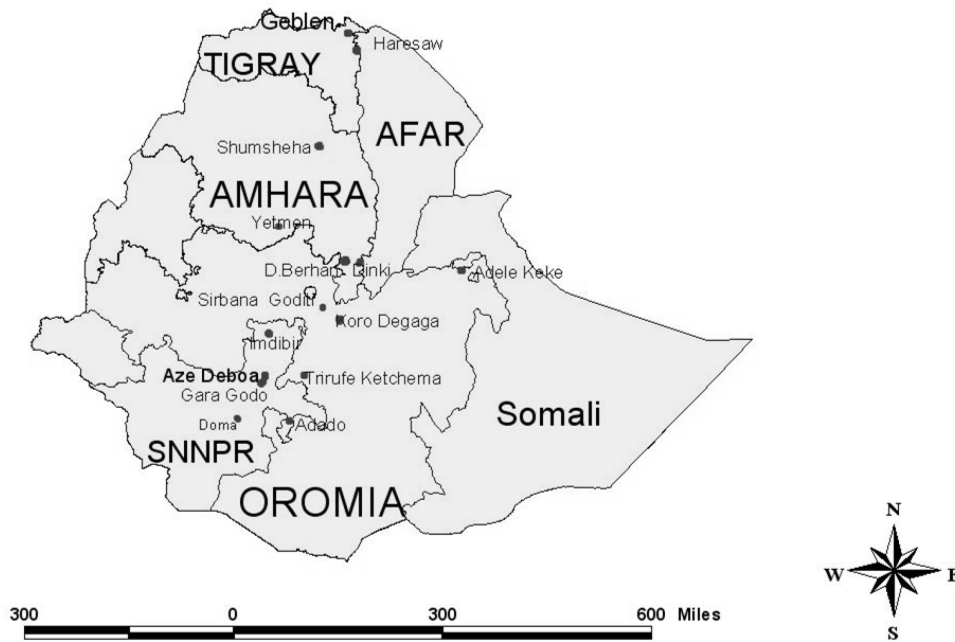
Data and Sample Descriptives

For our analysis, we use the Ethiopian Rural Household Survey (ERHS), a panel dataset with seven rounds of data collection. The data collection was coordinated by the Economics Department at Addis Ababa University, in collaboration with the Centre for the Study of African Economies at Oxford University and the International Food Policy Research Institute. For this paper, we use the data from the 1997, 2004, and 2009 rounds—the last round conducted after the 2007–08 food price increases. Both authors were involved in the design of the survey questionnaire, and the modules on food price crisis responses was opportunistically designed to capture gender-differentiated information, taking advantage of the postcrisis timing of the survey. Our sample consists of about 1,300 households in 15 villages across Ethiopia. Although the 15 villages included in the sample are not statistically representative of rural Ethiopia as a whole,⁸ they are quite diverse and include all major agroecological, ethnic, and religious groups. The location of the sample villages is shown in Figure 3.1. About a third (32 percent) of sample households is female-headed, although there is wide variation across the survey villages (Figure 3.2). The highest rates of (self-defined) female headship are found in the two Tigray sites (Haresaw and Geblen) and the lowest in Yetmen. The high proportion of female headship in Tigray may be a possible reflection of the high male mortality associated with the civil war that raged in and around Tigray from 1977 until 1991.

⁸ The ethnic and religious mix of the sample, for instance, does not match what we know of rural Ethiopia: Oromos are underrepresented; Protestants are overrepresented. The small number of Oromo sites is in part due to civil unrest at the time that the initial sample was drawn. Several villages from the Oromo region have been added to the 2000 survey round.

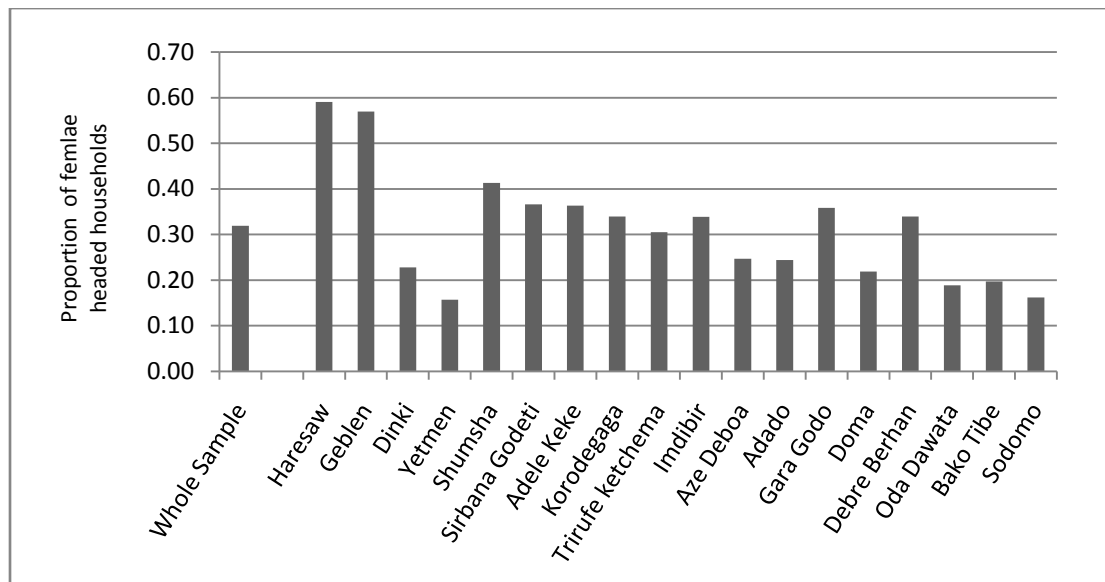
Figure 3.1—Map showing location of the Ethiopian Rural Household Survey villages

Ethiopian Rural Household Survey Villages



Source: Ethiopian Rural Household Survey 2009.

Figure 3.2—Proportion of female-headed households, 2009



Source: Ethiopian Rural Household Survey 2009.

The surveys collected information on household demographic characteristics, occupation, cropping patterns, perceptions of poverty and well-being, experience with shocks, access to credit, among others. We present, in Table 3.1, some of the summary statistics for our sample disaggregated by the

gender of the household head. Female-headed households differ significantly from their male counterparts across a number of dimensions. Female heads are, on average, older and less educated than male heads; female heads, on average, have less than a year of education whereas their male counterparts have at least two years of schooling. The gender disparity in schooling is not only limited to the education of the head but is also true for the household at large: the highest education level within a female-headed household is 4.76 years, which is about a year and half less than that in male-headed households. Female-headed households also tend to be smaller, with a larger share of female members. Because household size is proportional to the amount of labor resources the household controls in a rural area and because many farm operations (especially plowing) are intensive in male labor, female-headed households are at a disadvantage with respect to labor endowments.

Table 3.1—Descriptive statistics, by gender of household head, 2009

	Female- headed household	Male-headed household	p-value
Age of head	54.28	52.53	**
Education of head	0.33	2.22	***
Highest grade obtained in household	4.76	6.28	***
Fraction of female members in household	0.62	0.47	***
Fraction of dependent members in household	0.51	0.52	
Household size	4.39	6.38	***
Total land owned (hectare)	1.73	2.198301	***
Total livestock owned, tropical units (TLU)	8.82	9.394687	***
Fraction of households that own any oxen	0.37	0.6147388	***
Per capita consumption in 2004 (birr)	94	91	
Proportion of years in which consumption fell below average	0.39	0.4097105	
Fraction of households that are members of an <i>iddir</i> (burial society)	0.76	0.8930582	***
Network size	8.61	11.41048	***
Fraction of households that have a bank account	0.05	0.0628638	
Number of sources from which a household can borrow	1.32	1.574347	***

Source: Ethiopian Rural Household Survey 2009.

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Female-headed households also have less land and livestock than male-headed households. Male-headed households own 2.2 hectares of land, on average, compared to 1.7 hectares for female-headed households. Male-headed households also have 9.4 tropical livestock units (TLUs), which is significantly different from female-headed households' holdings of 8.8 TLUs.⁹ Male-headed households are more likely to have at least some oxen—60 percent compared to 37 percent of female-headed households.

In terms of real per capita consumption, however, there is no significant difference between male- and female-headed households (Table 3.1). Real per capita consumption of male-headed households in 2004 was 91 birr, and that of female-headed households, 94 birr, but these are not statistically significant.¹⁰ We construct a measure that indicates the proportion of years the consumption of the

⁹ The standard used for one Tropical Livestock Unit (TLU) is one cattle with a body weight of 250 kg. Different formulae for estimating TLUs may be utilized in different parts of the world, depending on common livestock varieties (for example, 1 TLU = 1.0 camel, 0.7 cattle, 0.1 sheep/goat) (see <http://www.fao.org/ag/againfo/programmes/en/lead/toolbox/Mixed1/TLU.htm>). In this study, TLU equal 1.0 for cattle, horse, and mules; 0.15 for sheep and goats; 0.005 for poultry; 0.65 for donkeys; and 1.45 for camels (Ramakrishna and Demeke 2002).

¹⁰ Consumption aggregates for the 2009 round are still being computed, so we report the most recent available consumption data (2004).

household fell below average. Table 3.1 shows that female- and male-headed households alike experience shortfalls in consumption about 40 percent of the time. Upon closer analysis, the slight advantage of female-headed households in consumption may have come at the cost of slower asset accumulation. Figure 3.3 presents data on asset holdings, real per capita consumption, and poverty status from the previous six rounds of the ERHS, disaggregated by the gender of the household head. Figure 3.3 shows that, although the female-headed households' real per capita consumption was about the same and even surpassed that of the male-headed households in the last two rounds, their asset levels were always below their male counterparts. This suggests that maintaining consumption levels may have come at the cost of asset accumulation; if female-headed households disposed of assets in order to guarantee consumption, they may be at risk of falling into an asset poverty trap, which may make it more difficult to move out of poverty in the long run.

Next we move on to measures of social capital, namely network size and membership in an *iddir* (burial society or funeral association). In the survey, we asked the respondents to count the number of people that they can rely on in times of need. This is what we call network size. Table 3.1 shows that male-headed households, on average, have larger networks, and that male-headed households are more likely to be members of an *iddir*. In terms of access to financial institutions and credit, the proportion of households holding a bank account is quite small (about 5 percent) and is not substantially different for the two groups. However, male-headed households have access to a greater number of sources from which they can borrow.

Food Prices and Consumption Habits

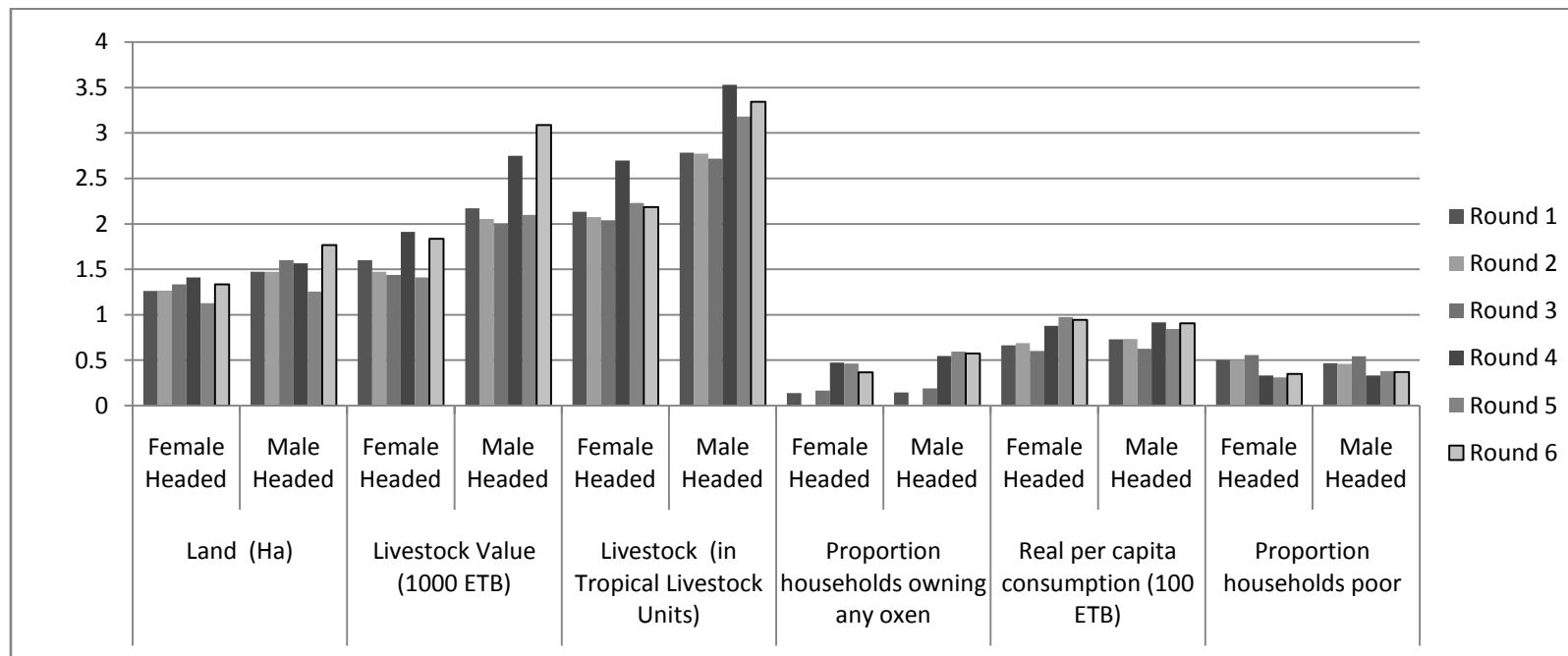
We now present data on food price increases and changes in consumption habits as a result of the food price shock in 2007–08. Figure 3.4 shows the prices of three main staples (teff, wheat, and maize) and the food price index (based on a basket of goods using the ERHS data) for the seven rounds for which we have data. We observe a steep rise in prices in the last round (2009), reflecting the uptrend in prices after the global food price crisis in 2007–08.

In the 2009 survey, we asked households if they suffered a significant reduction in asset holdings, household income, or consumption due to high food prices. This is our definition of the *food price shock* variable, which is self-reported. We use these data first to identify which households are more vulnerable to such shocks and then to analyze how such a shock affects household outcomes.¹¹

Figure 3.5 shows the proportion of households that were affected by the food price shock in 2008 or 2009, stratified by the gender of the head, for each village in our sample. We find that, on average, female-headed households are more likely to be affected by the rising food prices than male-headed households, although there is some regional variation. In Tigray (Haresaw and Geblen sites), the occurrence of this shock is similar across all households, whereas in Oromiya (Sirbana Godeti, Trirufe Ketchema, Koro Degaga, and Adele Keke sites), female-headed households are much more likely to be affected by the food price shock. This may reflect the relatively higher power or control over resources that women in Tigray have relative to women in the southern regions.

¹¹ As indicated from the previous paragraph, we also have price data from each village. But our self-reported food price shock variable is an indicator of whether households perceived that the increase in food prices had a detrimental impact on their assets, consumption, or income. In subsequent regressions, we use the price data as instruments for predicting the household-level food price shock.

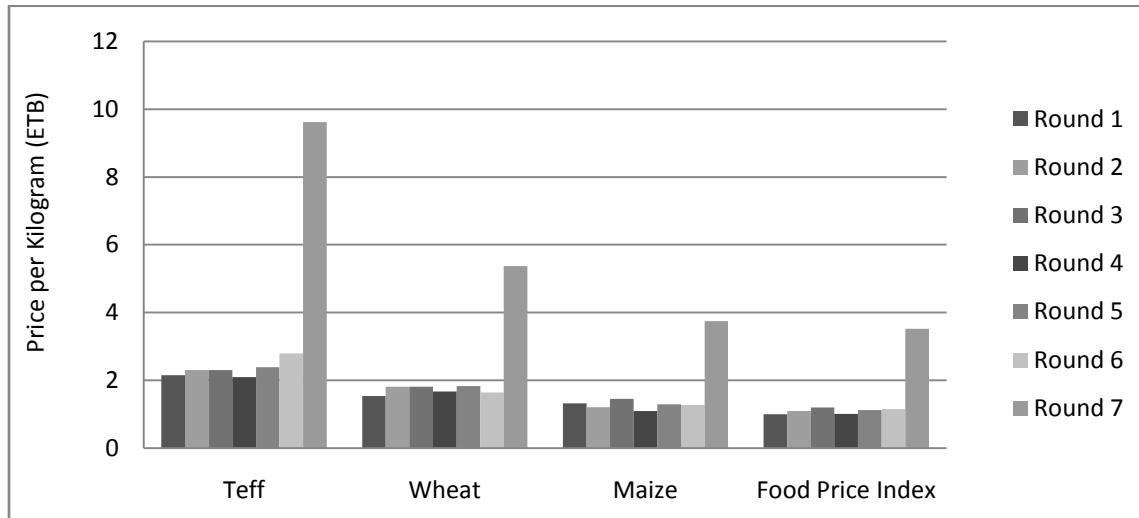
Figure 3.3—Assets and consumption over time, first six survey rounds



Source: Ethiopian Rural Household Survey 2009.

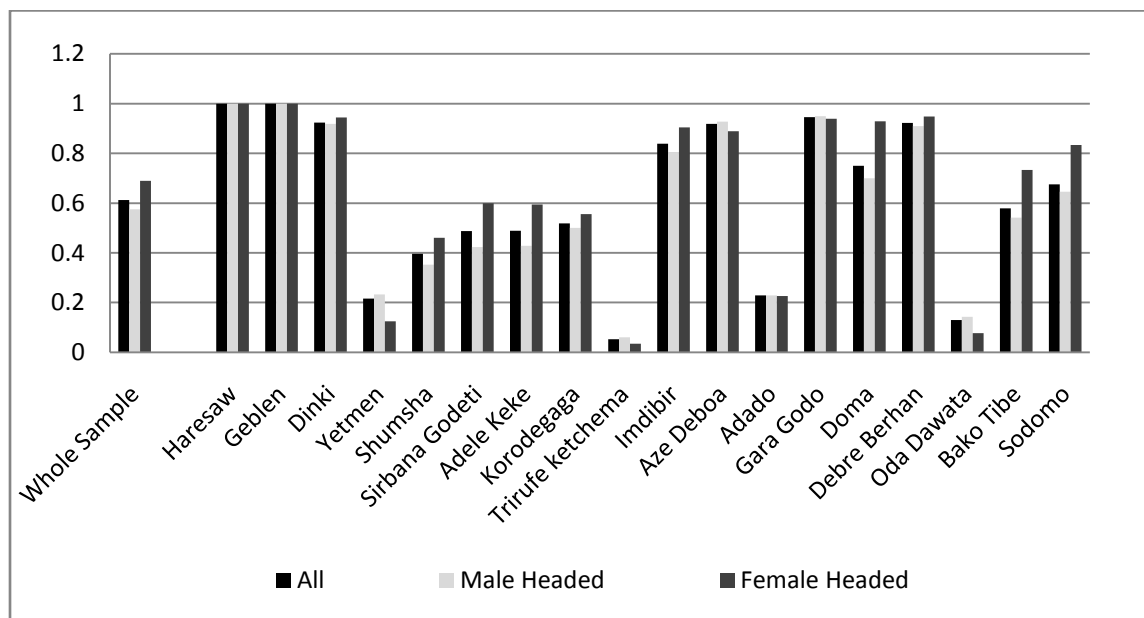
Notes: The vertical axis measures each of the variables in the units mentioned. For example, average land and livestock held by female-headed households in Round 1 was 1.25 hectares and 1,550 birr, respectively.

Figure 3.4—Staple crop prices, seven survey rounds



Source: Ethiopian Rural Household Survey 2009.

Figure 3.5—Proportion of households affected by the food price shock in 2008 or 2009, by village



Source: Ethiopian Rural Household Survey 2009.

Female-headed households are also more likely to report having difficulty meeting their consumption needs (Table 3.2). On average, female-headed households faced problems in satisfying their households' food needs for about four months in the past year, which is significantly higher than the corresponding figure for male-headed households (2.6 months). More than two-thirds (67 percent) of female-headed households reported having suffered food shortages in the last rainy season, compared to 58 percent of male-headed households. During times of food shortage, however, the reduction of quantities served to men, women, boys, and girls within the household does not differ significantly between male- and female-headed households. While male-headed households are likely to reduce quantities served to adult males, this may be a reflection of the larger number belonging to this

demographic group in such households, as well as the possibility that, in normal times, adult males eat better than other household members, and can therefore afford to give up some surplus. On average, adults eat fewer meals than children irrespective of the gender of the head and whether or not the household is facing a food shortage. This does not mean that children are favored relative to adults, but rather that children typically eat smaller, but more frequent, meals. However, male-headed households are able to serve a greater number of meals to their children in both good and bad times. In good times, children in male-headed households eat 3.61 meals (compared to 3.49 meals in female-headed households), while in the worst of times, children in male-headed households eat 2.63 times, compared to those in female-headed households, who eat 2.53 times a day. These differences are statistically significant.

Table 3.2—Indicators of food security and use of coping mechanisms, by gender of household head, 2009

Consumption habits	Female-headed household	Male-headed household	p-value
How many months in the last 12 (13 Ethiopian) months did you have problems satisfying your food needs?	3.81	2.63	***
During the last rainy season, did your household suffer any shortage of food?	0.67	0.58	***
Compared to your usual diet, did you eat foods that you ordinarily would not eat?	0.69	0.65	
Compared to your usual diet, did you cut back quantities served per meal to adult males?	0.85	0.90	**
Compared to your usual diet, did you cut back quantities served per meal to adult females?	0.89	0.90	
Compared to your usual diet, did you cut back quantities served per meal to boys?	0.77	0.79	
Compared to your usual diet, did you cut back quantities served per meal to girls?	0.79	0.79	
During the worst month, how many times a day did adults in your household eat?	2.04	2.09	
During the worst month, how many times a day did children in your household eat?	2.53	2.63	**
During a good month, how many times a day did adults in your household eat?	3.00	3.03	
During a good month, how many times a day did children in your household eat?	3.49	3.61	***

Source: Ethiopian Rural Household Survey 2009.

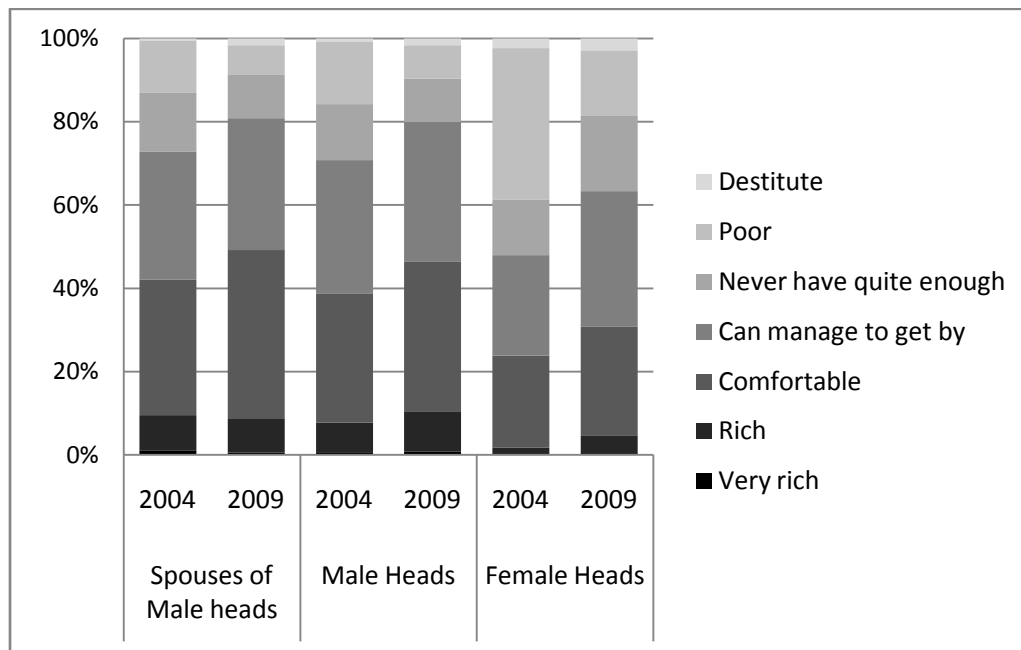
Notes: *** p < 0.01, ** p < 0.05, * p < 0.1.

Perceptions of Poverty

Comparing male- and female-headed households is not a completely satisfactory comparison of the welfare of men and women, because it masks the situation of males in female-headed households, or women in male-headed households. Recent work on productivity differences in Nigeria and Uganda (Peterman et al. 2010) finds that using gender of the household head as the gender disaggregator masks gender inequalities if one looks at finer levels of gender disaggregation, for example, at the plot level. Thus, it is important to look at the situation of individual men and women within households. Fortunately, the ERHS contains questions on perceptions of poverty that were administered to the head and the spouse separately. Figure 3.6 shows the response to the question, “Just thinking about your household

circumstances, would you describe your household as...” We present these responses for spouses of male heads, male heads, and female heads in 2004 and 2009. For each year, the male head and his spouse have similar responses, on average. Male-headed households (as reported by the head and his spouse) seem to be doing much better in 2009 than in 2004. This general trend of improvement in household circumstances is true for the female-headed households as well, who report a larger improvement. The bigger jump for the female-headed households could be due to their starting from a much lower base in 2004 than their male counterparts.

Figure 3.6—Household circumstances, 2004 and 2009



Source: Ethiopian Rural Household Survey 2009.

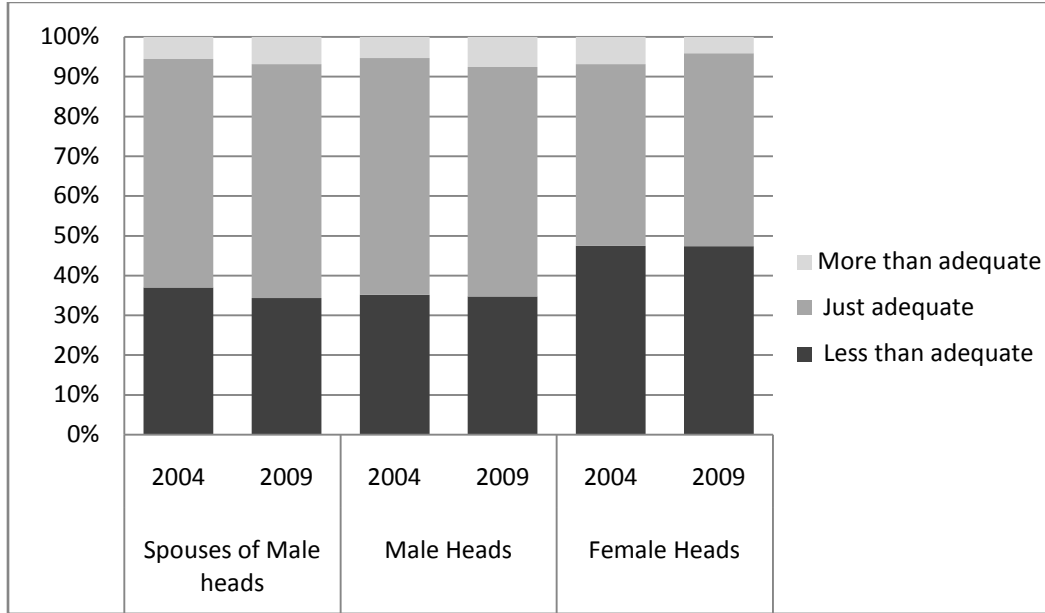
When asked about the household’s food consumption in the last month, spouses of male heads and male heads respond similarly: a large fraction said that the household’s food consumption was just adequate (Figure 3.7). The female heads report having “less than adequate” food as often as “just adequate,” and they are more likely than male heads to report “less than adequate.” This indicates that female-headed households experience greater difficulty in fulfilling their food consumption needs, compared to male-headed households, on average.

Figures 3.8 and 3.9 show the responses for the questions, “How do you compare the overall economic situation of the *household* with one year ago?” and “How do you compare the overall economic situation of the *community* with one year ago?,” respectively. For each year, the male head and his spouse have similar perceptions. Male heads (and their spouses) are more likely to perceive their households as doing better than the previous year (for both survey rounds) than female heads report. This is mirrored for the community as well, as seen in Figure 3.5.

Figure 3.10 shows responses to “Suppose that the top of a ladder represents the best possible life for you and the bottom represents the worst possible life for you. Where on the ladder do you feel you personally stand at the present time?” This shows that male heads and their spouses, on average, perceive themselves on the same step of the ladder of life in the corresponding rounds and that over time they have moved to a higher step. The female-headed households have also moved to a higher step, on average, from 2004 to 2009. In 2004, 35 percent of female heads said that they were on step 5 or higher, and this percentage jumped to 45 in 2009. One striking difference between male-headed households and female-

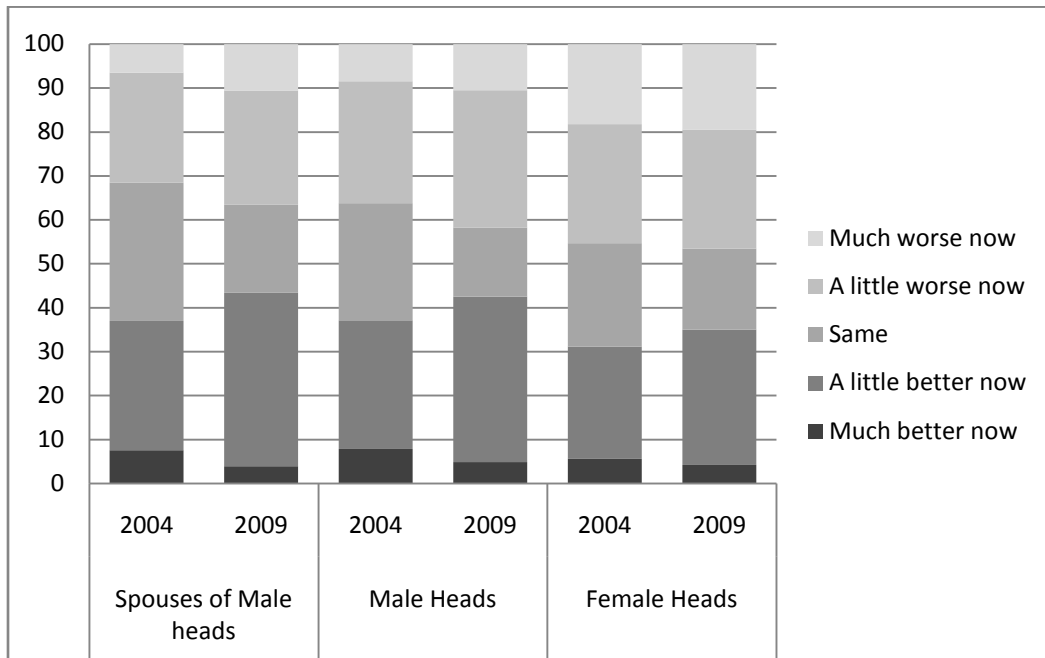
headed households is that female heads never say that their life is the best possible (or that they are on step 10). The other difference is that male-headed households are on a higher step than female-headed households, on average.

Figure 3.7—Adequacy of food consumption in the last month, 2004 and 2009



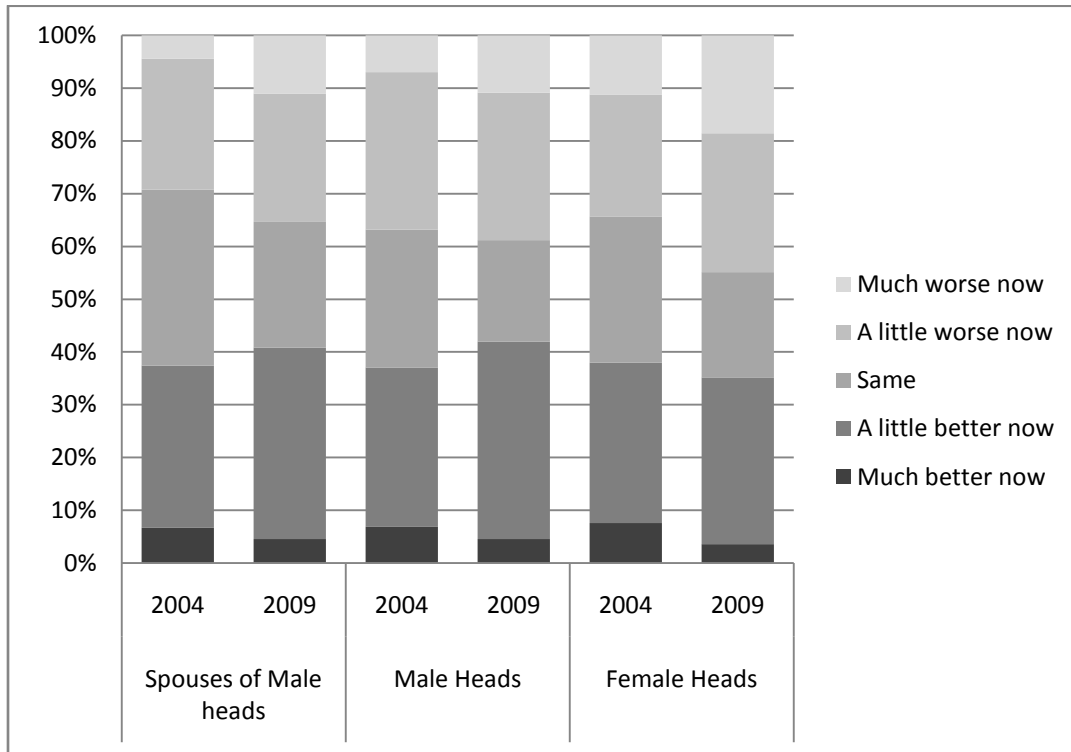
Source: Ethiopian Rural Household Survey 2009.

Figure 3.8—Overall economic situation in household, 2004 and 2009



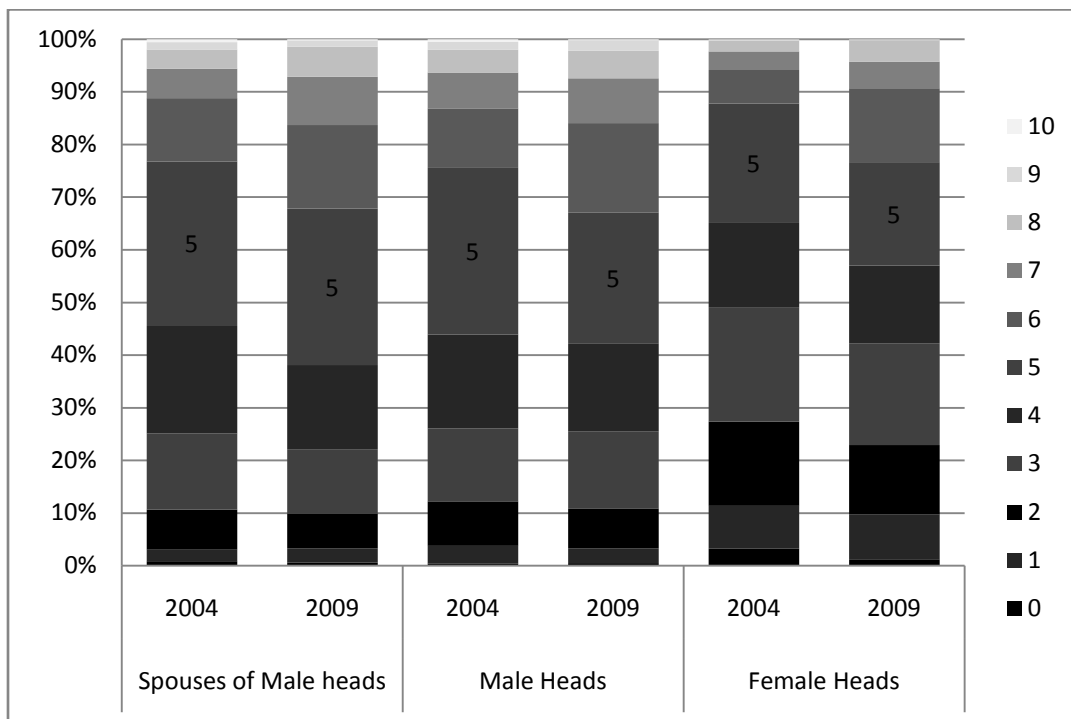
Source: Ethiopian Rural Household Survey 2009.

Figure 3.9—Overall economic situation in community, 2004 and 2009



Source: Ethiopian Rural Household Survey 2009.

Figure 3.10—Perceived standing on the ladder of life, 2004 and 2009



Source: Ethiopian Rural Household Survey 2009.

4. HOUSEHOLD CHARACTERISTICS CORRELATED WITH EXPERIENCING A FOOD PRICE SHOCK

Understanding the characteristics of households that are correlated with experiencing a food price shock is important in order to identify the most vulnerable groups. Any household that is a net buyer of food is likely to be affected by a sharp rise in food prices. From our survey we can identify households that usually buy food from the market and are thus *net buyers* of food.¹² Other characteristics that may affect the vulnerability of the household are demographic characteristics, asset holdings, networks, *iddir* membership, access to credit, and relative wealth in the village. We estimate a linear probability model with “having experienced a food price shock in the last two years” as the dependent variable and the above-mentioned household characteristics, measured as of the previous survey round in 2004, as independent variables. With the exception of household demographic characteristics, which refer to the current round, we use lagged household characteristics because current household characteristics (for example, asset holdings) could be correlated with the experience of a food price shock if households disposed of assets to finance consumption. We run this regression with and without village fixed effects. The results are shown in Table 4.1.¹³ Columns 1–3 show results without village fixed effects. We find that being a female-headed household, a net buyer of food, and having higher livestock holdings increases the probability that the household is affected by the food price shock. While one might think that livestock, being a form of wealth in rural Ethiopia, might be protective against the experience of a shock, livestock are susceptible to drought because they need water and access to grazing land, which may be compromised in a drought. Having more land and a higher proportion of land that is of good quality reduces the probability that the household will face such a shock. Membership in an *iddir* makes the household 23.2 percentage points less likely to be affected by the shock; the length of time the household has had the membership and previous receipt of a loan from the *iddir* are also associated with lower probabilities of experiencing the shock. Previous studies on *iddir* have shown that members of *iddir* are better insured against illness shocks (Dercon, Hoddinott, and Woldehanna 2011). While their capacity to insure against covariate shocks may appear limited, our results suggest that membership and duration of membership are also protective. Note again that all of these *iddir* membership variables are evaluated in 2004 and thus are not endogenous to the recent experience of the shock.

When we include village fixed effects, some of these coefficients become insignificant, indicating that some of the results arise from variation across villages. What remains robust to the inclusion of these fixed effects are gender of the household head, land owned, and its quality. That is, even when we control for (unobserved) village characteristics, female-headed households are more likely to experience a food price shock, while larger areas of land owned and a higher proportion of high-quality land help protect households against food price shocks. The sign of the coefficient on *iddir* membership changes, which indicates that households belonging to burial societies are more susceptible to such shocks. There are several alternative explanations for this. One possibility is that villages that had the highest *iddir* membership rates were also the ones that were the hardest hit by price hikes. Alternatively, it is possible that households that are more vulnerable would have tended to become members of an *iddir*, and using past values of *iddir* membership did not correct for this possible bias. The protective effect of landownership and the higher probabilities of female-headed households’ experiencing a food price shock suggest that if increasing control of land (particularly land of higher quality) can help protect the rural

¹² It is possible that being a net buyer of food may be affected by the experience of the food price shock. However, this question was asked about a typical year, not exceptional years, and is phrased in the following way: “Are there any months in a *typical year* when the household runs out of home-grown food and therefore has to buy food, ask for gifts, or has less to eat than otherwise? [Note that we are interested in seasonal problems, not exceptional years. The issue is to know when stocks typically get depleted.]” Regression results with or without the *net buyer* variable are not qualitatively different.

¹³ We also ran these regressions for female- and male-headed households separately. However, the results did not show significant differences between male- and female-headed households. Therefore, we do not report these here, but can provide them upon request.

poor from food price shocks and women are more vulnerable to these types of shocks, one possible policy intervention is to strengthen women's land tenure security. In the next section, we examine the gendered impact of the food price shock on consumption habits and poverty perceptions.

Table 4.1—Regression results for having experienced a food price shock in the last two years

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Female head	0.148*** (0.036)	0.147*** (0.047)	0.118*** (0.037)	0.061** (0.029)	0.089** (0.038)	0.052* (0.029)
Household size	-0.010 (0.008)	-0.004 (0.009)	-0.008 (0.007)	-0.003 (0.006)	0.001 (0.007)	-0.003 (0.006)
Net buyer of food	0.202*** (0.033)	0.162*** (0.036)	0.188*** (0.034)	0.012 (0.031)	0.013 (0.034)	0.014 (0.032)
Dummy for land quartile 1, 2004 survey	0.023 (0.039)	0.060 (0.047)	0.031 (0.039)	0.055* (0.030)	0.074** (0.038)	0.058* (0.031)
Dummy for land quartile 2, 2004 survey	0.034 (0.040)	0.053 (0.047)	0.040 (0.040)	0.024 (0.033)	0.034 (0.041)	0.030 (0.034)
Dummy for land quartile 3, 2004 survey	0.022 (0.038)	0.031 (0.045)	0.023 (0.038)	0.050 (0.030)	0.040 (0.037)	0.053* (0.031)
Total plot area, ha	-0.011*** (0.004)	-0.008*** (0.003)	-0.010*** (0.003)	-0.009*** (0.002)	-0.008*** (0.001)	-0.009*** (0.002)
Fraction of cropped land that is good or medium quality	-0.274*** (0.037)	-0.202*** (0.064)	-0.195*** (0.040)	-0.088** (0.035)	-0.140** (0.056)	-0.089** (0.036)
Total livestock holdings, 2004 survey (tropical units)	0.025*** (0.004)	0.026*** (0.005)	0.028*** (0.004)	0.003 (0.004)	0.004 (0.004)	0.003 (0.004)
Whether any household member is currently a member of at least one <i>iddir</i> , 2004 survey		0.214 (0.205)	-0.232*** (0.032)		0.011 (0.145)	0.063 (0.039)
No. of years since joined <i>iddir</i> , 2004 survey		-0.006*** (0.001)			-0.003*** (0.001)	
Received a loan from the <i>iddir</i> , 2004 survey		-0.025 (0.041)			-0.058* (0.035)	
Took out a loan of at least 20 birr, 2004 survey		0.068** (0.033)			0.023 (0.029)	
Household has a bank account, 2004 survey		-0.161 (0.104)	-0.101 (0.062)		-0.137 (0.090)	-0.094* (0.050)
Village fixed effects	No	No	No	Yes	Yes	Yes
Observations	1,180	881	1,142	1,180	881	1,142
R-squared	0.126	0.135	0.161	0.455	0.419	0.466

Source: Authors' computations.

Notes: *iddir* is a burial society. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

5. THE GENDERED IMPACTS OF A FOOD PRICE SHOCK ON CHANGES IN CONSUMPTION HABITS AND POVERTY PERCEPTIONS

In this section we estimate the impact of experiencing a food price shock on a number of outcomes. The preceding analysis has shown that experiencing a food price shock is correlated with household characteristics and may be determined by some of the outcome variables considered. That is, even if food price increases are exogenous to households, whether or not they affect a particular household depends on the characteristics of that household. Thus, in the remainder of the paper, we use instrumental variables regression to estimate the impact of the food price shock on the food gap, coping strategies, and poverty perceptions. Our two endogenous regressors are whether the household reported experiencing a food price shock and its interaction with the variable for a female-headed household, and the instruments are the price of teff and coffee in 2004, the percentage change in teff and coffee prices between 2004 and 2009, and the interaction of the percentage change in price variables with the female-headed household and spouse dummy.¹⁴

Tables 5.1, 5.2, and 5.3 show the impacts of experiencing the food price shock on the *change* in the number of meals served in good and bad months (Table 5.1), *changes* in consumption habits and quantities served to household members (Table 5.2), and *changes* in poverty perceptions (Table 5.3). To focus on the impact of the predicted food price shock by gender of the household head, only selected coefficients are reported here, but all regressions include demographic characteristics, asset holdings, networks, *iddir* membership, access to credit, and relative wealth in the village, plus village fixed effects. With the exception of demographic characteristics, which refer to 2009, all other variables are as of 2004. By focusing on *changes* in the outcome variables, rather than the levels of the outcome variables, we are able to isolate the impact of the food price shock, mediated by the gender of the household head, on outcomes related to food security and well-being.

Table 5.1 shows the impact estimates for the increase in the number of food insecure months or the food gap, and the change in the number of meals served to adults and children in bad and good months. These regressions control for household characteristics and village fixed effects. Female-headed households that experience a food price shock increase their food gap—the number of months that they are unable to meet their food needs—by 2.28 months more, on average, than male-headed households (Column 1). The number of meals eaten in bad months, whether by adults (Column 2) or children (Column 3), is not affected by the food price shock, nor by female-headed households' experience of the food price shock. However, female-headed households report a reduction in the number of meals eaten by adults during good months (Column 4), and also a reduction in the number of meals eaten by children during good months (Column 5). However, we find that being a female-headed household that experienced a shock was positively associated with an increase in the number of meals served to adults in good months. While this result is unexpected, it could arise because female-headed households may *play catch up* during good months to compensate for shortfalls during lean months. The negative effect on the number of meals served to adults in good months is compensated for by a positive effect among female-headed households that experience a food price shock.

While the results that the number of meals eaten by adults and children during bad months may not have been affected by the food price shock, preserving the number of meals may have come at the cost of dietary quality and quantity of food eaten at each meal. To assess whether households are substituting toward less preferred foods, we use a question from the 2009 household survey that asked households whether they consumed less preferred foods in the last rainy season before the survey. Table 5.2 shows that households that experience a food price shock are more likely to eat less preferred foods in 2009, compared to 2004 (Column 1) and to cut back on quantities served to adult males (Column 2) and females (Column 3). Female-headed households that experience the food price shock are more likely to

¹⁴ We use teff prices because teff is an important food staple in Ethiopia, and coffee prices because coffee is a major exportable commodity.

eat less preferred foods in the last rainy season as a result of a food shortage, although this effect is not significant. Female-headed households are also less likely to cut back on quantities served to adult members of the household (Columns 2 and 3) or to children in general (Columns 5 and 6), but if these households experience a food price shock, they are more likely to cut back on quantities served to their members.

Table 5.1—Impact of a food price shock on change in food gap and number of meals served in bad and good months

Variable	(1)	(2)	(3)	(4)	(5)
	Food gap (in months)	Number of meals in bad months, adults	Number of meals in bad months, children	Number of meals in good months, adults	Number of meals in good months, children
Food price shock (instrumented)	0.577 (1.848)	0.234 (0.224)	-0.199 (0.246)	0.280** (0.096)	-0.096 (0.224)
Food price shock *Female head (instrumented)	2.280* (1.276)	0.556 (0.398)	0.532 (0.614)	0.667* (0.342)	1.243 (0.747)
Female head	-1.395 (1.056)	-0.501 (0.319)	-0.562 (0.537)	-0.700** (0.281)	-1.188* (0.605)
Observations	811	495	441	498	441
R-squared	0.143	0.071	0.096	0.032	0.035

Source: Authors' computations.

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust standard errors in parentheses. Regressions include demographic characteristics as of 2009, asset holdings, networks, *iddir* membership, access to credit and relative wealth in the village as of 2004, and village fixed effects. Instruments consist of the prices of teff and coffee in 2004, the percentage change in teff and coffee prices between 2004 and 2009, and the interaction of the percentage change in price variables with the female-headed household and spouse dummy.

Table 5.2—Impact of a food price shock on consumption habits and quantities served, by gender

Variable	(1)	(2)	(3)	(4)	(5)
	Ate less preferred foods	Cut back quantities served, adult males	Cut back quantities served, adult females	Cut back quantities served, boys	Cut back quantities served, girls
Food price shock (instrumented)	0.419** (0.141)	0.141*** (0.040)	0.133*** (0.038)	0.107 (0.082)	0.106 (0.088)
Food price shock *Female head (instrumented)	0.186 (0.107)	0.282** (0.110)	0.169** (0.060)	0.496*** (0.102)	0.407*** (0.096)
Female head	-0.104 (0.075)	-0.233** (0.096)	-0.116* (0.057)	-0.352*** (0.099)	-0.273* (0.130)
Observations	811	495	441	498	441
R-squared	0.143	0.071	0.096	0.032	0.035

Source: Authors' computations.

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust standard errors in parentheses. Regressions include demographic characteristics as of 2009, asset holdings, networks, *iddir* membership, access to credit and relative wealth in the village as of 2004, and village fixed effects. Instruments consist of the prices of teff and coffee in 2004, the percentage change in teff and coffee prices between 2004 and 2009, and the interaction of the percentage change in price variables with the female-headed household and spouse dummy.

Finally we examine impacts of the food price crisis on changes in poverty perceptions among female heads, male heads, and their spouses. Households that experience a food price shock are less likely to report a higher level of well-being as shown by the coefficient on the predicted food price shock variable in Columns 1–4 of Table 5.3 (significant at 10 percent or better, except for Column 2). However, we do not observe any significant difference between male and female heads regarding the change in perception of household circumstances (Column 1). The second outcome considered is the change in perception regarding food consumption in the last month in the 2004 and 2009 surveys (Column 2), where we find a negative but insignificant effect of experiencing a food price shock. However, female-headed households that experience a food price shock are less likely to report an improvement in their households' food consumption in the past month. In terms of the perception of the economic situation of the household (Column 3), only the food price shock has a significant negative effect. Female-headed households are less likely to report improvements in perceptions regarding economic situation of their household (Column 3), but this effect is not statistically significant. Households that experience a food price shock and wives within male-headed households are more likely to report deterioration in the overall economic situation in the community (Column 4). Finally, none of the food price shock, head, or spouse dummies, nor their interactions, significantly affect changes in the step of the ladder of life.

Table 5.3—Impact of a food price shock on change in poverty perceptions from 2004 to 2009 among heads and spouses

Variable	(1)	(2)	(3)	(4)	(5)
	Household circumstances	Food consumption in last month	Overall economic situation of household	Overall economic situation of community	Ladder of Life
Food price shock (instrumented)	-0.574* (0.302)	-0.319 (0.228)	-1.248** (0.566)	-1.902*** (0.648)	0.580 (0.808)
Food price shock *Female head (instrumented)	0.229 (0.474)	-0.447* (0.243)	-0.594 (1.073)	0.635 (0.769)	-0.668 (0.803)
Food price shock *Spouse of male head (instrumented)	-0.104 (0.306)	-0.051 (0.189)	0.486 (0.548)	0.480 (0.465)	0.297 (0.754)
Female head	0.261 (0.363)	0.344 (0.241)	0.398 (0.826)	-0.486 (0.561)	0.784 (0.591)
Spouse of male head	0.138 (0.098)	-0.005 (0.085)	-0.299 (0.296)	-0.526* (0.299)	0.071 (0.268)
Observations	1,091	1,091	1,092	1,035	1,094
R-squared	0.028	0.033	0.003	-0.026	-0.003

Source: Authors' computations.

Notes: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Regressions include demographic characteristics as of 2009, asset holdings, networks, *iddir* membership, access to credit and relative wealth in the village as of 2004, and village fixed effects. Instruments consist of the prices of teff and coffee in 2004, the percentage change in teff and coffee prices between 2004 and 2009, and the interaction of the percentage change in price variables with the female-headed household and spouse dummy.

6. SUMMARY AND POLICY IMPLICATIONS

The preceding analysis shows that female-headed households have fewer resources, have fewer years of schooling, and have smaller networks. These households have a larger food gap (defined as the number of months they cannot fulfill their food needs), are more likely to have food shortages, and can provide fewer meals to children when compared with male-headed households. We also find that female-headed households are 5–15 percentage points more likely to experience loss of income, consumption, or assets as a result of a food price shock. Findings suggest that land—particularly better quality land—has a protective effect against food price shocks. Female-headed households that experience a food price shock also experience a widening of the food gap; they reduce the number of meals consumed in good months and are more likely to consume less preferred foods. In terms of poverty perceptions, households that experience a food price shock are less likely to report a higher level of well-being, although there is no significant difference between male- and female-headed households.

These findings are consistent with previous evidence that identifies female-headed households as vulnerable during an economic crisis. Whether a household is female-headed is already one of the criteria used by the Government of Ethiopia and the World Food Programme for targeting emergency assistance. In an analysis of targeting of Ethiopia's Food Security Program, Gilligan et al. (2009) find that female-headed households were more likely to be targeted under the Direct Support program, as opposed to the Public Works program. In the former, grants (which do not require participation in a workfare program) were given to households, whereas in the latter, cash or food was given as wages in public works programs. Because female-headed households are, on average, smaller in size with fewer members of working age, they are less likely to participate in public works programs, which have a required number of days of work to be completed. Their demographic characteristics make them a better target for the Direct Support Program. The finding that land reduces the possibility of experiencing a food price shock reinforces the case for interventions that strengthen women's land rights. Ethiopia has recently implemented a low-cost community land registration program, which includes some specific gender-related provisions (requiring ownership registration in the names of both husband and wife as well as photographs of both to be placed on the land registration certification in Amhara and the Southern Nations and Nationalities People's Republic). An additional bonus of the land registration, which strengthens land tenure security, particularly of women, might be improvements in soil quality—which also protects households against a food price crisis. Deininger et al. (2008) found that land registration increased the likelihood that households would undertake long-term investments in land (terracing and bunding) over the previous 12 months. There were no significant differences between male- and female-headed households in the probability of undertaking such conservation measures, controlling for other factors. In related work, Kumar and Quisumbing (2010) find that the presence of female members on the local land administration committee encourages participation by female-headed households in the land registration process and certainly does not discourage participation by male-headed households.

It would be wishful thinking to hope that the food price crisis in 2007–08 is a thing of the past. Three years later, the prices of basic food items are again rising rapidly, fueling new concerns about the food security of poor people (Fan, Torero, and Headey 2011). Despite strong advocacy for creating social safety nets to protect the most vulnerable—such as women and young children, who tend to be most affected by sharp food price increases—many countries failed to put them in place during the 2007–08 food crisis and its aftermath (Headey and Fan 2010). For example, cash transfer programs can be used to protect the diet diversity and micronutrient nutrition of poor households during food price crises (Skoufias, Tiwari, and Zaman 2010). At the same time, policies and investments can be used to promote agricultural growth, in particular smallholder productivity, in the face of climate change (Headey and Fan 2010). Strengthening women's land rights in rural Ethiopia, because of the importance of land in the rural economy and the positive impact of tenure security on soil conservation practices, may be a key component of gender-equitable strategies to promote smallholder agriculture in Sub-Saharan Africa and protect against the impacts of future food price crises.

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