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

June 2020 report

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ABSTRACT

In early June 2020, we called by telephone a representative sample of nearly 600 households in Addis Ababa, Ethiopia to assess income changes and household food and nutrition security status during the COVID-19 pandemic (survey period covering May). This was the second administration of a COVID-19 related survey to these households, following an initial survey conducted in early May 2020 covering the situation of the survey households in April. More than two-third of the households indicated in the second survey that their incomes were lower than expected (up from 58 percent in April) and 45 percent reported that they are extremely stressed about the situation (up from 35 percent in April). 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 but have remained the same since April. During the pandemic, households are less and 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 many households have been able to use their savings to buffer food consumption. As the pandemic is still in an early stage in Ethiopia, it is likely that these savings will not last throughout the pandemic, 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 2020, the virus spread internationally, which led the World Health Organization (WHO) to declare the COVID-19 outbreak as a pandemic on 11 March 2020 (WHO 2020b). By 9 June, there were more than seven million confirmed cases and at least 410,000 people had lost their lives to the disease (WHO 2020a).

The first COVID-19 case was confirmed in Ethiopia on 13 March. 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. The COVID-19 caseload in Ethiopia was growing slowly until about early May after which the number of positive tests started to increase rapidly. By 9 June, more than 150,000 laboratory tests had been conducted out of which only 2,336 were positive (MoH & EPHI 2020). The overwhelming majority of positive tests have been in the capital, Addis Ababa. By 9 June, there had been 35 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. This paper is a part of a series tracking food and nutrition security in Addis Ababa. The first phone survey was conducted early May 2020 and the findings were reported in Hirvonen, Abate, and de Brauw (2020). In this paper, we report our findings from the second Addis Ababa phone survey conducted at the beginning of June 2020. While households in the capital are better off on average than households in rural and other urban areas of Ethiopia, 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 is monitoring the food security situation in Addis Ababa during the pandemic through a series of household phone interviews. This research reports the findings after the second phone 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 month of May. 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^2, even as 29 percent of women and 20 percent of men are overweight or obese with a BMI above 25 kg/m^2.

According to the 2018 Urban Employment Unemployment Survey of the Central Statistical Agency (CSA), 20 percent of the working age population in Addis Ababa are unemployed (CSA 2018b). Out of the employed population, 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).[1]

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. Face masks became compulsory in public spaces. 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

[1] 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".

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 community assets. Eligible households with limited labor capacity receive unconditional cash transfers. Household level targeting takes place at the community level. In Addis Ababa, UPSNP 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 three 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 surveys in Addis Ababa build 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 (see Appendix A for more details). 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, 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 second of a series of phone surveys. The first survey was administered between 1 and 7 May 2020. 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 (887 households) of the 895 sample households. Out of these households, we drew a sub-sample of 600 households to be included in the phone survey.[2]

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 knowledge and their behavioral responses to COVID-19. All interviews were conducted via phone using structured electronic questionnaires. A verbal informed consent was obtained from all participants.

[2] 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.

To minimize the risk of response bias (Dabalen et al. 2016; Lau et al. 2019), we used sample stratification and a replacement technique. 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).[3] 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. Because some households could not be reached in the initial sample, they were replaced with another randomly selected household in the same decile.

3.3. Phone survey of early-June 2020

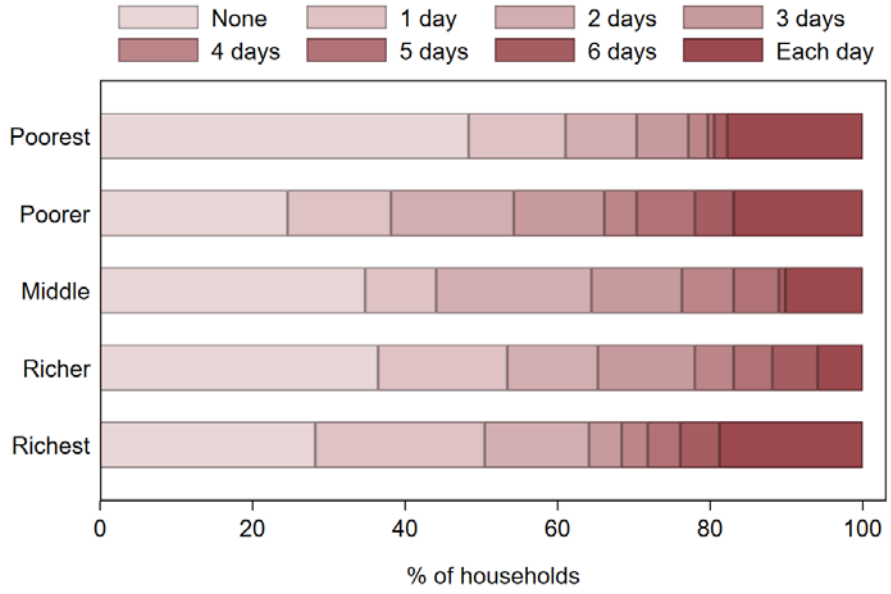
The second phone survey round took place between 30 May and 5 June 2020. The survey team attempted to reach all 600 households that were called in early May during the first COVID-19 phone survey. Out of the 600 households, 589 households were interviewed during the second round, resulting in an attrition rate of less than 2 percent.[4] One household had relocated to another urban area, the remaining households were still located in Addis Ababa.[5]

4. KNOWLEDGE AND BEHAVIORIAL RESPONSES TO COVID-19

In May, virtually all households (99.8 percent) reported having heard about the Coronavirus or COVID-19. Adherence to the recommended virus prevention practices was relatively high.

In early June, 34 percent of the respondents reported that they had not left the house in the past seven days. Interestingly, staying at home was more common among the respondents in the poorest than in richer households (Figure 1). However, the differences in the number of days the respondents left the house were not clear-cut across income quintiles. Out of the 386 respondents that reported leaving the house, 41 percent said that they used public transportation (Table 1). Nearly all respondents (97 percent) said that they wore face masks and 14 percent protective gloves. Out of all respondents, 31 percent reported to have attended a religious gathering.

Figure 1. Number of days the respondent left the house in the previous seven days



Source: Own calculation from Addis Ababa COVID-19 phone survey in June 2020. Observations = 589 households.

[3] Using the information from the February 2020 survey, the asset index was constructed using a principal components analysis method.

[4] Out of the 11 households that were not interviewed in this round, three refused to take part in the survey and eight could not be reached despite multiple attempts.

[5] The one household that relocated was kept in the June 2020 survey sample.

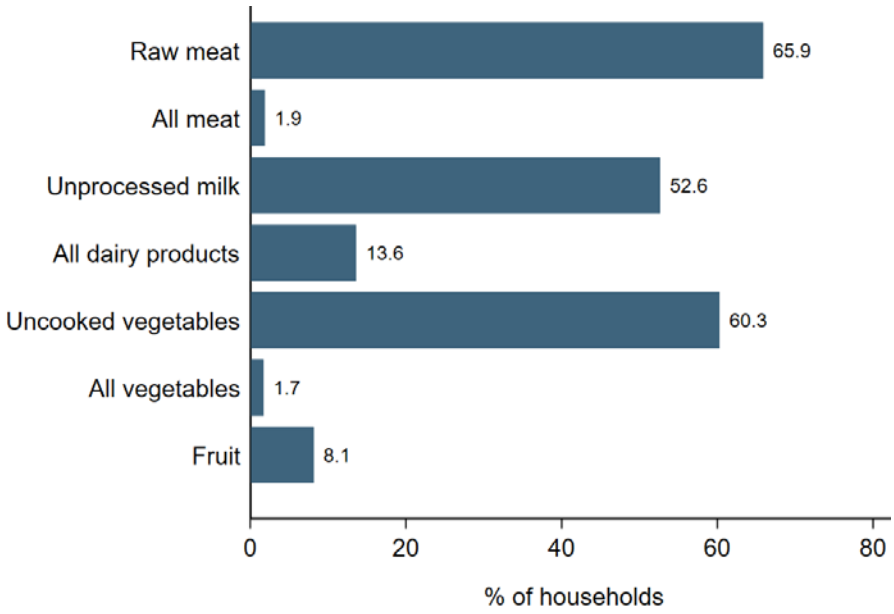
Table 1. Use of public transportation, face masks and protective gloves, and attendance at religious gatherings in the past seven days, percent of respondents

	All households	By wealth quintile				
		Poorest	Poorer	Middle	Richer	Richest
Last time left house in the past 7 days (N=386):						
Used public transportation	41	39	43	42	51	30
Wore a face mask	97	95	99	99	97	96
Wore protective gloves	14	20	10	18	4	19
In the past 7 days (N=589):						
Attended a religious gathering	31	18	27	42	32	34

Source: Own calculation from Addis Ababa COVID-19 phone survey in June 2020. Observations = 589 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. While these rumors or views are not supported by scientific evidence, we wanted to understand how widespread practices related to these rumors are. In April, 51 percent of the households reported that they are trying to avoid animal source foods (dairy, meat, poultry), while 22 percent were avoiding vegetables. In this second survey round, we asked more detailed questions about the type of animal source foods and vegetables that the households were avoiding (Figure 2). Responses to these questions reveal that households are mostly avoiding unprocessed dairy, as well as uncooked meat and vegetables.[6] Still, nearly 14 percent reported avoiding all kinds of dairy products, while 8 percent reported avoiding fruit.

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



Source: Own calculation from Addis Ababa COVID-19 phone survey in June 2020. Observations = 589 households.

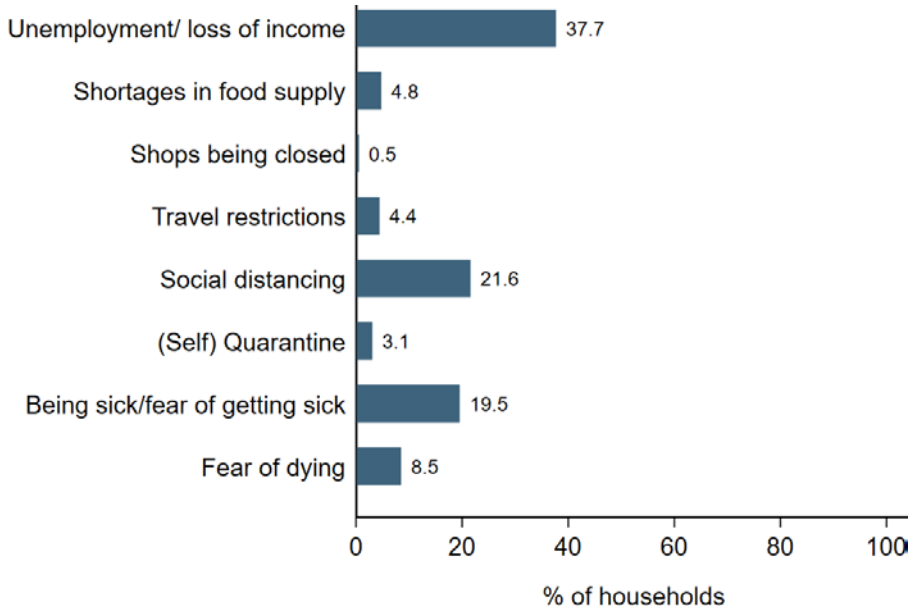
While more households report having used food delivery services in the past seven days than in early May, uptake remains low. Out of the 589 households in our sample, 25 (4 percent) had used a delivery firm for groceries and only 8 (1.4 percent) for cooked food in the week prior to the survey.

In early May, we asked the respondents which aspect of the COVID-19 crisis has had 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

[6] Raw meat is a local delicacy in many parts of Ethiopia.

sick (10 percent) or fear of dying (8 percent). Figure 3 summarizes the responses to the same question in early June. This time, 37 percent of the households reported that unemployment or loss of income was the main aspect of the crisis adversely affecting their household, while 22 percent cited social distancing and 20 percent getting sick. Interestingly, none of the respondents in June reported that the crisis aspect with greatest impact was the high cost of food.

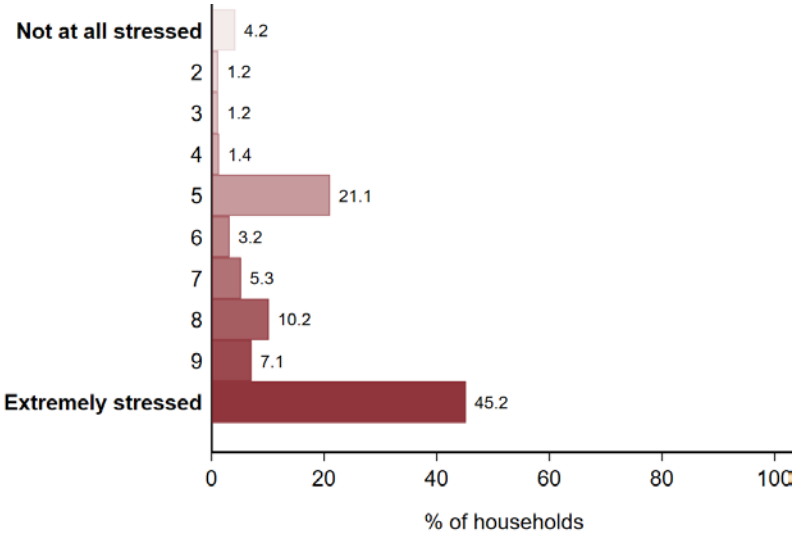
Figure 3. Aspect of COVID-19 crisis that respondents reported as having the greatest impact on their household, by survey round



Source: Own calculation from Addis Ababa COVID-19 phone survey in May & June 2020. Observations = 600 households in early May & 589 households in early June.

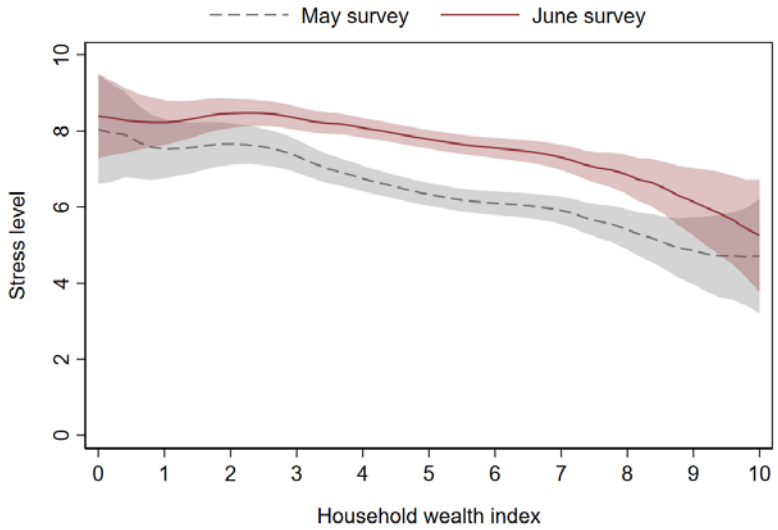
We asked respondents about their overall stress level at the time of the interview using a 0 to 10 scale where 1 indicated that the respondent was not stressed at all and 10 that the respondent was extremely stressed. In early May, 35 percent of the respondents reported that they were extremely stressed, while 11 percent responded that they were not stressed at all. In early June, 45 percent reported to be extremely stressed and only 4 percent reported that they were not stressed at all (Figure 4). Figure 5 shows how the mean stress levels have increased almost for all wealth groups, except for the wealthiest households and for the very poorest for whom reported stress levels were already close to maximum in early May.

Figure 4. Self-reported stress level, June 2020



Source: Own calculation from Addis Ababa COVID-19 phone survey in June 2020. Observations = 589 households.

Figure 5. Self-reported stress level, by household wealth and survey round



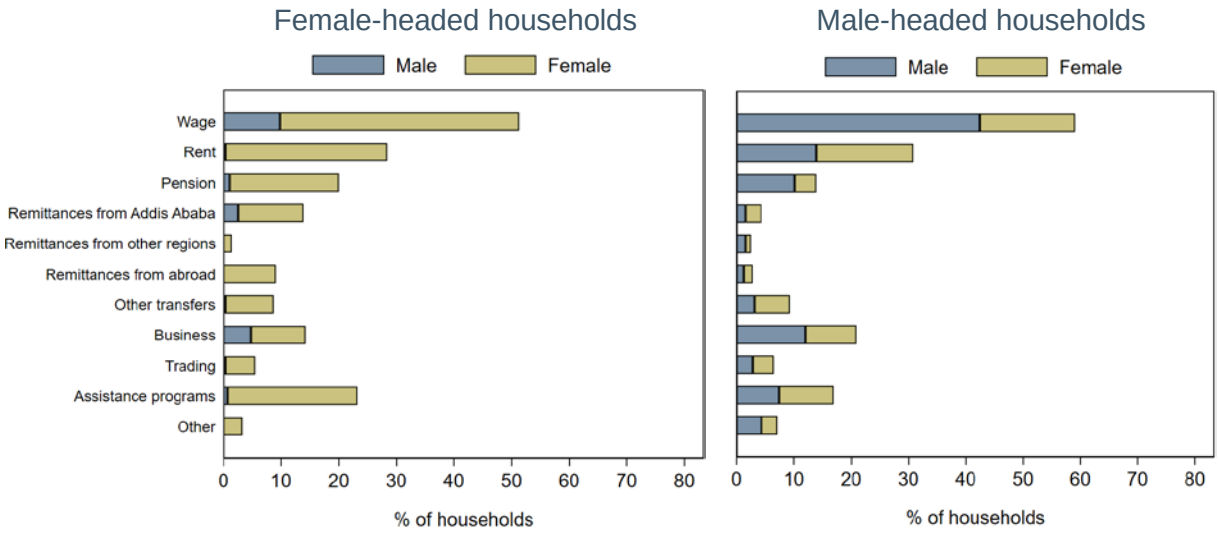
Source: Own calculation from Addis Ababa COVID-19 phone survey in May & June 2020. Observations = 589 households.
Note: The wealth index (vertical axis) is constructed using a principal components method based on household asset ownership using data collected in the January and February 2020 Addis Ababa food consumption survey. The wealth index has been scaled to 0-10.

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 6 shows the percent of female- and male-headed households reporting different income sources. Before the pandemic started, nearly 60 percent of 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.

Figure 6. Household income sources in the past 12 months, by sex of household head and sex of person responsible for the income generating activity



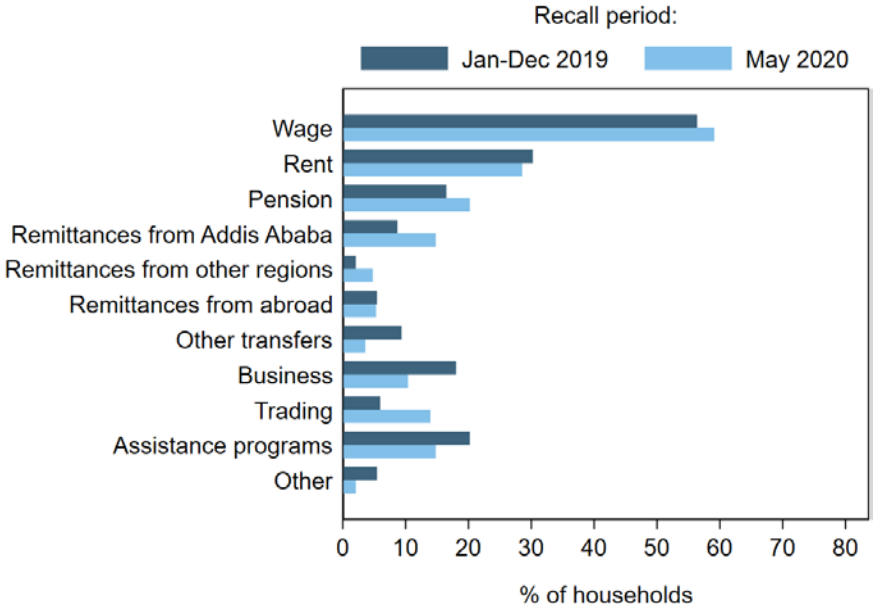
Source: Own calculation from January and February 2020 Addis Ababa food consumption survey. Observations = 600 households.
Note: Sample restricted to households that were interviewed in the May 2020 phone survey.

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.

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

Figure 7 compares income sources in 2019 to those reported in our June 2020 survey based on a one-month recall. 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 considerably less likely to report receiving income from business activities in the June survey (recall period covering May 2020). In contrast, the share of households reporting income from pensions, remittances (especially from Addis Ababa), and trading activities were mentioned by a greater share of respondents in the June survey.

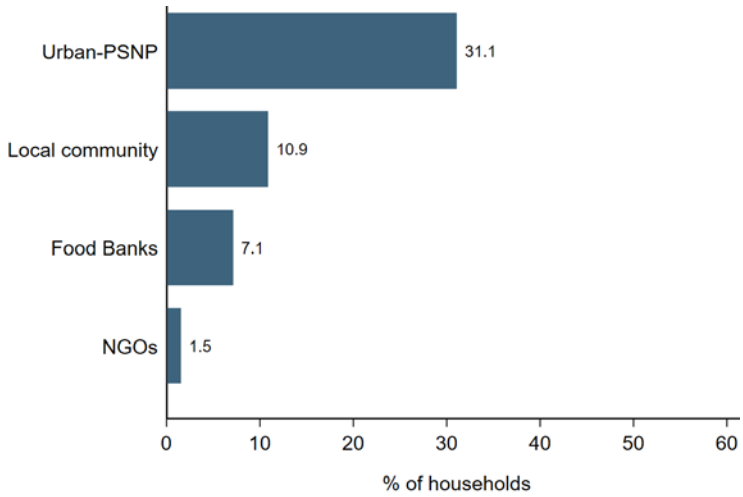
Figure 7. Contrasting household income sources in 2019 and in May 2020



Source: Own calculation from January and February 2020 Addis Ababa food consumption survey and from Addis Ababa COVID-19 phone survey in June 2020. Observations = 589 households.
Note: "Jan-Dec 2019" refers to the 12-month recall responses given in January and February 2020. "May 2020" refers to one-month recall responses given in June 2020. Sample restricted to households that were interviewed in June 2020 phone survey.

The lower share of households reporting income from assistance programs for May could be due to the three-month advance payment under UPSNP in March or April, with no payments in May. About 31 percent of households in our sample reported having received support from UPSNP since January 2020. Out of these households, about one-third reported to have received their last PSNP payment in March or April (*Megabit* or *Miazia* in the Ethiopian calendar) and two-thirds in May (*Ginbot*). Figure 8 shows the percent of households that had received support since March from different support programs or activities.

Figure 8. Surveyed households receiving cash or in-kind support since March, by source

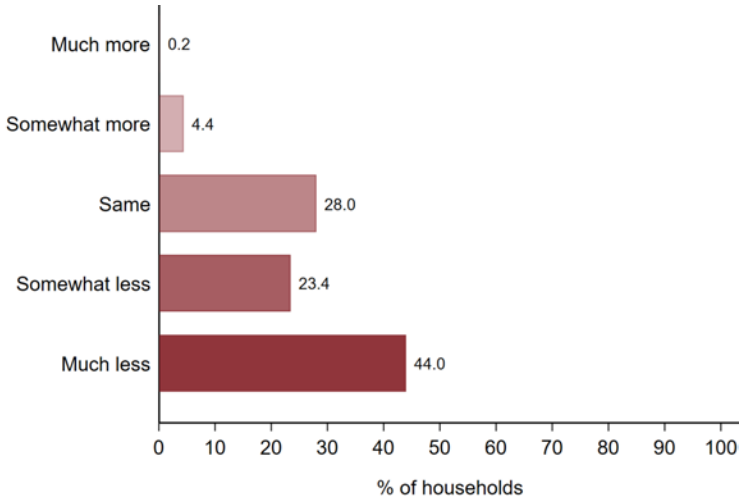


Source: Own calculation from Addis Ababa COVID-19 phone survey in June 2020. Observations = 589 households.

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

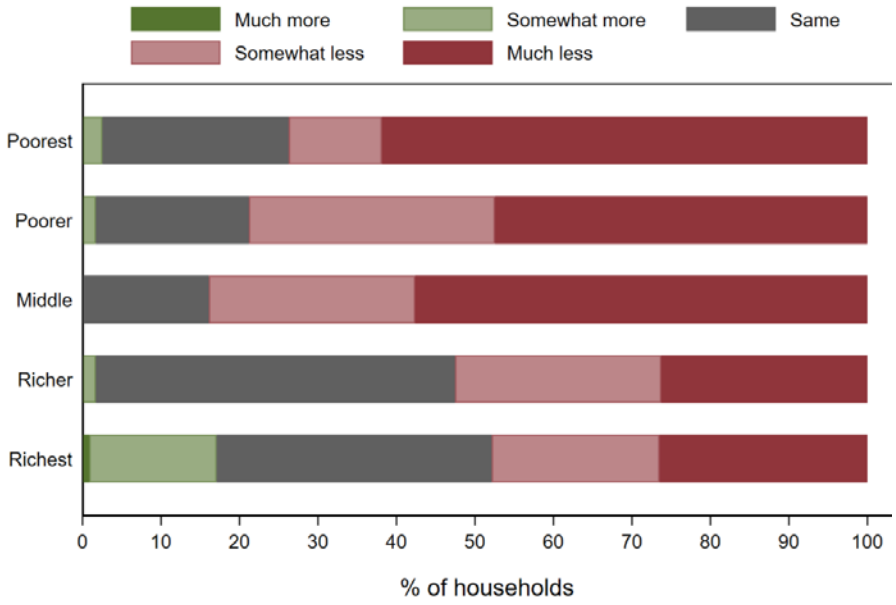
We asked our phone survey respondents to compare the incomes they received in the last month to the incomes they usually receive at this time of the year. In the early May survey round, 58 percent of respondents said that the incomes in the past month (i.e., in April) were lower or much lower than usual. In the second phone survey in early June, this number had increased to 67 percent (Figure 9). We then used an asset-based quintile ranking to assess how these responses varied between wealthy and less wealthy households. As in the previous survey rounds (Hirvonen et al. 2020), we see that poorer households are considerably more likely to report income losses than richer households (Figure 10).

Figure 9. Change in income levels in May 2020 compared to usual incomes



Source: Own calculation from Addis Ababa COVID-19 phone survey in June 2020. Observations = 589 households.

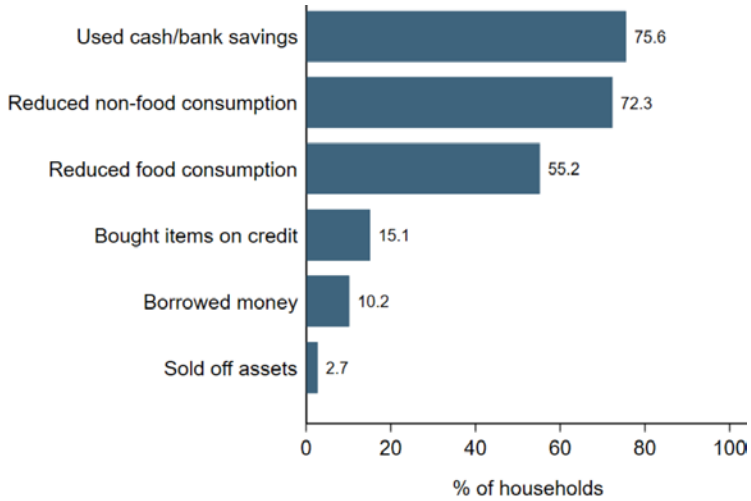
Figure 10. Change in income levels in May 2020 compared to usual incomes, by household wealth quintile



Source: Own calculation from Addis Ababa COVID-19 phone survey in June 2020. Observations = 589 households.

When households reported income losses, we asked whose income was mostly affected. In female-headed households, in 58 percent of the cases it was the household head's income that was most affected. In male-headed households, 62 percent responded that the main effect was on the head's or other male household member's income, while 25 percent said it was on women's (typically the spouse's) income. About 12 percent of male-headed households reported that the income shock affected everyone's incomes equally.

Figure 11. Coping mechanisms used by the households in the past 30 days



Source: Own calculation from Addis Ababa COVID-19 phone survey in June 2020. Observations = 589 households.

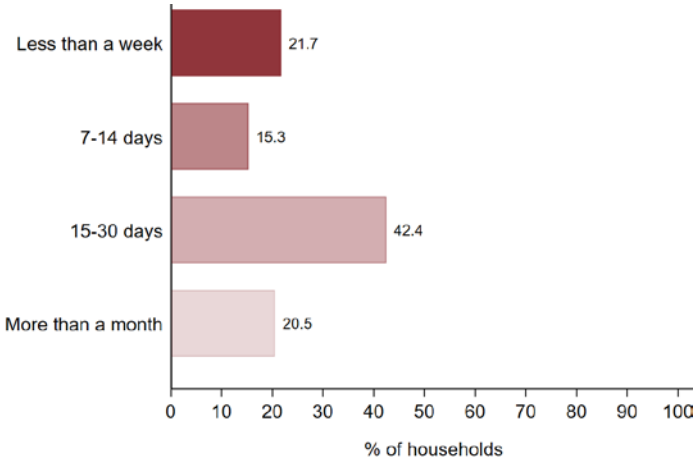
We asked all households – irrespective whether they reported income losses or not – about the type of coping mechanisms they used in the past 30 days. More than 75 percent of households reported to have used their savings (Figure 11). Meanwhile, 72 percent reduced non-food consumption, while 55 percent reduced food consumption. The other coping mechanisms were

relatively less frequently used.[7] Poorer households were more likely to reduce food and non-food expenditures than richer households (Table A3 in Appendix C).

6. FOOD AND NUTRITION SECURITY

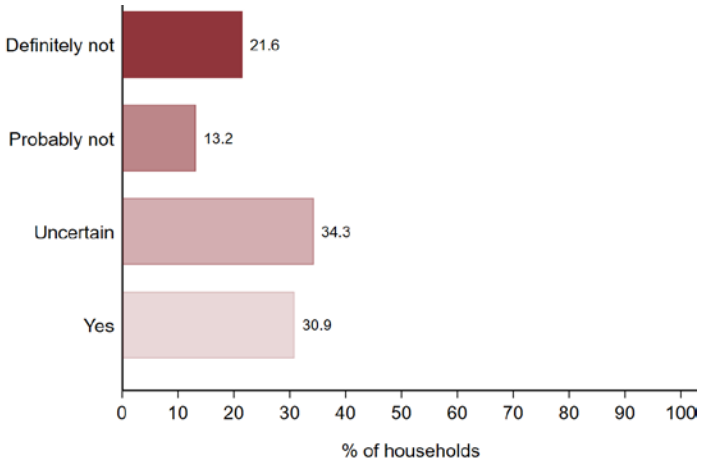
The phone survey instrument had a series of questions about household food security, some of which also appeared in the pre-pandemic instrument administered in January and February 2020. First, we asked respondents to estimate how long they can meet their food needs with their current savings. In our previous survey conducted in early May, 15 percent of households responded less than a week, while in early June this share had increased to 22 percent (Figure 12). We also asked households to anticipate their income streams over the next 30 days and contrast those incomes to the cost of their foods needs over the same period. Only 31 percent of the households were certain that their incomes will be sufficient to cover household food needs over the next 30 days (Figure 13). The rest were either unsure (34 percent) or quite certain that their incomes will be less than the amount of money needed for food (34 percent).

Figure 12. Duration of how long household estimate they can meet their foods needs with current savings



Source: Own calculation from Addis Ababa COVID-19 phone survey in June 2020. Observations = 589 households.

Figure 13. Do you think that the income your household will receive in the next 30 days will be enough to cover the household's food needs over the next 30 days?



Source: Own calculation from Addis Ababa COVID-19 phone survey in June 2020. Observations = 589 households.

[7] Note that these coping mechanism percentages are not comparable to the ones reported in the May 2020 report. In May, we focused on primary coping mechanism and only asked the question to those households that reported income losses. In June, we had questions about each coping mechanism type and asked whether the household had resorted to the coping mechanism in the past 30 days. Moreover, we asked these questions to all households, irrespective whether they reported income losses or not.

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 questions and the percent of households responding positively to each question. The severity of food insecurity increases as one moves down the list of questions, which explains why the percent of households responding positively to the question decreases. A positive answer to the last two questions capture insufficient food quantity and are indicators of sever food insecurity (hunger) (Ballard et al. 2013). Compared to the early May round (recall period covering April), we see that households are less likely to respond positively to these questions in the early June round (recall period in May), indicating that the risk of severe food insecurity has declined. However, in the early June round the prevalence of severe food insecurity is high among the poorest households.

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

Question	May survey	June survey							
	All	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	53.1	55.4	51.3	66.1	52.5	73.7	44.9	28.2
Unable to eat healthy and nutritious food because of a lack of money or other resources	69.7	74.2	77.3	71.6	87.3	89.0	92.4	63.6	38.5
Ate only a few kinds of foods because of a lack of money or other resources	69.7	75.6	79.2	72.5	94.9	87.3	72.0	71.2	52.1
Had to skip a meal because there was not enough money or other resources to get food	24.8	27.3	30.1	25.0	44.9	28.0	25.4	28.8	9.4
Ate less than you thought you should because of a lack of money or other resources	40.8	45.2	47.2	43.4	66.1	66.9	22.9	53.4	16.2
Ran out of food because of a lack of money or other resources	9.3	8.8	10.4	7.5	22.0	7.6	3.4	7.6	3.4
Were hungry but did not eat because there was not enough money or other resources for food	7.8	7.8	8.9	6.9	24.6	3.4	2.5	5.1	3.4
Went without eating for a whole day because of a lack of money or other resources	5.0	2.9	4.1	1.9	6.8	0.0	2.5	5.1	0.0

Source: Own calculation from Addis Ababa COVID-19 phone survey in May & June 2020. Observations = 600 households in May & 589 in June. Recall period is last 4 weeks.

Third, in the January and February round as well as in both phone survey rounds, 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 across survey rounds. However, we do see that compared to January and February, households are less likely to consume fruit and animal source foods (meat products, dairy and eggs) after the pandemic began in April and May. The consumption prevalence of these food groups was particularly low among the poorest households (Table A4 in Appendix C).

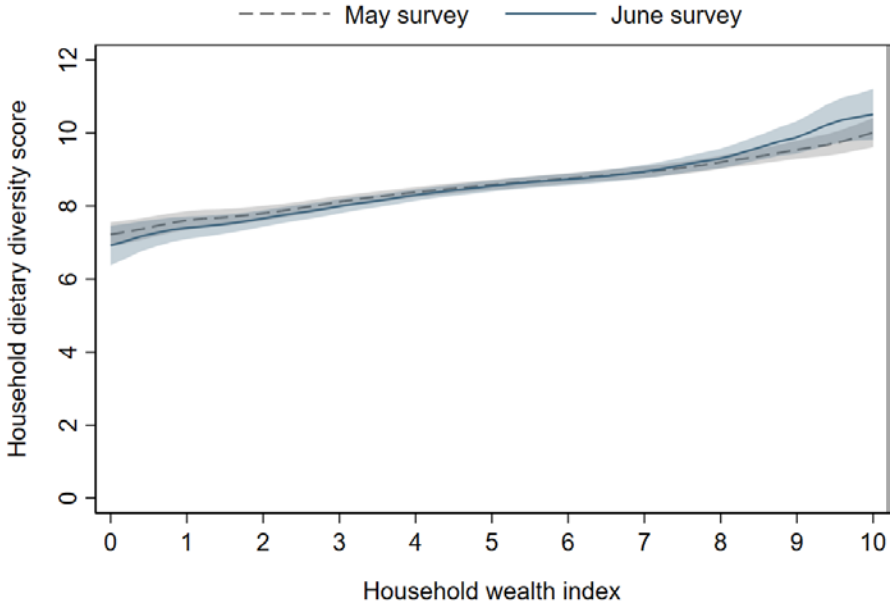
Table 3. Households consuming from each Household Dietary Diversity Score food group, by survey round, percent

HDDS food group	Jan/Feb survey, all households	May survey, all households	June survey, all households
Cereals	100	100	100
Roots or tubers	79	67	78
Vegetables	100	99	99
Fruits	81	60	59
Meat or poultry	65	54	34
Eggs	52	54	43
Fish and seafood	3	2	3
Nuts or pulses	99	98	100
Dairy	56	45	45
Oil or fats	99	98	98
Sugar/honey	98	85	95
Miscellaneous foods	100	93	97
Household Dietary Diversity Score	**9.3**	**8.5**	**8.5**

Source: Own calculation from Addis Ababa COVID-19 phone surveys in May & June 2020. Observations = 600 households in Jan/Feb and May rounds; 589 in June. Note: HDDS = Household Dietary Diversity Score. Recall period is last 7 days.

Assigning a value of 1 for each positive response and summing, we can construct the HDDS in which higher scores indicate a 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 8.5 and remained the same in May (Table 3). The local polynomial regression presented in Figure 14 shows that richer households have higher HDDS than poorer households. However, the difference in HDDS between April and May was negligible at all household wealth levels.

Figure 14. Household wealth and Household Dietary Diversity Score



Source: Own calculation from Addis Ababa COVID-19 phone survey in May and June 2020. Observations = 600 households in May and 589 in June. 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 0-10. The recall period is last 7 days.

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 shows the results for the January and February survey round, the early May phone survey round, and the early June phone survey round. Compared to January and February, households reported in the early May round (recall period in April) they were consuming fruit, dairy, pulses, and sugar products less frequently.[8] Consequently, the mean FCS was about eight points lower for April than for January and February.[9] However, less than three percent of households in April were categorized as being in the poor or borderline FCS categories, i.e., below 35.

Table 4. Mean number of days households consume from the Food Consumption Score food groups, by survey round

FCS food group	FCS weight	Jan/Feb survey, all households	May survey, all households	June survey, all households
Main staples	2	7.0	7.0	7.0
Pulses	3	5.5	4.8	5.4
Vegetables	1	7.0	6.7	6.8
Fruit	1	3.7	1.7	1.6
Meat, eggs, fish	4	2.8	2.6	1.6
Dairy products	4	2.2	1.6	1.6
Sugar	0.5	6.8	5.5	6.2
Oil/butter	0.5	6.7	6.8	6.8
Condiments	0	7.0	6.1	6.1
Food Consumption Score	**n/a**	**67.8**	**59.7**	**57.4**

Source: Own calculation from Addis Ababa COVID-19 phone survey in May and June 2020. Observations = 600 households in Jan & Feb and May and 589 households in June. Note: FCS = Food Consumption Score. Recall period is 7 days.

The FCS score declined further by two percentage points between the early May and early June (recall period in May) survey rounds.[10] Compared to the early May round, households were less frequently consuming meat, eggs and fish but more frequently pulses and sugar products. As before, the consumption frequency of these food groups was low among the poorest households (Table A5 in Appendix C). In the early June round, the FCS score was below the poor or borderline FCS categories for three percent of households.

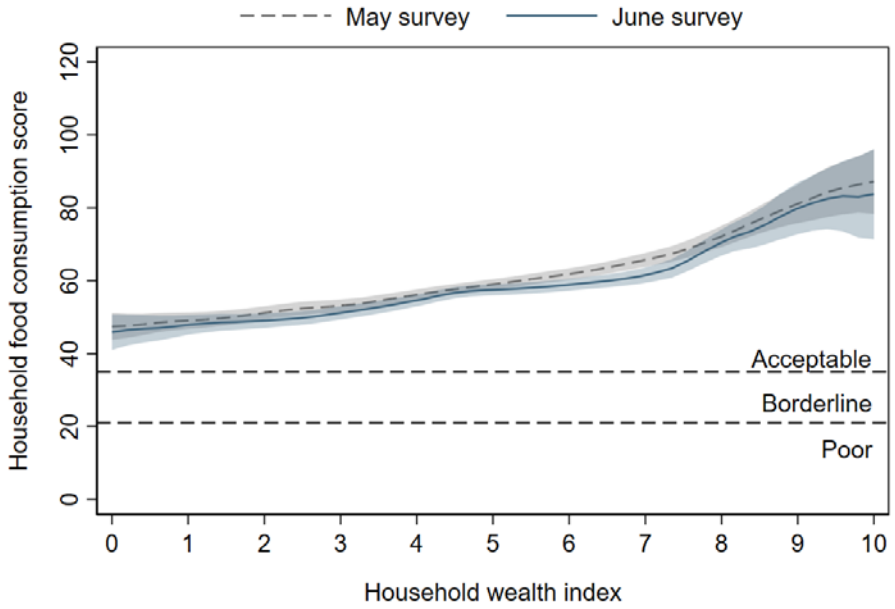
Figure 15 shows how household wealth is positively correlated with FCS in both phone survey rounds. However, the two regression lines overlap throughout households' asset levels indicating that the differences in FCS score between early May and early June survey rounds are negligible.

[8] For all these three food groups, the difference between the two survey rounds is statistically different from zero (p-value<0.001).

[9] This difference in mean FCS between the two survey rounds is statistically different from zero (p-value<0.001).

[10] This difference in mean FCS between the two phone survey rounds is statistically different from zero (p-value=0.011).

Figure 15. Household wealth and Food Consumption Score



Source: Own calculation from Addis Ababa COVID-19 phone survey in May & June 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 0-10. "April" refers to data collected in early May and "May" to data collected in early June.

7. CONCLUSIONS

Our phone survey results suggest the COVID-19 pandemic has negatively affected the majority of households in Addis Ababa. More than two-third of our respondents indicated that their incomes were lower than expected in May (up from 58 percent in April) and 45 percent reported that they are extremely stressed about the ongoing situation (up from 35 percent in April). Moreover, we find strong evidence that the adverse impacts of COVID-19 are disproportionally affecting 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. However, for the average household, these indicators have not deteriorated further between April and May. 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. 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 and many households express concerns about their near-future income streams. This all 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. In early June, virtually all respondents reported to have used face masks in public spaces.

Our study has limitations. First, while our sample is unlikely to suffer from response or sampling biases, some of the documented differences between survey types could be due to differences in survey mode, i.e., face-to-face versus phone (Lamanna et al. 2019). This point should be kept in mind when comparing the data collected in the January-February survey and our phone surveys. Second, we cannot administer a full household consumption survey module over the phone, which 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 (Hirvonen et al., 2020). Moreover, the potential scale-up of assistance programs is likely to channel more resources to women.

Despite these caveats, we believe 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 is likely to deteriorate over coming weeks if 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 for 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).[11]

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 (2018). 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 (see WFP 2008) was 68.2 and the average Household Dietary Diversity Score (see 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.

[11] 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

Number of households:	**Included** *600* **Mean**	**Not included** *295* **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.

Appendix C: Disaggregation of June 2020 survey results by household wealth quintile

Table A3. Coping mechanisms used by the households in the past 30 days, by wealth quintile, percent

HDDS food group	All	Female-headed	Male-headed	Poorest	Poorer	Middle	Richer	Richest
Used cash/bank savings	76	72	78	79	71	69	79	79
Reduced non-food consumption	72	74	71	90	70	73	69	59
Reduced food consumption	55	57	54	69	64	58	50	34
Bought items of credit	15	14	16	19	3	25	24	5
Borrowed money	10	10	10	15	5	11	16	3
Sold off assets	3	1	4	5	1	3	3	2

Source: Own calculation from Addis Ababa COVID-19 phone survey in June 2020. Observations = 589 households.

Table A4. Households consuming from each Household Dietary Diversity Score food group, by wealth quintile, percent

HDDS food group	All	Female-headed	Male-headed	Poorest	Poorer	Middle	Richer	Richest
Cereals	100	100	100	100	100	100	100	100
Roots or tubers	78	76	79	71	77	81	72	87
Vegetables	99	99	99	99	100	98	99	100
Fruits	59	55	62	30	66	64	64	70
Meat or poultry	34	31	37	17	27	28	45	55
Eggs	43	40	45	23	37	46	51	57
Fish and seafood	3	3	2	0	0	3	3	7
Nuts or pulses	100	99	100	98	100	100	100	100
Dairy	45	41	49	27	47	39	54	60
Oil or fats	98	99	98	98	99	94	100	100
Sugar/honey	95	94	96	95	95	89	98	99
Miscellaneous foods	97	97	97	98	89	98	100	99
Household Dietary Diversity Score	**8.5**	**8.3**	**8.7**	**7.6**	**8.4**	**8.4**	**8.9**	**9.3**

Source: Own calculation from Addis Ababa COVID-19 phone surveys in June 2020. Observations = 589 households.
Note: HDDS = Household Dietary Diversity Score. Recall period is last 7 days.

Table A5. Mean number of days households consume from the Food Consumption Score food groups, by household wealth quintile

FCS food group	FCS weight	All	Female-headed	Male-headed	Poorest	Poorer	Middle	Richer	Richest
Main staples	2	7.0	7.0	6.9	7.0	6.8	7.0	7.0	7.0
Pulses	3	5.4	5.4	5.4	5.0	5.3	6.6	4.9	5.0
Vegetables	1	6.8	6.7	6.8	6.8	6.7	6.6	6.9	6.9
Fruits	1	1.6	1.6	1.6	0.9	1.6	1.2	1.7	2.4
Meat, eggs, fish	4	1.6	1.4	1.7	0.7	1.3	1.3	1.8	2.6
Dairy products	4	1.6	1.3	1.8	0.8	1.4	1.2	1.7	2.7
Sugar	0.5	6.2	6.1	6.2	6.1	5.7	5.5	6.7	6.9
Oil/butter	0.5	6.8	6.8	6.8	6.8	6.7	6.4	7.0	7.0
Condiments	0	6.1	6.2	6.0	6.3	4.5	5.9	6.9	6.9
Food Consumption Score	n/a	57.4	55.6	58.9	48.9	55.0	57.8	58.3	66.8

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

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