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# Food and nutrition security in Addis Ababa, Ethiopia during COVID-19 pandemic

May 2020 report

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## ABSTRACT

We called by telephone a representative sample of 600 households in Addis Ababa, Ethiopia to assess household food and nutrition security status during the COVID-19 pandemic. More than half the households indicated that their incomes were lower than expected and more than one-third reported that they are extremely stressed about the situation. Using a pre-pandemic wealth index, we find that less-wealthy households were considerably more likely to report income losses and high stress levels than were wealthier households. Compared to a period just before the pandemic (January and February 2020), indicators measuring food security have significantly worsened. In April, households were less frequently consuming relatively more expensive but nutritionally richer foods, such as fruit and dairy products. However, overall food security status in Addis Ababa is not yet alarming, possibly because most households have used their savings to buffer food consumption. It is likely that these savings will not last for much longer, calling for a rapid scale-up of existing support programs.

**JEL-codes:** O12; O15; I12; I18.

**Keywords:** COVID-19; Ethiopia; Africa; Food security; Nutrition

# 1. INTRODUCTION

In December 2019, the world was alerted to a sudden pneumonia outbreak in the city of Wuhan in China (Lu, Stratton, & Tang 2020). This outbreak was later attributed to a severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) that causes the Coronavirus disease 2019, or COVID-19. COVID-19 is a highly infectious disease that can lead to a severe, and sometimes fatal, respiratory disease (Chen et al. 2020). The COVID-19 outbreak in Wuhan caused more than 3,800 deaths (BBC 2020). Between January and March, the virus spread internationally, which led the World Health Organization (WHO) to declare the COVID-19 outbreak as a pandemic on March 11 (WHO 2020b). On May 4, there were more than three million confirmed cases and nearly 240,000 people had lost their lives to the disease (WHO 2020a).

The first COVID-19 case was confirmed in Ethiopia on March 13. The Ministry of Health immediately began contact tracing and isolating those who tested positive for the virus. Three days later, the government closed schools, banned all public gatherings and sporting activities, and recommended social distancing. Other measures to prevent the spread of the virus soon followed. Travelers from abroad were put into a 14-day mandatory quarantine, bars were closed until further notice, and travel through land borders was prohibited. Several regional governments imposed restrictions on public transportation and other vehicle movement between cities and rural areas.

The purpose of these social distancing measures is to "flatten the curve"; in other words, to make sure that the health care systems does not become overwhelmed with COVID-19 patients. So far, Ethiopia has managed to keep the COVID-19 infection rates relatively low, suggesting the swift action taken by the government has worked. On May 4, more than 24,000 laboratory tests had been conducted out of which only 140 tested positive (MoH & EPHI 2020). The majority of positive tests have been in the capital, Addis Ababa. By May 4, there had only been three deaths in Ethiopia attributed to the virus.

While social distancing measures can be effective in slowing the spread of the virus, they come with a significant economic cost. In low and middle income countries, the economic concern is different from high income countries, as many adults are self-employed or work in the informal sector with limited savings and access to safety nets (Barnett-Howell & Mobarak 2020). Thus, many poor households face a concrete trade-off between hunger and risking exposure to the virus (Ravallion 2020). Adhering to social distancing measures may also be difficult in low income country settings due to inadequate access to basic health infrastructure and limited savings (Baye 2020; Jones, Egger, & Santos 2020).

To gain an understanding of the implications of the COVID-19 crisis on household incomes and food security, the International Food Policy Research Institute (IFPRI) is conducting a series of phone surveys across Ethiopia. In this paper, we present our findings from phone interviews conducted at the beginning of May 2020 in Addis Ababa. While households in the capital are better off on average than households in rural and other urban areas, the virus is likely to spread faster in the capital because of the higher population density. Measures to contain the virus will also have stronger effects on urban residents since their livelihoods are more likely to be in sectors that are more adversely affected by social distancing policies and travel bans (Bundervoet & Finn 2020). Moreover, possible disruptions to food value chains (Tamru, Hirvonen, & Minten 2020; Tesfaye, Habte, & Minten 2020) are also more detrimental to urban households because they typically do not grow their own food.

IFPRI will monitor the food security situation in Addis Ababa during the pandemic through a series of household phone interviews. This research reports the findings after the first survey round. We begin by describing the context of Addis Ababa and the social distancing policy measures taken

by the government. Section 3 describes the data. Section 4 focuses on households' knowledge and behavioral responses to COVID-19. In Section 5, we describe household income sources and report how they have changed over the past 30 days. Section 6 reports on different indicators of food and nutrition security. In Section 7, we offer some concluding thoughts.

## 2. CONTEXT

### 2.1. Addis Ababa

In 2016, the estimated population of Addis Ababa was 3.8 million (CSA 2018b) out of which 16.8 percent had levels of consumption below the official poverty line (CSA 2018a). Virtually all households have access to electricity, more than 90 percent are connected to piped water, and more than half have access to improved sanitation (World Bank 2020). About 44 percent of households in Addis Ababa are headed by women. The average household size is four members (CSA 2018b).

Data from the 2016 Demographic and Health Survey show a co-existence of under- and over-nutrition in Addis Ababa (CSA & ICF 2016). Nearly 15 percent of children under five years of age in the city are chronically undernourished (stunted; short for their age). Meanwhile, 13 percent of women and 18 percent of men between the ages of 15 and 49 years are thin with a body-mass index (BMI) of less than 18.5 kg/m<sup>2</sup>, even as 29 percent of women and 20 percent of men are overweight or obese with a BMI above 25 kg/m<sup>2</sup>.

According to the 2018 Urban Employment Unemployment Survey of the Central Statistical Agency (CSA), about 20 percent of the working age population in Addis Ababa are unemployed (CSA 2018b). Out of the employed population, about 30 percent are self-employed (CSA 2018b). In terms of sector of employment, 20 percent work in wholesale and retail trade, 13 percent in manufacturing, 8 percent in construction and 5 percent in accommodation and food service activities (CSA 2018b). About 10 percent work for other households as, for example, servants or guards (CSA 2018b). Nearly 9 percent of the working age population in Addis Ababa work in the informal sector (CSA 2018b).<sup>1</sup>

### 2.2. COVID-19 policy measures in Ethiopia

The first policy measures to limit the spread of the virus in Ethiopia were declared on 16 March – just three days after the first confirmed case. The government of Ethiopia closed schools, banned all public gatherings and sporting activities, and encouraged physical distancing. Travelers from abroad were put into a 14-day mandatory quarantine, bars were closed until further notice, and travel through land borders was prohibited. Several regional governments imposed restrictions on public transportation and other vehicle movement between cities and rural areas.

The federal level State of Emergency was declared on 8 April. Land borders were closed, except for cargo. Restrictions on cross-country public transportation and city transportation were also declared. Moreover, the government prohibited employers from laying off their workers or landlords from evicting their tenants or increasing rents during the State of Emergency. Some administrative regions have taken even stricter measures by closing restaurants and limiting movement between rural and urban areas.

The main social protection response to COVID-19 in urban areas of Ethiopia has come through the Urban Productive Safety Net Programme (UPSNP). Jointly funded by the Government of Ethiopia and the World Bank, it is the main safety net program operating in urban areas. Launched in 2017, UPSNP provides monthly cash transfers against labor-intensive public works that build

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<sup>1</sup> CSA (2018b) "persons who work in an enterprise or business that did not keep book of account, who did not have license and mainly produced for the market were considered to be working in the informal sector".

community assets. Eligible households with limited labor capacity receive unconditional cash transfers. Household level targeting takes place at the community level and in Addis Ababa, the program is targeted at the poorest 18 percent of households (Abebe, Franklin, & Mejia-Mantilla 2018). Due to the pandemic, the public works requirement was waived and thus all beneficiaries now are receiving unconditional cash transfers. Beneficiaries received 3 months of payments in advance (Gentilini, Almenfi, & Dale 2020). The Addis Ababa city administration has also established more than 1,000 food banks to support the most affected households (Ethiopian Press Agency 2020).

## 3. DATA

### 3.1. February 2020 survey

Our COVID-19 telephone survey in Addis Ababa builds on an earlier IFPRI-led randomized controlled trial testing the effectiveness of video-based behavioral change communication to increase fruit and vegetable consumption in the city (Abate, Baye, de Brauw, & Hirvonen 2019). The baseline (or pre-intervention) survey for this project was administered in September and October 2019 with an endline (or post-intervention) survey in January and February 2020 – approximately one month before the first confirmed COVID-19 cases in Ethiopia.

In designing these surveys, we adopted a stratified random sampling approach based on household welfare levels to ensure a balanced sample between wealthy and less wealthy neighborhoods and between poor and rich households (for more details; see Appendix A). The baseline survey was administered between September and October in 2019 and covered 930 households. The endline survey took place between January and February 2020, and 895 households were interviewed; or 96 percent of the baseline sample. The January and February 2020 survey instrument collected detailed information about household demographics, income sources, asset levels, food consumption, and food security.

### 3.2. Phone survey of early-May 2020

To understand how the COVID-19 crisis is affecting households in Addis Ababa, this study reports on the findings of the first of what is to be a series of phone surveys. The first survey was administered between 1 and 7 May 2020. The follow-up surveys will be administered at the same time of the month in June, July, and August. The phone survey uses phone numbers for members of the sample for the survey conducted in January and February 2020. Phone numbers were collected from 99 percent (or 887 households) of the 895 sample households. Out of these households, we drew a sub-sample of 600 households to be included to the phone survey.<sup>2</sup>

The phone survey instrument focused on questions about household food purchase patterns, food and nutrition security, and changes in income sources and levels. We also asked about household's knowledge and behavioral responses to COVID-19. All interviews were conducted via phone using structured electronic questionnaires. A verbal informed consent was obtained from all participants.

The risk of response bias in phone surveys is likely to be larger than in face-to-face interviews (Dabalen et al. 2016; Lau et al. 2019). In our case, it could be that the phone number for some households will no longer work, some may be out of reach for other reasons and some may refuse to take part in the phone survey. If these non-responses vary systematically between household characteristics (e.g., household wealth), our phone survey sample will be biased.

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<sup>2</sup> Ethical approval for the phone survey was obtained from the Institutional Review Board of IFPRI. The project to promote fruit and vegetable intake in urban Ethiopia and the COVID-19 follow-up phone surveys are all funded by the Food Systems for Healthier Diets flagship of the CGIAR Research Program on Agriculture for Nutrition and Health (A4NH), which is managed by IFPRI.

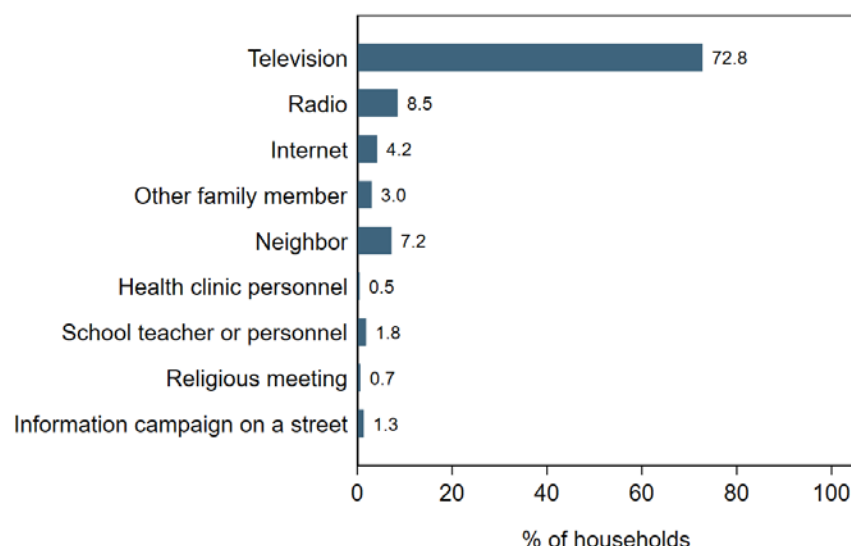
We used sample stratification and a replacement technique to minimize this risk. We first split the sample into deciles according to household asset holdings, and then randomly selected 60 households from each decile (600 households in total).<sup>3</sup> If the enumerators were unable to reach a selected household after five attempts, it was replaced with another randomly selected household in the same asset decile.

Forty-six (or 7.7 percent) of the initially sampled 600 households could not be reached. These households were replaced with another randomly selected household in the same decile. Apart from one household, all households that were reached agreed to take part in the survey. Based on key household characteristics (sex, age, and education level of household head; household size and asset levels; household dietary diversity indicators) measured in January and February 2020, the final sub-sample that took part in the first phone survey is very similar to those households that took part in the pre-pandemic face-to-face survey but were not interviewed in the phone survey in May 2020 (Appendix B). The composition of the sample households did not change markedly in the 3 to 4 months between the surveys. In May, 7 percent of the phone survey sample households reported that they had new household members since the earlier survey at the beginning of the year, while 5 percent reported that one or more members had left the household.

## 4. KNOWLEDGE AND BEHAVIORIAL RESPONSES TO COVID-19

Virtually all households (99.8 percent) had heard about the Coronavirus or COVID-19. Most households reported to have first heard about the virus on television (Figure 1). Other frequently mentioned sources were radio and neighbors. The respondents reported high adherence to the recommended practices to mitigate the transmission risk (Table 1). For example, all respondents said that they had washed their hands with soap for at least 20 seconds in the past seven days, and 96 percent reported that they had avoided shaking hands or kissing on cheeks over the same period. Moreover, 78 percent indicated that they are avoiding public transportation. Forty-four percent of respondents said they wore a face mask in the past seven days.

**Figure 1. Source through which the respondent first heard about COVID-19**



Source: Own calculation from Addis Ababa COVID-19 phone survey in May 2020. Observations = 600 households.

<sup>3</sup> Using the information collected in February 2020 survey, we constructed an asset index using a principal components method.

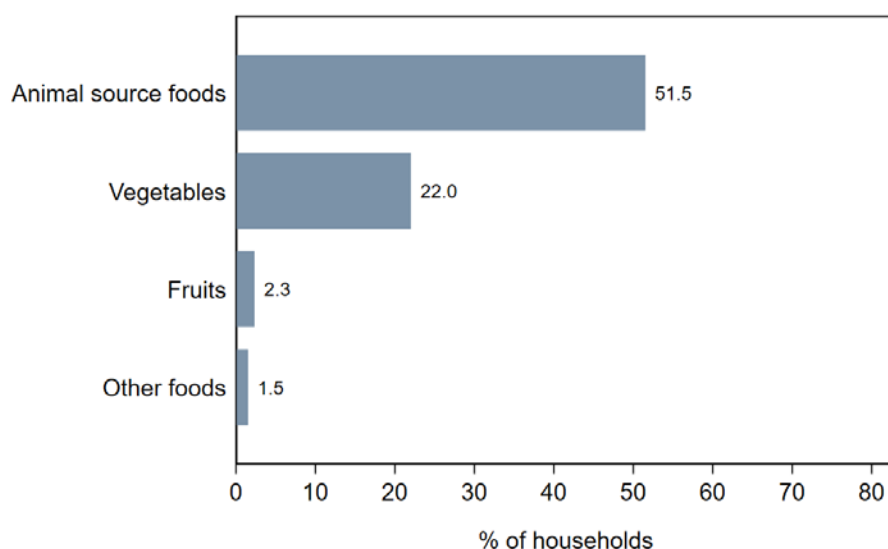
**Table 1. Adherence to recommended COVID-19 risk mitigation practices in the past seven days, percent of respondents**

	All households		By wealth quintile:			
	Poorest	Poorer	Middle	Richer	Richest	
Washed hands with soap for 20 seconds or more	100	100	100	100	99	
Washed my hands more frequently than the month before	99	100	100	98	99	
Avoided large gatherings or long queues	89	99	82	73	91	
Avoided public transportation	78	91	78	46	87	
Avoided shaking hands or kissing on cheeks	96	100	98	84	98	
Avoided touching my face	81	87	98	55	78	
Used hand sanitizers or disinfectants	89	83	90	84	95	
Wore face masks	44	38	44	43	53	
Wore disposable gloves	18	12	25	17	23	
Stayed at home	70	79	65	37	75	
Kept a distance of at least 2 meters from other people	86	86	100	50	92	

Source: Own calculation from Addis Ababa COVID-19 phone survey in May 2020. Observations = 600 households.

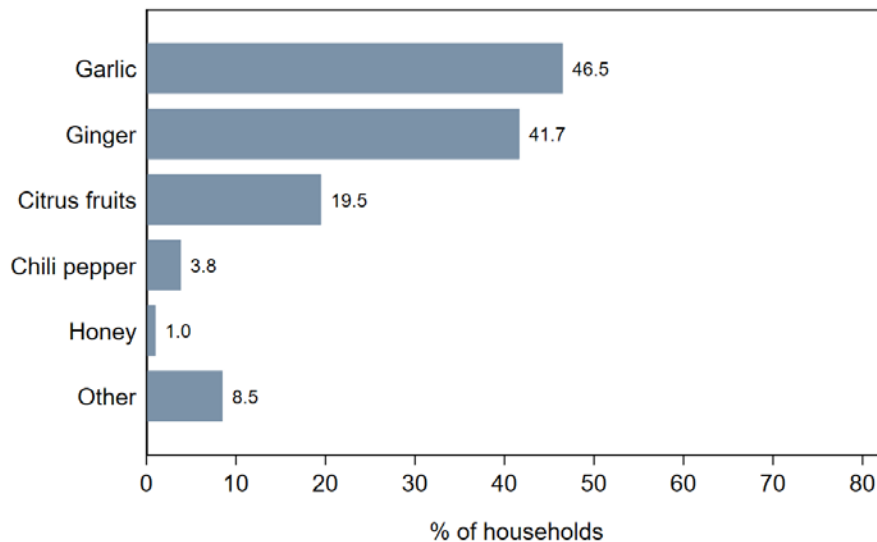
At the time of the first COVID-19 infections in Addis Ababa, there were rumors circulating that the virus was spreading through certain food items. There were also views that the infection risk could be minimized by consuming certain spices or food items. While none of these rumors or views are supported by scientific evidence, we wanted to understand how widespread these practices are. To this end, we asked respondents if there are any foods that they are avoiding because of COVID-19. Nearly 60 percent of households reported that they are avoiding some foods. About half reported that they are trying to avoid animal source foods (dairy, meat, poultry) while 22 percent were avoiding vegetables (Figure 2). Meanwhile, many households said that they are consuming garlic, ginger, and citrus fruits to reduce the infection risk (Figure 3). Finally, while there has been an increase in the availability of food delivery services in Addis Ababa, these are not yet widely used. Out of the 600 households in our sample, 12 (2 percent) had used a delivery firm for groceries and only two (0.3 percent) for cooked food in the past week.

**Figure 2. Foods that respondents are avoiding because of COVID-19 risk**



Source: Own calculation from Addis Ababa COVID-19 phone survey in May 2020. Observations = 600 households.

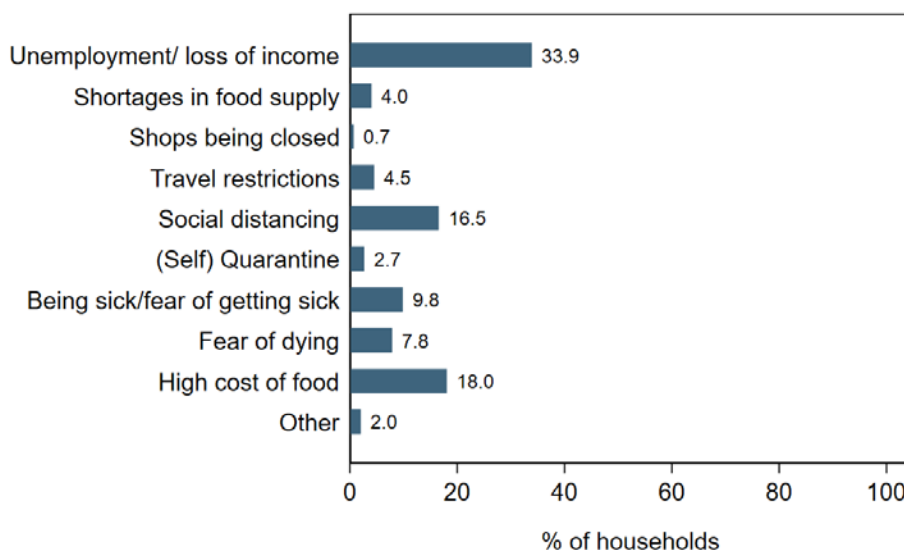
**Figure 3. Foods that respondents are consuming more of to reduce COVID-19 risk**



Source: Own calculation from Addis Ababa COVID-19 phone survey in May 2020. Observations = 600 households.

We asked the respondents which aspect of the COVID-19 crisis has the greatest impact on their household. The most commonly cited aspects were unemployment or loss of income (33 percent), social distancing (16.5 percent), high cost of food (18 percent) and getting sick (10 percent) or fear of dying (8 percent) (Figure 4). Interestingly, these responses varied considerably across household pre-pandemic wealth status.<sup>4</sup> Respondents from the poorest households were more likely to mention unemployment or loss of income than those in the richest households (Figure 5). Respondents from the wealthiest households were more likely to mention social distancing as the most difficult aspect of the crisis.

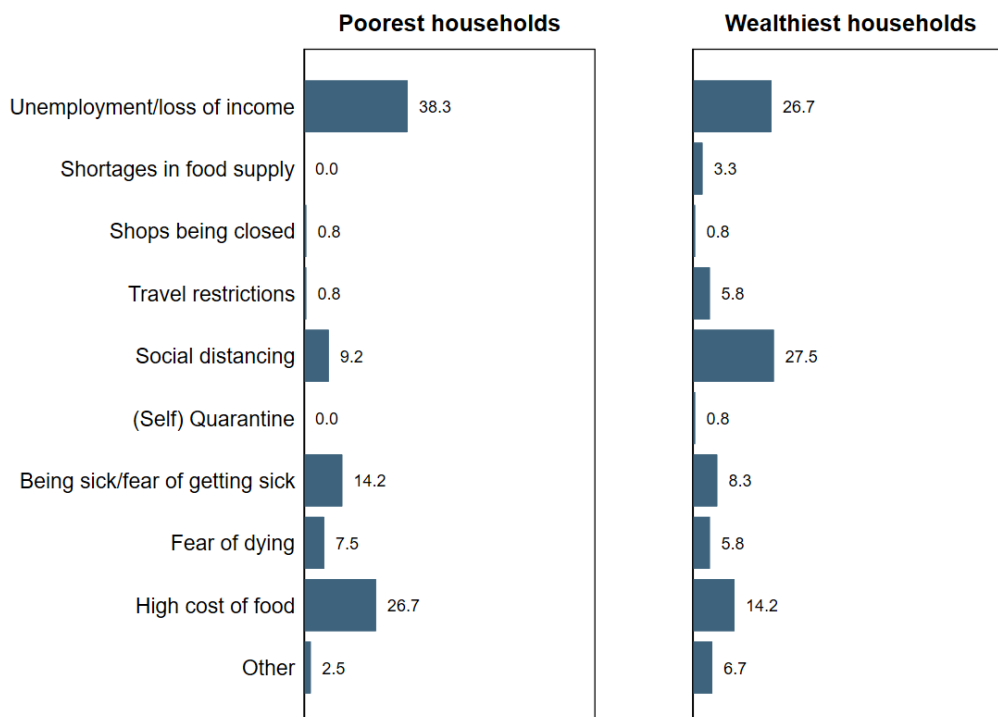
**Figure 4. Aspect of the COVID-19 crisis that has the greatest impact on household**



Source: Own calculation from Addis Ababa COVID-19 phone survey in May 2020. Observations = 600 households.

<sup>4</sup> This wealth index is constructed using the information about household asset ownership in January-February 2020 survey.

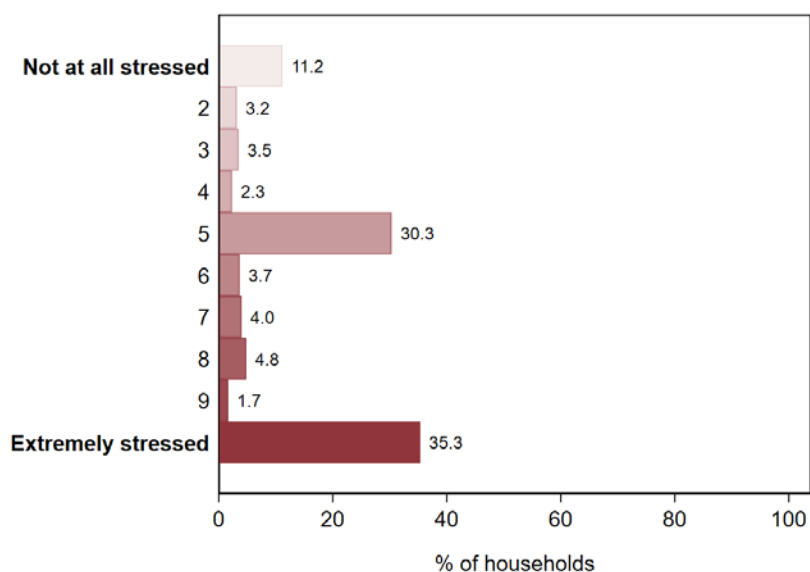
**Figure 5. Aspect of the COVID-19 crisis that has had the greatest impact, by household wealth quintile**



Source: Own calculation from Addis Ababa COVID-19 phone survey in May 2020. Observations =240 households (poorest and wealthiest quintiles).

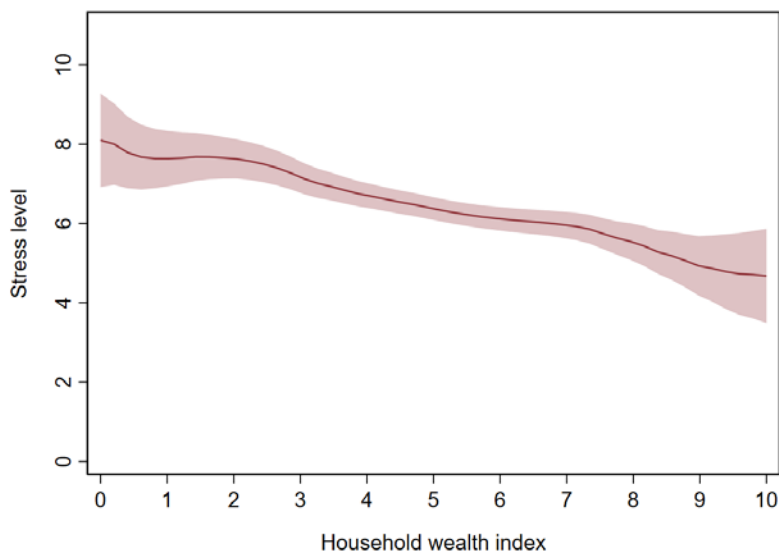
We asked the respondents about their overall stress level at the time of the interview using a 1 to 10 scale where 1 indicated that the respondent was not stressed at all and 10 that the respondent was extremely stressed. A large fraction of the respondents placed themselves at the middle of this scale (Figure 6). However, 35 percent reported that they were extremely stressed, while 11 percent responded that they were not stressed at all. Strikingly, the average stress level was close to 8 among respondents in the poorest households. This average stress score declined steadily with household wealth level (Figure 7).

**Figure 6. Self-reported stress level, May 2020**



Source: Own calculation from Addis Ababa COVID-19 phone survey in May 2020. Observations = 600 households.

**Figure 7. Self-reported stress level, by household wealth**



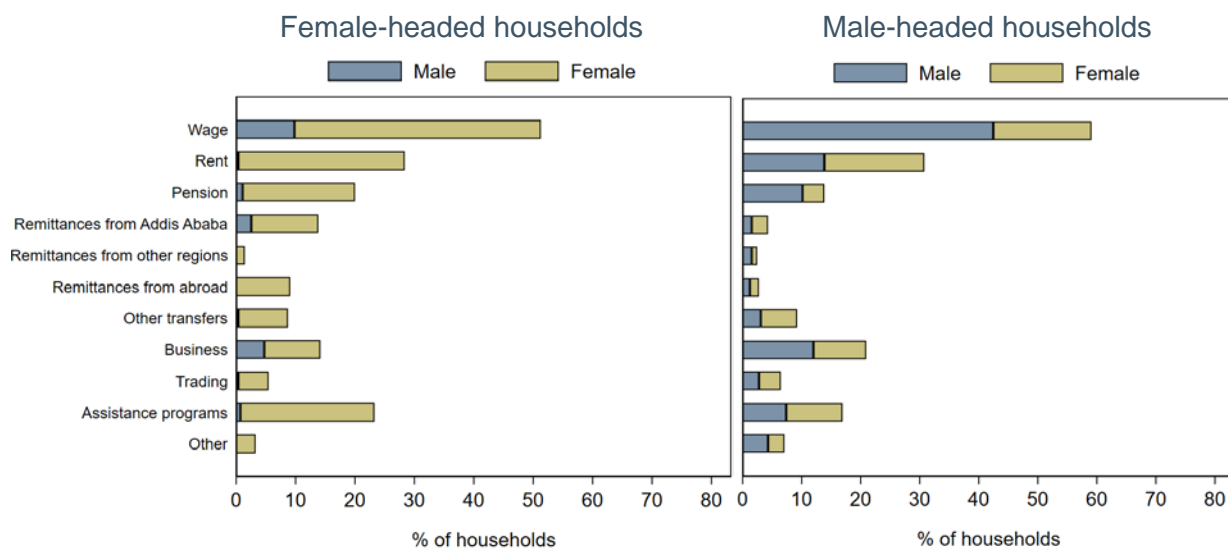
Source: Own calculation from Addis Ababa COVID-19 phone survey in May 2020. Observations = 600 households.  
Note: The wealth index (vertical axis) is constructed using a principal components method based on household asset ownership using data collected in the January and February 2020 Addis Ababa food consumption survey. The wealth index has been scaled to 1-10.

## 5. INCOME SOURCES AND CHANGES

### 5.1. Income sources before the COVID-19 crisis

The survey instrument fielded in January and February 2020 included questions about households' income sources over the previous 12 months. The median household in our phone survey sub-sample received income from two different sources in the previous 12 months. More than 85 percent of the income sources provided income in each month, indicating little seasonality in income sources. Figure 8 shows the percent of female- and male-headed households reporting different income sources. Before the pandemic started, nearly 60 percent of the households received wage income while about one-third received rental income. Business income was reported by about 18 percent of the households and income from assistance programs was received by close to 20 percent of the households. Female-headed households were more likely to receive income from income assistance programs, pensions, and remittances than were male-headed households. We also asked who in the household was mainly responsible for each income source. Disaggregating these data by sex, we see that in male-headed households, men are largely in charge of generating wage and business income and are more likely to receive a pension. The situation is more balanced when it comes to income from rent, trading, remittances, and income assistance programs.

**Figure 8. Household income sources in the past 12 months, by sex of household head and sex of person responsible for the income generating activity**

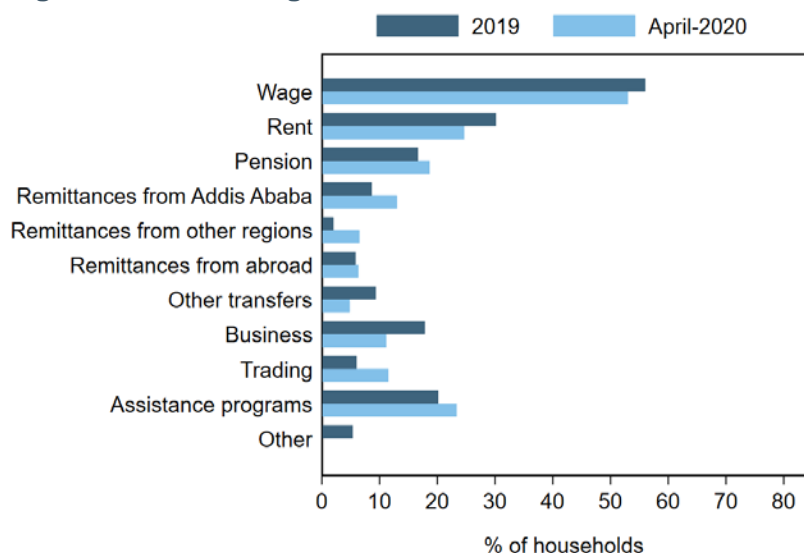


Source: Own calculation from January and February 2020 Addis Ababa food consumption survey. Observations = 600 households.  
 Note: Sample restricted to households that were interviewed in the May 2020 phone survey.

## 5.2. Income sources and changes in employment status during COVID-19 pandemic

Figure 9 compares the income sources in 2019 and in April 2020. Compared to the responses given in the January and February survey that were based on 12-month recall that covered 2019, we see that households were less likely to report receiving wage, rental, and business income in the May survey ("April 2020"). In contrast, the share of households reporting income from pensions, remittances (especially from Addis Ababa), trading activities, and income assistance programs increased. Of those that reported income from assistance programs, 80 percent received assistance from the government, 20 percent from the local community, and 11 percent from an NGO.<sup>5</sup>

**Figure 9. Contrasting household income sources in 2019 and in April 2020**



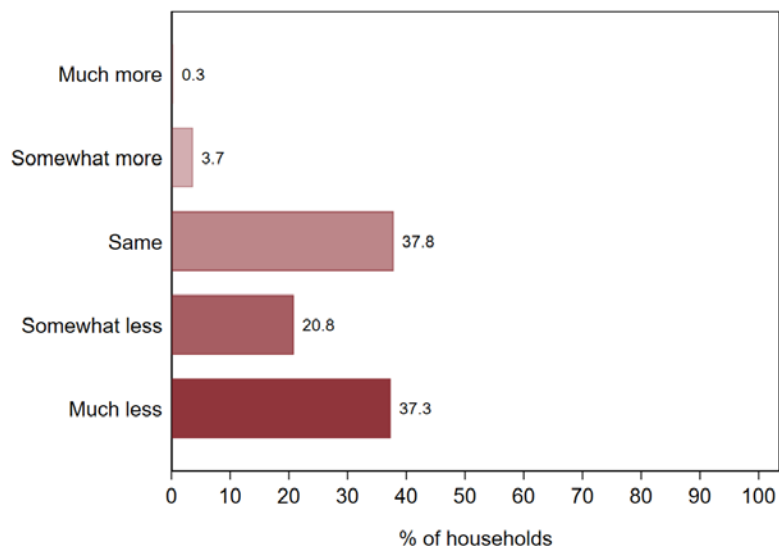
Source: Own calculation from January and February 2020 Addis Ababa food consumption survey and from Addis Ababa COVID-19 phone survey in May 2020. Observations = 600 households.  
 Note: 2019 refers to the 12-month recall responses given in January and February 2020. April-2020 refers to one-month recall responses given in May 2020. Sample restricted to households that were interviewed in May 2020 phone survey.

<sup>5</sup> These percentages do not add up to 100 because some households reported receiving support from multiple sources

### 5.3. Changes in income levels and coping during the COVID-19 pandemic

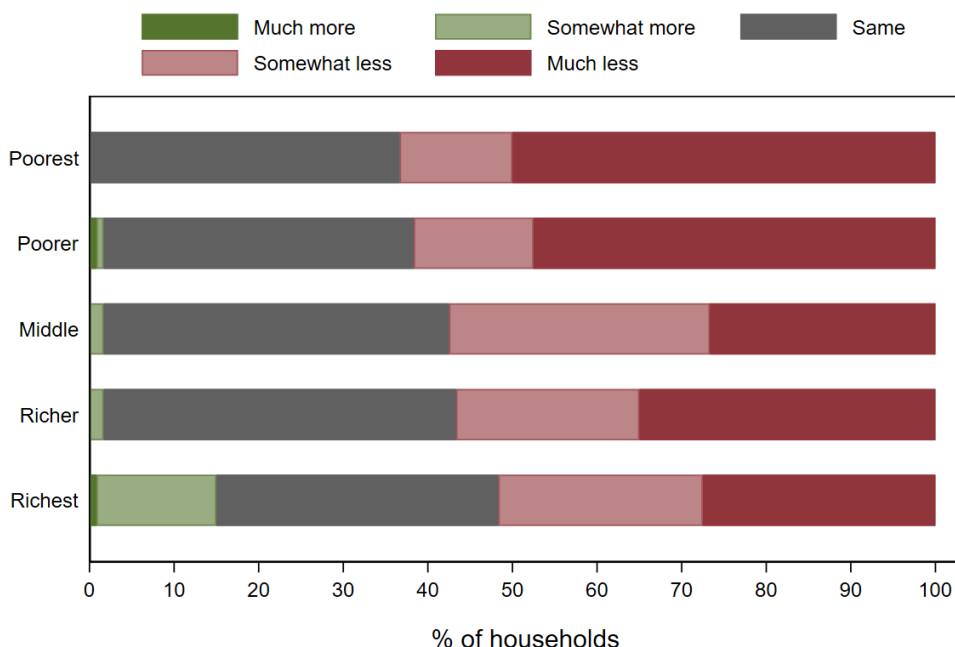
We asked our phone survey respondents to compare the incomes they received in the last month to the incomes they usually receive at this time of the year. More than 55 percent of the respondents said that the incomes in the past month were lower or much lower than usual (Figure 10). We then used an asset-based quintile ranking to assess how these responses varied between wealthy and less wealthy households. We see that poorer households are considerably more likely to report income losses than richer households (Figure 11).

**Figure 10. Change in income levels in April 2020 compared to usual incomes**



Source: Own calculation from Addis Ababa COVID-19 phone survey in May 2020. Observations = 600 households.

**Figure 11. Change in income levels in April 2020 compared to usual incomes, by household wealth quintile**

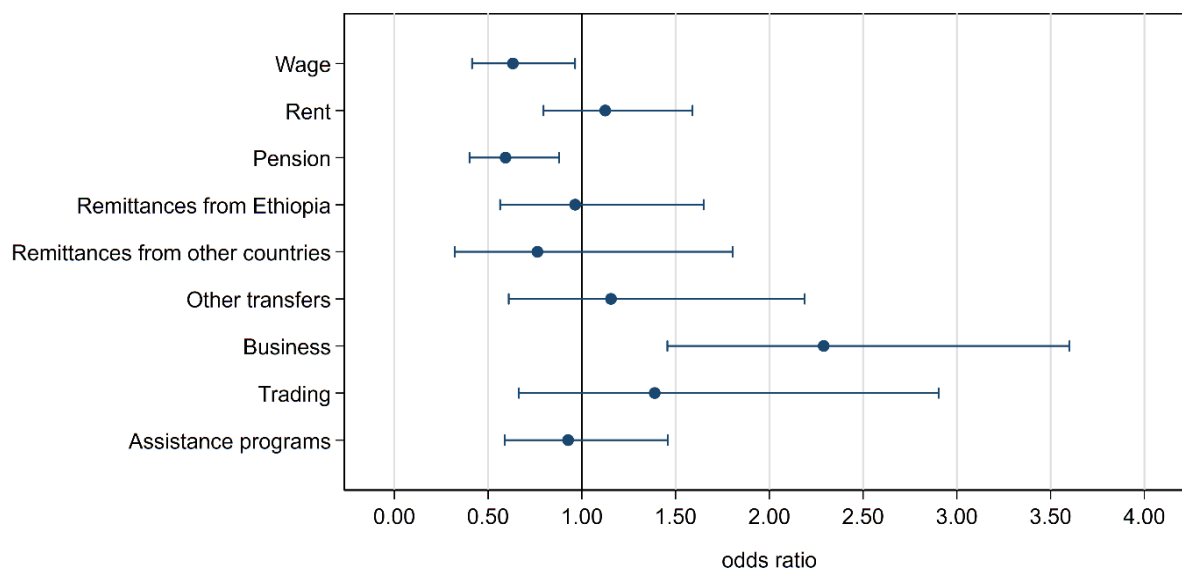


Source: Own calculation from Addis Ababa COVID-19 phone survey in May 2020. Observations = 600 households.

We then contrast these responses against the reported income sources before the pandemic in January and February 2020. We do so using a logistic regression approach in which we regress on indicators for each of the nine income sources an indicator variable that takes a value of 1 if the household experienced income loss and 0 otherwise. The coefficient estimates are reported in terms of odds-ratios. An odds-ratio less than one indicates that households reporting this income

source before the pandemic are less likely to report overall income losses in April. If the odds-ratio is more than one, then households reporting this income source are more likely to report overall income losses.

**Figure 12. Change in income levels and household income sources between March-2019 and February 2020**

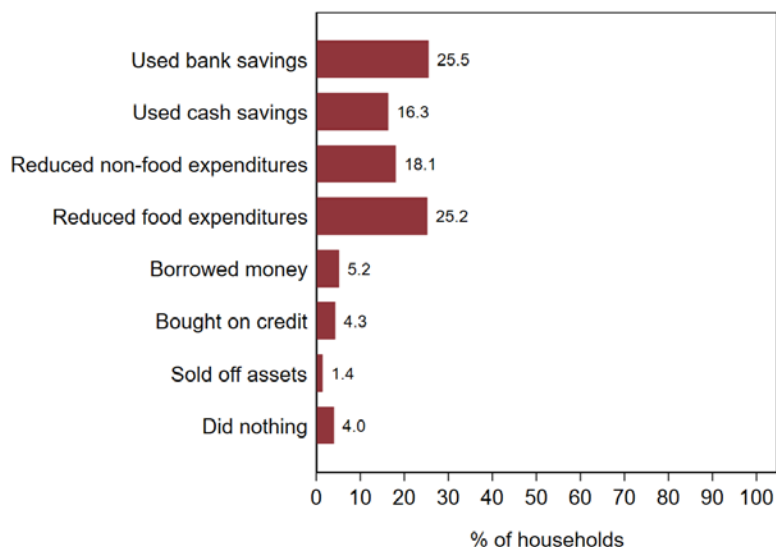


Source: Own calculation from Addis Ababa COVID-19 phone survey in May 2020. Observations: 600 households.  
 Note: Dots are odds-ratios from a logistic regressions that regressed a binary variable obtaining value 1 if the household reported income loss in April on each reported income source in January and February (12 month recall). Bars are 95% confidence intervals (CI).

Figure 12 shows the odds-ratios. We see that households that were relying on wage and pension income before the pandemic were less likely to report income losses in April than other households. In contrast, households in the trade sector (e.g., local drink, repairs, food processing) were 2.3 times more likely to report income losses. The odds-ratio estimate for trade (e.g., firewood, charcoal, grain, vegetable trading) is also more than one, suggesting that this sector was also negatively affected. However, the confidence interval around this estimate is extremely wide, indicating large heterogeneity across households. As a result, we cannot conclude that households in this sector were more (or less) likely to report income losses. The estimated odds-ratio for rent, assistance programs, and remittances within Ethiopia are close to one, suggesting that these income sources have so far been less affected by the pandemic. Households that were reporting remittance income from other countries were also somewhat less likely to report income losses. However, the uncertainty around this estimate is relatively high, so we cannot conclude that this sector was not negatively affected by the pandemic.

Among households reporting income losses, more than 40 percent reported using cash or bank savings as a primary coping mechanism (Figure 13). From a food security perspective, the fact that one-fourth of households say they cut back on their food expenditures is a concern. A further 18 percent of households reported reduced non-food expenditures. The other coping mechanisms were relatively less important.

**Figure 13. Primary coping mechanisms, conditional on lower incomes**

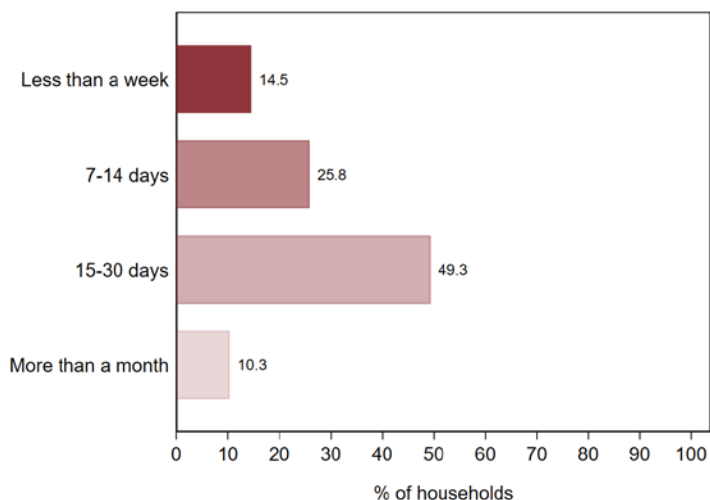


Source: Own calculation from Addis Ababa COVID-19 phone survey in May 2020. Observations = 349 households (those reporting income losses).

## 6. FOOD AND NUTRITION SECURITY

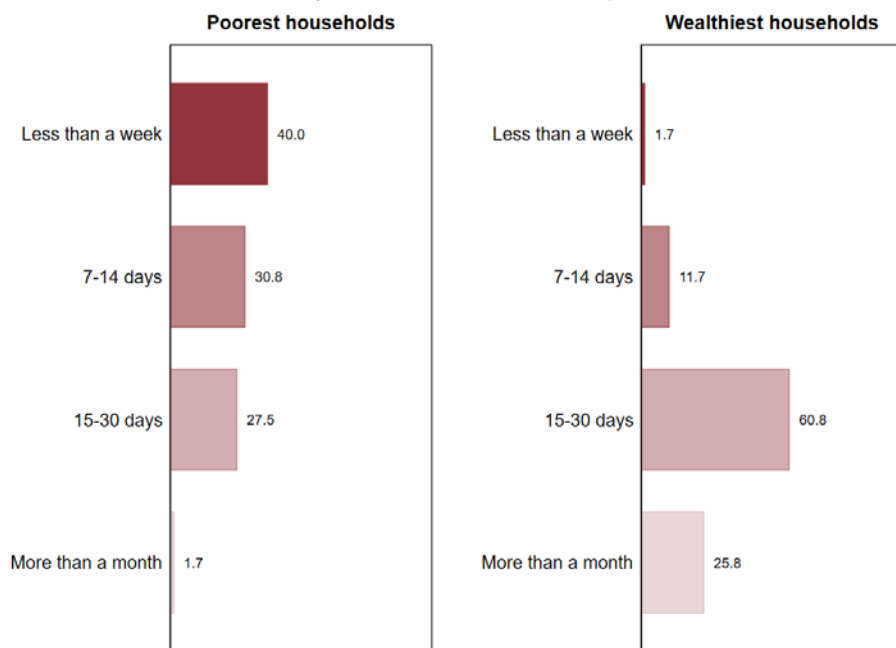
The phone survey instrument had a series of questions about household food security, some of which also appeared in the pre-pandemic instrument administered in January and February 2020. First, we asked respondents to estimate how long they can meet their food needs with their current savings. About 15 percent of households responded less than a week and 26 percent estimated that they would manage between one and two weeks (Figure 14). As expected, poorer households are reporting considerably shorter durations than richer households (Figure 15).

**Figure 14. Duration of how long the household can meet their foods needs with current savings**



Source: Own calculation from Addis Ababa COVID-19 phone survey in May 2020. Observations = 600 households.

**Figure 15. Duration of how long the household can meet their foods needs with their available means, by household wealth quintile**



Source: Own calculation from Addis Ababa COVID-19 phone survey in May 2020. Observations = 240 households (poorest and wealthiest quintiles).

Second, we administered the Food Insecurity Experience Scale (FIES) module (Ballard, Kepple, & Cafiero 2013) that asks about household's access to food in the past four weeks. Table 2 lists the eight questions in the FIES module and the percent of households responding positively to each. The degree of food insecurity implied by a question increases as one moves down the list of questions. This explains why the percent of households responding positively to a question decreases as one moves down the list. We see that poorer households are more likely to respond positively to questions indicating severe food insecurity. For example, 11 percent of the poorest households reported that they "went without eating for a whole day because of a lack of money or other resources". Meanwhile, only 2.5 percent of the richest households responded positively to this question. Female-headed households were more likely than male-headed households to respond positively to almost all questions.

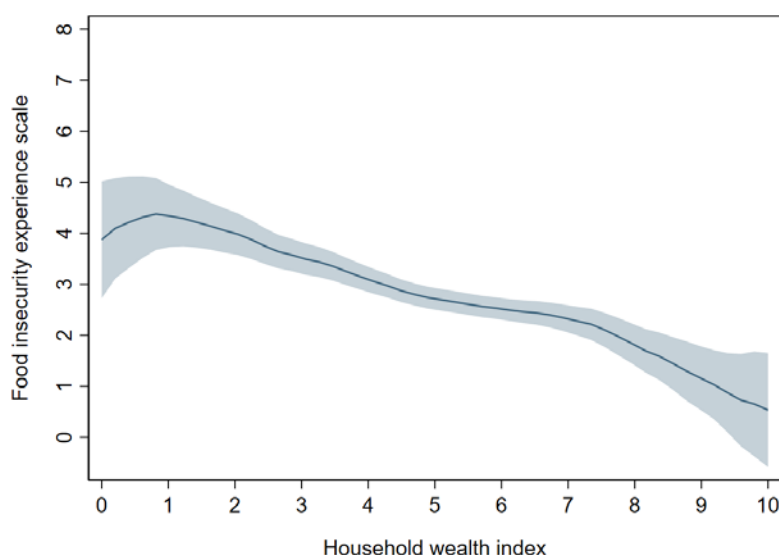
To understand how overall food security status varies across wealth levels, we assigned a value of 1 to each positive response a household gave to the questions and added them up to create an *ad hoc* FIES score for each household. We then regressed this score against the household wealth index. As expected, this score is strongly and negatively associated with household wealth levels (Figure 16).

**Table 2. Households responding positively to Food Insecurity Experience Scale questions, by household wealth quintile, percent**

Question	All	Female-headed	Male-headed	Poorest	Poorer	Middle	Richer	Richest
Worried about not having enough food to eat because of a lack of money or other resources	55.3	57.5	53.5	68.3	57.5	65.8	40.8	44.2
Unable to eat healthy and nutritious food because of a lack of money or other resources	69.7	73.5	66.5	87.5	74.2	76.7	55.8	54.2
Ate only a few kinds of foods because of a lack of money or other resources	69.7	72.4	67.4	90.8	71.7	62.5	60.8	62.5
Had to skip a meal because there was not enough money or other resources to get food	24.8	27.6	22.5	38.3	33.3	15.0	28.3	9.2
Ate less than you thought you should because of a lack of money or other resources	40.8	42.5	39.4	62.5	51.7	16.7	47.5	25.8
Ran out of food because of a lack of money or other resources	9.3	9.8	8.9	15.0	11.7	5.8	11.7	2.5
Were hungry but did not eat because there was not enough money or other resources for food	7.8	7.6	8.0	15.8	10.8	4.2	5.8	2.5
Went without eating for a whole day because of a lack of money or other resources	5.0	6.2	4.0	10.8	4.2	5.0	2.5	2.5
<b>Food Insecurity Experience Scale score (min=0; max=8)</b>	<b>2.83</b>	<b>2.97</b>	<b>2.70</b>	<b>3.89</b>	<b>3.15</b>	<b>2.52</b>	<b>2.53</b>	<b>2.03</b>

Source: Own calculation from Addis Ababa COVID-19 phone survey in May 2020. Observations = 600 households.

**Figure 16. Household wealth and Food Insecurity Experience Scale**



Source: Own calculation from Addis Ababa COVID-19 phone survey in May 2020. Observations = 600 households.

Note: Local polynomial regression. The wealth index (vertical axis) is constructed using a principal components method based on household asset ownership using data collected in the January and February 2020 Addis Ababa food consumption survey. The wealth index has been scaled to 1-10.

Third, in both the January and February round and the May round, we asked households about their food consumption patterns in the past seven days. We can use these data to construct a Household Dietary Diversity Score (HDDS) in which consumed food items are grouped into 12 food groups (Swindale & Bilinsky 2006). These are listed in the first column of Table 3. Overall, the share of households consuming from each food group remained relatively stable between February and April. However, we do see that compared to January and February, households are less likely to

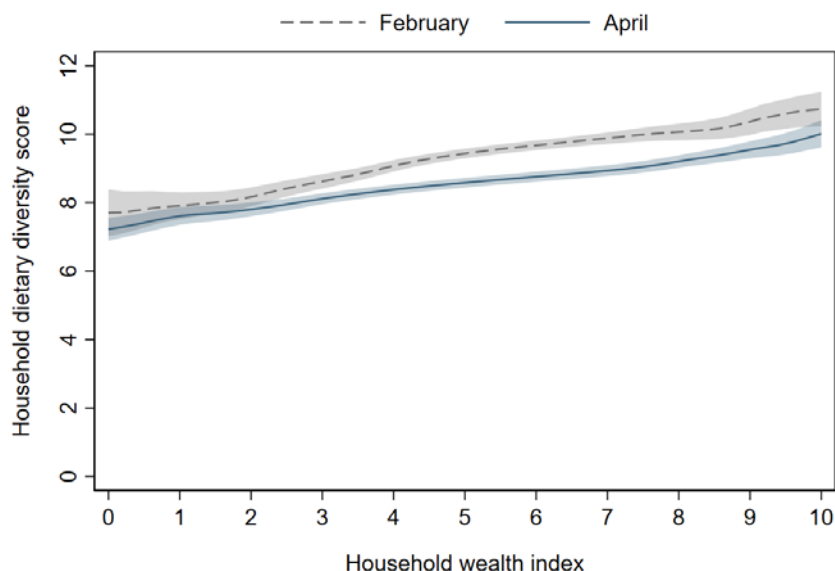
consume roots or tubers, fruits, and dairy in April.<sup>6</sup> Assigning a value of 1 for each positive response and summing, we can construct the HDDS in which higher scores indicate better household food security situation. The mean HDDS in this sample was 9.3 in January and February. In April the mean HDDS score declined by one food group to 8.4 (Table 3).<sup>7</sup> The mean HDDS in April was slightly higher (0.3 food groups) in male-headed households compared to female-headed ones.<sup>8</sup> The local polynomial regression presented in Figure 17 shows that richer households have higher HDDS than poorer households and that the HDDS was almost consistently lower in April at all household wealth levels.

**Table 3. Households consuming from each Household Dietary Diversity Score food group, by wealth quintile, percent**

HDDS food group	Jan & Feb, all	April, all	Female-headed	Male-headed	Poorest	Poorer	Middle	Richer	Richest
Cereals	100	100	100	100	100	100	100	100	100
Roots or tubers	79	67	62	70	53	61	71	64	83
Vegetables	100	99	98	100	99	99	98	100	100
Fruits	81	60	57	62	30	57	68	67	76
Meat or poultry	65	54	52	55	25	43	58	69	75
Eggs	52	54	50	57	33	43	56	65	72
Fish and seafood	3	2	1	2	0	0	3	3	3
Nuts or pulses	99	98	99	98	98	98	99	98	100
Dairy	56	45	43	47	21	40	44	52	69
Oil or fats	99	98	99	97	100	99	93	99	100
Sugar/honey	98	85	84	87	96	51	84	98	98
Miscellaneous foods	100	93	93	93	98	99	99	100	69
<b>Household Dietary Diversity Score</b>	<b>9.3</b>	<b>8.5</b>	<b>8.4</b>	<b>8.7</b>	<b>7.5</b>	<b>7.9</b>	<b>8.7</b>	<b>9.1</b>	<b>9.4</b>

Source: Own calculation from Addis Ababa COVID-19 phone survey in May 2020. Observations = 600 households.  
Note: HDDS = Household Dietary Diversity Score.

**Figure 17. Household wealth and Household Dietary Diversity Score**



Source: Own calculation from Addis Ababa COVID-19 phone survey in May 2020. Observations = 600 households.  
Note: Local polynomial regression. The wealth index (vertical axis) is constructed using a principal components method based on household asset ownership using data collected in the January and February 2020 Addis Ababa food consumption survey. The wealth index has been scaled to 1-10.

<sup>6</sup> For all these three food groups, the difference between the two survey rounds is statistically different from zero (p-value<0.001).

<sup>7</sup> This difference in mean HDDS between the two survey rounds is statistically different from zero (p-value<0.001).

<sup>8</sup> This difference is statistically significant at the 5% level (p=0.038).

Finally, we constructed the Food Consumption Score (FCS) (WFP 2008). The FCS is a weighted index that combines dietary diversity and consumption frequency. The index is based on the household consumption of nine food groups (Table 4). The weighted index ranges between 0 and 112, with higher scores indicating better food security. The WFP further categorizes household diets as poor if the FCS is below 21, borderline if the score is above 21 but below 35, and acceptable if above 35.

**Table 4. Mean number of days households consume from the Food Consumption Score food groups, by household wealth quintile**

FCS food group	FCS weight	Jan & Feb, all	April, all	Female-headed	Male-headed	Poorest	Poorer	Middle	Richer	Richest
Main staples	2	7.0	7.0	7.0	6.9	6.9	7.0	7.0	7.0	7.0
Pulses	3	5.5	4.8	5.0	4.7	5.5	4.7	5.9	3.6	4.5
Vegetables	1	7.0	6.7	6.6	6.8	6.8	6.9	5.9	6.9	7.0
Fruits	1	3.7	1.7	1.7	1.6	0.7	1.7	1.6	1.9	2.4
Meat, eggs, fish	4	2.8	2.6	2.4	2.7	1.2	1.8	2.5	3.6	4.0
Dairy products	4	2.2	1.6	1.4	1.7	0.5	1.3	1.6	1.7	3.0
Sugar	0.5	6.8	5.5	5.4	5.6	5.9	3.4	4.9	6.5	6.7
Oil/butter	0.5	6.7	6.8	6.9	6.7	7.0	6.9	6.3	6.8	7.0
Condiments	0	7.0	6.1	6.2	6.0	6.4	6.6	6.6	6.8	4.3
<b>Food Consumption Score</b>	<b>n/a</b>	<b>67.8</b>	<b>59.7</b>	<b>59.0</b>	<b>60.4</b>	<b>51.0</b>	<b>54.1</b>	<b>60.8</b>	<b>61.3</b>	<b>71.4</b>

Source: Own calculation from Addis Ababa COVID-19 phone survey in May 2020. Observations = 600 households.  
Note: FCS = Food Consumption Score.

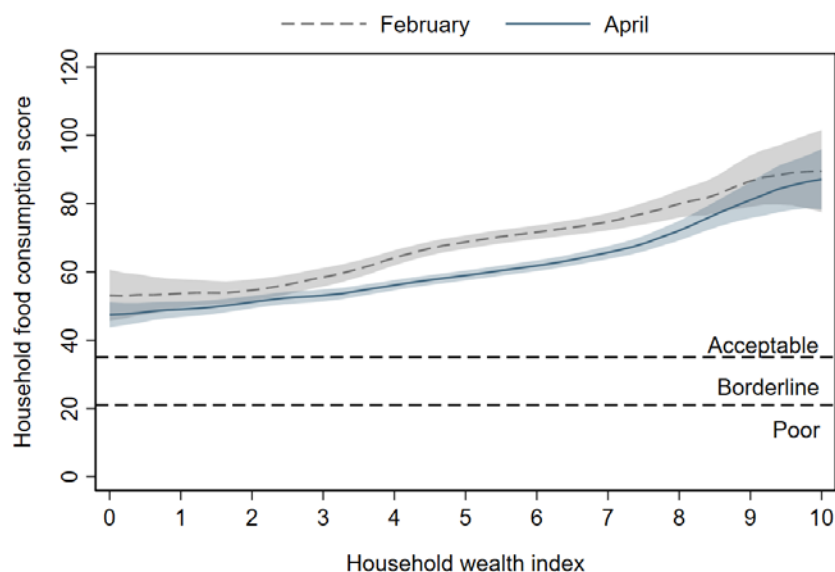
Table 4 shows the results for both the January and February survey round and the May round. Compared to January and February, households reported in the May round (recall period in April) they were consuming fruits, dairy, pulses, and sugar products less frequently.<sup>9</sup> Consequently, the mean FCS was about eight points lower for April than for January and February.<sup>10</sup> However, less than three percent of households in April were categorized as being in the poor or borderline FCS categories, i.e., below 35. The difference in FCS between female- and male-headed households is marginal and not statistically different from zero.

Figure 18 shows how household wealth is positively correlated with FCS in both rounds and that the regression line for the April round is almost consistently below the corresponding line estimated using the data collected in January and February.

<sup>9</sup> For all these three food groups, the difference between the two survey rounds is statistically different from zero (p-value<0.001).

<sup>10</sup> This difference in mean FCS between the two survey rounds is statistically different from zero (p-value<0.001).

**Figure 18. Household wealth and Food Consumption Score**



Source: Own calculation from Addis Ababa COVID-19 phone survey in May 2020. Observations = 600 households.  
Note: Local polynomial regression. The wealth index (vertical axis) is constructed using a principal components method based on household asset ownership using data collected in the January and February 2020 Addis Ababa food consumption survey. The wealth index has been scaled to 1-10.

## 7. CONCLUSIONS

Our phone survey results suggest that the COVID-19 pandemic has negatively affected the majority of households in Addis Ababa. More than half of our respondents indicated that their incomes were lower than expected and more than one-third reported that they are extremely stressed about the ongoing situation. Moreover, we find strong evidence that the adverse impacts of COVID-19 are disproportionately affecting the less-wealthy households. Compared to a period just before the pandemic, all available indicators show that the food security situation in Addis Ababa has worsened over the past few months. For nutrition security, it is particularly worrying that many households are now less frequently consuming relatively more expensive but nutritionally beneficial foods, such as meat, fruit, and dairy products. However, the overall food security status in Addis Ababa is not yet alarming, possibly because most households have been able to use their savings to buffer food consumption. Our results further show that households do not have much savings, which increases the likelihood that we will observe a rapid increase in food insecurity in the next few months.

On a more positive note, virtually all households are aware of the pandemic and most households, both poor and rich, show relatively high adherence to the recommended practices to minimize risks of contracting the virus. However, contrary to the available scientific evidence, we also document widespread beliefs that garlic or ginger can keep COVID-19 at bay. This point could become a concern if COVID-19 begins to spread more quickly in Ethiopia.

Our study has limitations. First, while our sample is unlikely to suffer from response or sampling biases, some of the documented differences between the two survey rounds could be due to differences in survey mode; face-to-face versus phone (Lamanna et al. 2019). Unfortunately, we have no means to address or quantify the direction of this potential bias. The data from subsequent phone survey rounds will provide us more comparable data to the data collected in May.

Second, we cannot administer a full household consumption survey module over the phone. This is unfortunate because it would have allowed us to compare real-world poverty estimates to the predictions from computable general equilibrium and other simulation models (Bundervoet & Finn 2020; Sumner, Hoy, & Ortiz-Juarez 2020; Vos, Martin, & Laborde 2020).

Third, the analysis falls short in assessing gender aspects of this crisis. A relatively large fraction of households in Addis Ababa are headed by women. Compared to male-headed households, our analysis suggests that female-headed households are not more (or less) affected by the pandemic. However, probably a more relevant metric for assessing gender inequality is intra-household allocation of resources (Beegle & van de Walle 2019). Unfortunately, due to concerns about the length of the survey instrument, we were not able to include such questions in our phone survey. The data collected before the pandemic indicate that in male-headed households, women are often responsible for income from wages, rent, remittances, and assistance programs. Fortunately, these income sources have not been among the worst affected by the pandemic. Moreover, the potential scale-up of assistance programs is likely to channel more resources to women.

Despite these caveats, we believe that this report provides a useful input to policy discussions in Ethiopia and potentially beyond. Based on the evidence presented here, the food security situation in Addis Ababa will likely deteriorate over coming weeks if the social distancing measures remain in place and people continue adhering to them. While these measures are well-justified in order to limit the spread of the highly infectious COVID-19 disease, they come at a high cost, especially to the poorest households. This finding suggests a rapid scale-up of existing support programs before food insecurity and hunger reach alarming levels. Some commentators have raised concerns about the difficulty in targeting income support during the pandemic (Jerving 2020). In urban Ethiopia, the UPSNP provides an already established framework, based on community selection, to identify the poorest and most affected households, so this concern should be minimized in targeting additional social protection, at least within urban Ethiopia.

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## APPENDICES

### Appendix A: Sampling approach

The sampling frame for the 2019 baseline survey in Addis Ababa was based on a 2017 survey with the same households (Melesse, de Brauw, & Abate 2019) and followed a multi-stage sampling approach. First, a stratified random sampling method was used to select sub-cities and districts (woredas) of Addis Ababa for the survey. To do so, sub-cities were grouped according to their welfare level, after which six sub-cities were randomly drawn from these groups. A similar welfare-based stratification was applied when 20 districts (woredas) were randomly selected from the selected sub-cities. Second, two urban neighborhoods (ketenas) from each selected woreda were then randomly selected and from each ketena, 25 households were randomly selected for interviewing. In total, 930 households were interviewed in September and October 2019 (Wolle, Hirvonen, de Brauw, Baye, & Abate 2020).<sup>11</sup>

The same households were revisited for the January and February 2020 endline survey. This time 895 households were interviewed; 96 percent of the households interviewed during the baseline survey in September and October 2019.

Table A1 shows summary statistics for key household characteristics based on the January and February 2020 survey data. Forty-five percent of the households were female-headed, which corresponds to the previous estimates by CSA (2018b). The average household in our January and February face-to-face survey sample was 4.5 (median = 4). The average household head was 51 years old and she or he had 6.4 years of education. The average Food Consumption Score (WFP 2008) was 68.2 and the average Household Dietary Diversity Score (Swindale & Bilinsky 2006) was 9.3 food groups.

**Table A1. Basic household characteristics, January and February 2020 survey**

	Mean	Median	Standard deviation	Minimum	Maximum
Household size	4.54	4.0	1.9	1	13
Female headed household	0.45	n/a	n/a	0	1
Head's age in years	51.2	50.0	15.4	11	92
Head's education in years	6.42	7.0	4.6	0	13
Food Consumption Score	68.2	64.0	20.9	8.5	112
Household Dietary Diversity Score	9.27	10.0	1.6	4	12

Source: Own calculation from January and February 2020 Addis Ababa food consumption survey.  
Observations: 895 households.

<sup>11</sup> A replacement household was randomly drawn if the household interviewed in 2017 was not available in 2019.

## Appendix B: Comparing characteristics of survey households from the January and February 2020 survey sample that were and were not included in the May 2020 phone survey

Table A2 provides means for selected households characteristics from the January and February 2020 Addis Ababa food consumption survey for the households included in the May 2020 phone survey (N=600) and for the households from the sample for the earlier survey that were not selected to take part in the phone survey. We see that the two sub-samples are generally well balanced. The differences in means are not statistically different from zero, except for the age of the household head, for which the p-value is significant at the ten percent level. The household heads in the sample included in the phone survey are about two years younger, on average, than households that were not included in the phone survey sample.

**Table A2. Comparing pre-pandemic household characteristics between households from the January and February 2020 survey sample that were and were not included in the May 2020 phone survey**

	Included	Not included		
<i>Number of households:</i>	600	295		
	Mean	Mean	Difference	p-value
Household asset index	3.62	3.62	0.00	0.965
Household size	4.51	4.60	-0.08	0.547
Female headed household	0.46	0.44	0.02	0.547
Head's age, years	50.4	52.7	-2.2	0.058
Head's education, years	6.57	6.11	0.46	0.153
Food Consumption Score	67.82	68.87	-1.05	0.471
Household Dietary Diversity Score	9.31	9.20	0.12	0.275

Source: Own calculation from January and February 2020 Addis Ababa food consumption survey.

Note: Statistical significance tested using a two-sample t-test with standard errors clustered at the enumeration area level.

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