Implications of COVID-19 on Income:

Findings from a telephone-survey

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IMPLICATIONS OF COVID-19 ON INCOME:

Findings From a Telephone-Survey in Ethiopia

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I. BACKGROUND

The COVID-19 pandemic has been spreading globally since December 2019. The World Health Organization (WHO) announced COVID-19 as a public health emergency of international concern on January 30, 2020 and in due course declared it as a pandemic on March 11, 2020 (WHO, 2020). The first Coronavirus case was reported in Ethiopia on March 13, 2020, and the number of cases has continued to increase slowly afterwards. With 68,760 tests conducted as of May 20, 2020, there were 389 cases reported, out of which five had died (Ministry of Health Ethiopia, 2020). Consequently, the Government of Ethiopia imposed various restrictive measures on social gathering and stay at home to reduce impacts of the pandemic. These include suspension of schools, sporting events, and public gatherings, a regulation for anyone entering into Ethiopia to undergo a mandatory Government supervised-quarantine for 14 days, and later on declaration of five-months long state of emergency on April 8, 2020. These restrictions and lock down measures have implications on income and could lead to substantial economic costs especially for the already poor segments of the population.

The COVID-19 pandemic is an international shock that affects not only the global economy but also the income of households and individuals in developed and developing countries. The rapidly evolving nature of the pandemic and the subsequent preventive measures of travel restrictions and stay at home influence income of households and individuals directly or indirectly. Consequently, households and individuals facing reduction in income due to COVID-19 pandemic will need to use some strategies to cope-up with the situation. Individuals may use their own saving or borrow to compensate for the income reduction due to unforeseen situation of a shock like COVID-19. However, in developing countries like Ethiopia, where liquidity constraints are prevalent, saving and credit might not be sustainable coping strategies (Dercon, 2002). Moreover,formal insurance against shocks (for instance health insurance) is minimal or practically absent, thus making market-based coping strategies limited. Households could also use informal insurance arrangements (Skoufias and Quisumbing, 2005) and social capital in coping with shocks (Carter and Maluccio, 2003). Other coping strategies in times of shock include increasing labor supply (Frankenberg et al., 2003) and shift labor to more direct income generating activities (Kochar, 1999). However, these strategies may not be feasible in the context of the current COVID-19 pandemic, which imposes travel restrictions and stay at home. This shows the trade-off between prioritizing health issues and the related income loss and subsequent limitations on use of coping strategies.

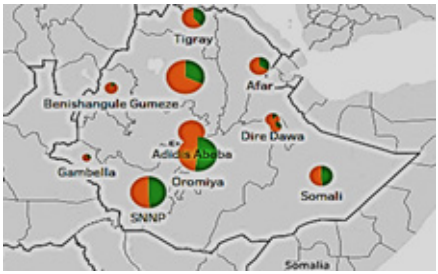
A covariate shock like COVID-pandemic will especially adversely affect poor households and individuals in developing countries. This is because the poor often lack the necessary resources to cope and recover from shocks (Carter et al., 2007; Skoufias and Quisumbing, 2005). In particular, the occurrence of shocks increases poverty by pushing some households

II. METHODS

below the poverty line and further diminishing the living standards of already poor households. The forecast of Mahler et al. (2020) estimates that COVID-19 is likely to cause the first increase in global poverty since 1998 and argues that it pushes about 40-60 million people into extreme poverty. This is especially relevant in developing countries like Ethiopia, where a sizeable portion of the population is clustered around the poverty line (Bundervoet and Finn, 2020). Even though, studies that assess the economic implications of COVID-19 pandemic in Ethiopia are emerging (Geda, 2020; Goshu et al., 2020), these studies do not reveal the implications using nationally representative survey data. This study examines the income implications of the COVID-19 pandemic in Ethiopia using a nationally representative telephone-based survey. It also aims to identify which demographic and socio-economic characteristics of respondents are strongly associated with reporting of income reduction by respondents. Furthermore, the study examines the coping strategies used to compensate for the income decline due to the pandemic. Knowing more about the income implication of COVID-19 on the one hand, and the set of coping strategies used, on the other hand, helps in the design of policies that prevent households from falling into poverty as well as better protect (by designing appropriate interventions) the poor against this global shock.

The rapid assessment survey was employed with a mobile phone-based data collection approach with a cross-sectional design targeting citizens of age 18 and above in nine regional states and two city administrations in Ethiopia[1]. The sampling of this survey aimed to construct a nationally representative sample that could help to draw inference vis-à-vis understanding the various implications of COVID-19 on income and the related coping strategies (Figure II.1). The phone-based survey is the preferred option because it was impossible to conduct face-to-face interview during the on-set of COVID-19. A stratified random sampling strategy was used where the regional states/city administrations constituted our strata. A sample size of 1050 respondents was estimated for the national eligible population based on a 3% sampling margin of error at 95% confidence level.

Figure II.1: Distribution of respondents across regions in Ethiopia.



Urban Rural

[1]*The nine regional states include Afar, Amhara, Benishangul-Gumuz, Gambella, Harari, Oromia, SNNP, Somali, and Tigray and the two city administrations of Addis Ababa and Dire Dawa.*

Sampling frame for a mobile phone survey could be from three sources. These include sampling from existing nationally representative survey with phone number of respondents; sampling from a list of valid phone numbers from telecom; and using random digital dialing (Himelein et al., 2020). Out of these three alternatives, the most viable and immediately accessible option for the rapid assessment was found to be the first one where sample of respondents were taken from an already conducted nationally representative survey with registered phone numbers of respondents[1]. A total of 1,037 respondents completed the telephone interview conducted by sixteen enumerators who were trained for conducting the survey. Data collection was conducted from April 9-25, 2020 where the telephone survey took an average of 25 minutes.

Statistical Analysis: income implications of COVID-19 is assessed using descriptive statistics (means and percentage of frequencies). The associations between income implication of COVID-19 (such as reduction of income due to COVID-19 and use of coping strategies) and demographic and socio-economic characteristics of respondents were assessed using Pearson's Chi^2 test at 95% confidence interval.

Limitations: We acknowledge some of the limitations related to this study. First, by its very nature, phone-based survey excludes those individuals who do not have a telephone and this could create a bias to make inference about the population. In Ethiopia, data showed that only half of the population subscribed to Ethio-telecom's mobile services[2]. In the same vein, urban bias cannot be ruled out because most respondents with mobile-phone were available in urban areas. Second, reporting bias may exist because responses on income and percentage of income decline due to coronavirus pandemic were self- reported and could not be validated. In particular, the self-reporting on percentage of income decline should be taken with great caution. In addition, this survey was conducted in April 9-25 while various containment restrictions were still unfolding. Hence, the survey data may not fully capture and assess the full effect of COVID-19 on declines on income as well as which set of coping strategies are being used to compensate for the income decline as the pandemic continues to influence household economic situations. Nevertheless, as a rapid assessment, we believe that it can shade light on some early effects and helps to understand the direction of income implications of coronavirus pandemic using first hand self-reported survey data. Finally, this study used a cross-sectional design, which means only associations, rather than causal effects, could be reported.

[1] *For details on sampling design, sampling frame and details of the phone-based survey,* Frontier*i can provide a detailed report upon request.*

[2] *https://www.statista.com/statistics/749655/ethiopia-ethio-telecom-density-penetration/*

III. RESULT AND DISCUSSION

The main source of income for substantial portion of respondents is monthly salary (34.1%) followed closely by daily wage (31.2%). These categories of income earners are mostly located in urban areas (Table III.1). About 27% of respondents reported farm income as their main source of income, where 83.2% are located in rural areas.

Table III.1. Main sources of income of sample respondents

	Rural	Urban	Total
	N (%)	N (%)	N (%)
Monthly salary	62 (17.51)	292 (82.49)	354 (34.14)
Daily wage	59 (18.27)	264 (81.73)	323 (31.15)
Farm income	234 (83.27)	47 (16.73)	281 (27.10)
Others	29 (36.71)	50 (63.29)	79 (7.62)
N	384 (37.03)	653 (62.97)	1,037 (100.00)

Source: Own construction based on survey data
*Others includes weekly income earners, remittances, etc.

The respondents were asked whether their income reduced due to Coronavirus pandemic. Overall, 41.4% of respondents reported an income reduction due to the pandemic. Moreover, the finding showed that about 84.8% of daily wage earners reported a decline in income while only 28.8% of farm income earners and 18.6% of monthly salary earners reported a decline in income (Table III.2). Daily wage earners are clearly affected by lockdowns and restrictions due to COVID-19 as small business, trades and various construction works scaled down or come to a halt. Our data shows that daily wage earners constitute mainly traders (47%), daily laborers (24%) and small business owners (17%). Respondents who indicated that they faced an income decline due to Coronavirus pandemic were asked to state the percentage of income decrease due to the pandemic[1]. The findings show that the highest mean percentage of income decrease due to coronavirus is reported by daily wage earners where their income declined by 61% on average (Table III.2).

[1]*It should be noted that self-reporting of income data could be biased and percentage of income reduction reported may be overestimated. Hence, these figures shall be taken with great caution.*

Table III.2. Demographic and Socio-economic factors associated with income decline due to COVID-19

		% of respondents whose income reduced due to COVID-19		% of income decline due to COVID-19, mean %	
	N (%)	Column %	P-value*	Column %	P-value*
Main source of Income					
Monthly salary	354 (34.14)	18.64	0.000	55.90	0.006
Daily wage	323 (31.15)	84.83		61.24	
Farm income	281 (27.10)	28.83		42.37	
Others	79 (7.62)	10.13		62.5	
Place of Residence					
Urban	653 (62.97)	44.26	0.014	60.80	0.003
Rural	384 (37.03)	36.46		48.80	
Sex of the respondent					
Male	693 (66.83)	44.01	0.014	56.96	0.120
Female	344 (33.17)	36.05		56.69	
Age of the respondent					
16-24	133 (12.84)	33.08	0.030	55.79	0.902
25-34	354 (34.17)	43.22		57.90	
35-50	403 (38.90)	44.42		58.18	
50-64	107 (10.33)	31.78		51.02	
65+	39 (3.76)	48.72		49.47	
Marital status of respondent					
Married	782 (75.41)	42.33	0.217	55.98	0.954
Single	194 (18.71)	37.11		58.95	
Separated	13 (1.25)	61.54		73.75	
Divorced	16 (1.54)	50.00		67.50	
Widowed	32 (3.09)	31.25		50.00	
Education level of respondents					
No education	139 (13.40)	34.53	0.000	57.5	0.748
Elementary (1-6)	195 (18.80)	44.62		51.89	
Junior Secondary (7-8)	163 (15.72)	53.99		57.61	
Secondary (9-12)	276 (26.62)	50.36		58.19	
College diploma	117 (11.28)	32.48		54.21	
College degree	144 (13.89)	20.14		65.86	
Masters	3 (0.29)	0.00		0.00	
Job category of respondent					
Not working/unemployed	34 (3.28)	26.47	0.000	61.11	0.027
Farmer	244 (23.53)	28.69		42.67	
Trader	162 (15.62)	81.48		57.46	
Civil servant	222 (21.41)	11.71		47.30	
Work in private company	72 (6.94)	50.00		55.27	
Daily laborer	85 (8.20)	88.24		66.69	
Self-employed	65 (6.27)	75.38		66.22	
Other**	153(14.75)	20.92		56.71	
Total sample size					**1,037**

Source: Own construction based on survey data

*shows Pearson's Chi2 test for relationship between variables at 95% confidence intervals. The null hypothesis (Ho) is that there is no relationship. To reject the null, we need P-value<0.05 (at 95% confidence).

**'Others include student; housewife/husband/on leave; and community/religious worker.

We also examined the association between the reporting of income decline due to COVID-19 and demographic and socio-economic characteristics of respondents. The findings show significant association between location (rural-urban) and income decline where most of the respondents that reported income decline due to COVID-19 are from urban areas. Similarly, sex, age group, education, and job category of respondents are found to have significant association with income decline due to COVID-19, while we do not find significant association with marital status. From the active labor force, the highest percentage of respondents that report income decline are found in the age groups of 25-34 (43.2% of income decline) and 35-50 (44.4% of income decline). Indeed, the highest percentage of income decline is recorded within the age group of more than 65 years, however, the sample size of respondents with more than 65 years is only 3.7% of the total respondents. Furthermore, those who have junior secondary and secondary education, and are within the job category of traders, daily laborers and self-employed are mostly affected by income reduction.

The major reasons for the decline in income is reported as slowdown in business activities and not going out to work due to COVID-19 restrictions and lock down(Table 3). We compared the self-reported causes of income decrease of the total sample (429 respondents who reported that their income declined) with those of daily wage earners who reported an income decline, since these are the most affected in terms of income decline. The responses are consistent where majority of daily wage earners also reported that major causes of income decline as slowdown in business and movement restrictions to go out, find daily activities, and earn wage.

The survey also investigated the various coping strategies used by respondents to compensate for the income decline due to COVID-19 pandemic. The respondents reported that the most commonly used coping strategy against income decline is saving. From the total sample of respondents who faced an income decline, 56.3% of them reported to have used their saving to compensate for the income reduction (Table III.3). When looking at daily wage earners in particular, about 58.1% of them reported using saving as their main coping strategy. It should be noted here that the survey did not specifically ask whether this saving was from precautionary saving due to the pandemic or saving before the pandemic. However, given that the survey was conducted just one month after the onset of the first COVID-19 case, it is assumed that respondents are referring to saving before the pandemic. Here, it is vital to anticipate that once savings are exhausted, asset-depleting coping mechanisms could be utilized. These could be selling of productive assets and reduction in food expenditure, which will bring the issue of food security into the picture. In fact, reduction in food expenditure is already reported as a coping strategy by about 15% of respondents at this early stage of the COVID-19 onset. Reduction in food expenditure has clear implications for food security and hence the likelihood of a health crisis cascading into food insecurity crisis may be inevitable.

Table III.3. Causes of income reduction and coping strategies

	All respondents	Daily wage earners
	N (%)	N (%)
Cause of income reduction		
Cannot go out to work	254 (59.21)	169 (61.68)
Business gone down	300 (69.93)	196 (71.53)
Employer reduced salary/wage	27 (6.29)	15 (5.47)
Employer closed business	56 (13.05)	40 (14.6)
Coping strategies used for income decline		
Formal credit	71(16.47)	55 (20.00)
Borrowed from family and friends	102 (23.67)	79 (28.73)
Used saving	243 (56.38)	160 (58.18)
Received Equb	12(2.78)	7 (2.55)
Reduced food expenditure	67(15.55)	43 (15.64)
Reduced non-food expenditure	59(13.69)	45 (16.36)
Did Nothing	66 (15.31)	36 (13.09)
N	**429**	**274**

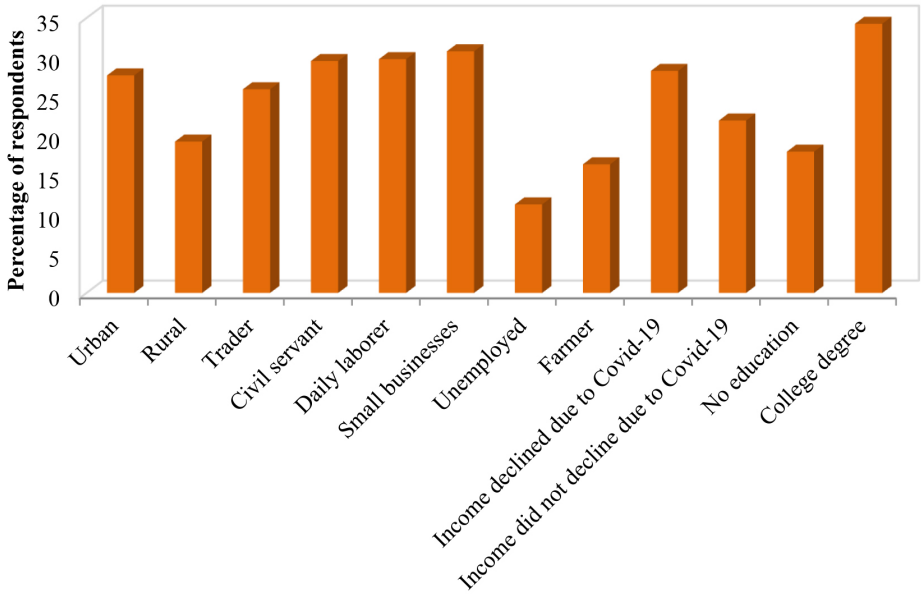
Source: Own construction based on survey data

Stockpiling of food items is another form of coping strategy. Stockpiling of food items could be done in anticipation of food shortage and price spikes due to travel restriction measure of COVID-19 pandemic. The result of the study shows that about of a quarter of the respondents' stockpiled some sort of food items since the release of the news about the spread of Coronavirus in Ethiopia. Figure III.1 reports the percentage distribution of respondents for status of stockpile of any sort of food items presented. Among those respondents who report stockpiling of food items, about 90% of them reported they stockpile flours such as teff, wheat or maize. Around 62% of them reported stockpile of dry food items (such as lentils, peas and beans and pasta) and about the same proportion stockpile of cooking supplies (such as oil). The findings show significant variations in stockpiling among different categories of the respondents. A significant variation is observed between urban (27.69 %) and rural (19.27%) respondents. We have also observed similar variation of stockpiling characteristics among the different education level of the respondents.

Respondents with higher level of the education associate with higher stockpiling of food items, which ranges from 18% with no education to 34.2% with respondents who have college degree.

The characteristics of stockpiling also significantly vary among the types of job which the respondents are engaged in and whether their income is affected by Coronavirus pandemic. High proportion of stockpiling is observed among daily laborers (30%), small business owners (31%), and traders (26%). These figures are significantly higher compared to those working in private company (19.4%), farmers (16%), and unemployed (11.7%). Similarly, respondents whose income is affected by coronavirus pandemic (28.3%) have significant association with higher food stockpiling than those whose income is not affected by it (22%). The above two results show that categories of respondents with uncertain or lower sources of income such daily laborers and self-employed have more stockpiling than those categories who, relatively, have certainty in income such as those working in private companies.

Figure III.1. Percentage of respondents who stockpiled food items since the release of news about COVID-19



IV. SUMMARY AND CONCLUSION

It is clear that it is too soon to assess the full income implication of COVID-19 and its containment measures. This is because the situation of the pandemic changes rapidly, and the related restrictive measures (stay at homes, travel restrictions and lock downs) keep on being modified which produce various types of income implication for various segments of the population. That is why a continuous assessment through individual self-reported data is of immense use to understand the income implications of COVID-19 and which demographic and socio-economic characteristics correlates significantly to reduction in income. For this, Frontier*i* conducted a nationally representative phone-based survey at the early stage of COVID-19 pandemic on 1,037 individuals in rural and urban locations of Ethiopia. Given that the first COVID-19 case was identified on March 13 in Ethiopia and this survey was conducted from April 09-25, it makes it the first nationally representative survey aimed to thoroughly identify the income implications of COVID-19 in Ethiopia.

In summary, more than two third of daily wage earners reported an income decline due to COVID-19 which indicates the direct and indirect income implications of the pandemic. Daily wage earners reported the highest mean percentage of income decline as compared to the other income sources. Daily wage earners are affected by various restrictions such as travel restrictions and stay at home, as small business, trades and various construction works scaled down or come to a halt. Given that most of the daily wage earners are located in urban areas within the job categories of traders, daily laborers and self-employed, it is important to focus on these segment of the population and job categories in designing an intervention mechanism to reduce the income implication of COVID-19.

Saving is reported as the most commonly used coping strategy against income decline. However, it is also important to expect that once savings are drained, asset depleting coping mechanisms would be employed including selling of productive assets and reduction in food expenditure, which will bring the issue of food insecurity in the picture. We already find that reduction in food expenditure is reported as a coping strategy by about 15% of respondents at this early stage of the COVID-19 onset. Such reduction in food expenditure has implications for food security and hence the likelihood of a health crisis cascading into food insecurity crisis may be inevitable. Hence, it is crucial to design and/or scale-up safety net programs that provide support to the most affected and vulnerable segments of the society. To come up with specific and relevant policy recommendation, there is a need for continuous assessment of income and livelihood implications of COVID-19 on individuals and households. In addition, there is a need to specifically assess the effect of COVID-19 on the various segments of business activities as it affects not only the wage earners but also inputs suppliers of agriculture and manufacturing sectors.

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