

The 2020 Food Security Crisis in Yemen¹

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Table of Contents

Summary	3
Introduction	4
Background- Food Access in Yemen Before 2020	7
2020 Shocks to Food and Fuel Prices	9
Shocks Directly Harming Food Access	15
Timing and Location of Declining Food Access	18
Multidimensionality of the Current Food Security Crisis	25
Lessons from Previous Spikes in Food and Fuel Prices	27
Conclusions	43
References	45
Appendix 1 - Data Sources	48
Appendix 2 - The Effects of Prior Food Price Shocks by Displacement Status	50

Summary

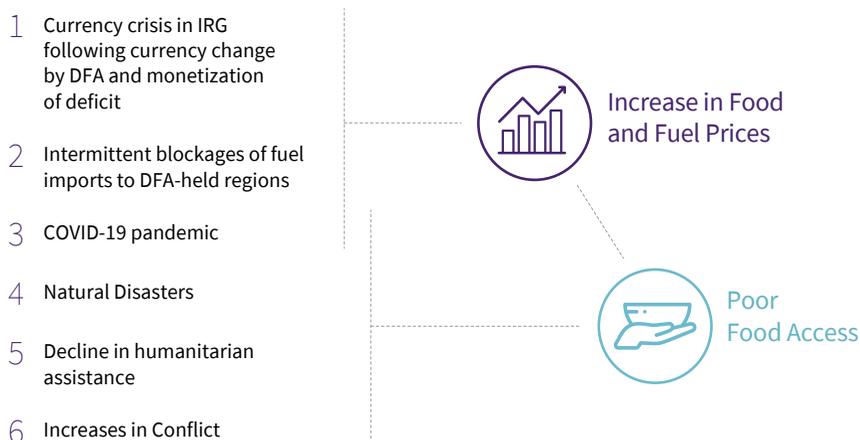
Yemen experienced sharp increases in food insecurity during 2020, and many Yemenis risk falling into famine. A number of large shocks in 2020 combined to cause the current food security crisis, including the COVID-19 pandemic, a significant decline in humanitarian assistance, a currency crisis, rising global food prices, difficulties in importing fuel, and increasing conflict. This analysis identifies how each major shock affected prices and households, examines whether each individual shock was associated with the timing and location of when and where food access declined most rapidly, and lastly examines previous food security crises in the country to identify whether any shocks in particular might be associated with bad food security outcomes during the conflict. Although each adverse shock that occurred during 2020 worsened food access, the results suggest that rapidly rising food prices in 2020 and early 2021 have been particularly harmful to food access. Our findings highlight the urgent need to increase humanitarian assistance, stabilize rising prices, and produce additional analytical work that further identifies feasible interventions to address the current food security crisis.

Introduction

A number of devastating economic shocks in 2020 have stressed the vulnerable Yemeni population. These shocks include a currency crisis, a decline in humanitarian assistance, the COVID-19 pandemic, and a series of natural disasters. Figure 1 details the mechanisms by which each of these shocks have hindered food access. A number of the shocks have resulted in large increases in food and fuel prices, which subsequently impede food access; while other shocks obstruct income and food access directly; and some shocks both directly increase food prices while obstructing food access.

FIGURE 1. The Crisis in Yemen

EVENTS IMPACTING THE COUNTRY



Notes: Each event began at a different time. The currency crisis began in January 2020; the intermittent blockages of fuel imports has been ongoing, but worsened in January 2021; the COVID-19 pandemic began in March 2020; natural disasters have been ongoing, with flash flooding in August 2020; the decline in humanitarian assistance began in April 2020; and conflict increases have been ongoing, with the most recent in February 2021 in Marib.

Shocks have significantly worsened food security from an already low base. According to the latest Integrated Food Insecurity Phase Classification (IPC) released in December 2020, 16.2million Yemenis are expected to face high levels of acute food insecurity (IPC Phase 3 or above) between January and June 2021; 47,000 of these people will likely be in Catastrophe (IPC Phase 5). The share of the population facing acute food insecurity are similar to those reported in the last IPC released in the midst of the 2018 currency crisis, which was arguably the closest the population has come to famine during the conflict (IPC 2018; OCHA 2019). However, many of the aggravating factors cited in the 2020 IPC have not yet been resolved and continue to worsen, which suggests that the food security situation might become more dire in the coming year in the absence of a sustained stakeholder policy response.

To better understand key drivers of the current crisis, this analysis investigates the degree to which each shock (Figure 1) affected prices and Yemeni households. Although each factor contributed to the food security crisis (IPC 2020), the scarcity of data in Yemen prevents thorough accounting of the degree to which each event affected prices and household income. We rely on two data sources: (i) the World Food Programme’s (WFP) Global Food Price Database, and (ii) the Mobile Vulnerability Analysis and Mapping survey (mVAM). The WFP Global Food Price Database reports the prices of dozens of food and fuel items collected each month across the country, and mVAM reports monthly statistics on access to food and basic services collected through phone surveys.^{6,7}

We further investigate differences in the timing and location of the largest declines in food access to better understand which shocks caused the largest share of households to have poor food access. Given the wide-ranging factors, it is difficult to prioritize potential interventions to most rapidly improve the food situation on the ground. Many of the causes of food insecurity began at slightly different times and varied by region. Triangulating between the location and timing of shocks can help identify the largest contributors to the current food secu-

⁶ Although mobile phone surveys do not capture households without access to mobile phones, previous evidence suggests that mobile phone penetration has remained high following the start of the conflict. Additionally, the survey still captures a significant share of households with poor food access, which are the primary focus of the note. However, other survey methodologies are needed to address households without access to mobile phones, such as face-to-face interviews where possible and key informant interviews.

⁷ See Appendix 1 for a thorough description of each data source.

rity crisis.⁸ One of the key insights from this analysis is that rising food prices are particularly associated with the worsening of food access that has occurred over 2020 and the beginning of 2021.

Lastly, given the importance of rapid price spikes to the current food security crisis, we also draw lessons for the current food security situation from previous price spikes during the conflict. The last time the country faced a similarly dire food security situation was during the 2018 currency crisis, which was a time during which there were also very large rises in food and fuel prices (e.g., IPC 2018). We further investigate other events that caused food and fuel price to escalate rapidly, investigate the distributional impacts of these events, and further analyze what happened to households as the price spikes began to resolve.

However, the analysis aims to identify how food access has changed over the past year rather than fully characterize Yemen's food security challenges. A number of other sources better describe the overall food security situation and how the conflict has dramatically worsened it (e.g., EFSNA 2017; IPC 2018; IPC 2020). Rather, this analysis is intended to show how the situation has worsened since 2020, and to highlight the most pressing issues to address in order to avoid a catastrophic outcome.

⁸ Importantly, the lack of large and immediate decline in aggregate food access does not imply that a shock is unimportant.

Background– Food Access in Yemen Before 2020

Food insecurity was a problem in Yemen prior to the escalation of the conflict in 2015. The country has long confronted high poverty and underemployment, both of which have contributed to food insecurity (World Bank 2007). Furthermore, high dependence on imported food made the country particularly susceptible to global food price increases in 2008 and 2011, making it harder for the poor to afford food (WFP 2012). Additionally, the political uncertainty introduced by the Arab Spring and resignation of the long-serving president in 2012 exacerbated underemployment and worsened food access and poverty (World Bank 2017).

However, the escalation of the conflict in 2015 led to a dramatic further decline in Yemeni’s food access. The 2015 IPC estimated a 21 percent increase in the share of the population classified as IPC 3 (Crisis) or worse relative to 2014—only three months after the conflict escalated. Furthermore, the Emergency Food Security and Nutrition Assessment (EFSNA) estimated that 65 percent of Yemenis had poor or borderline food consumption in 2016,⁹ a 57 percentage point increase relative to 2014 (EFSNA 2017; World Bank 2017).¹⁰

⁹ This was measured by the share of the sample with a Food Consumption Score (FCS) that was below thresholds commonly used by the World Food Programme as one of the indicators to target food assistance. Specifically, households with poor consumption have an FCS at or below 28; and households with borderline consumption have an FCS greater than 28 but at or below 42.

¹⁰ The 2014 estimates are derived from a longer food consumption module in the 2014 Household Budget Survey.

The onset of the conflict worsened food access through a number of different channels. Analyzing all ways the conflict worsened food security is beyond the scope of this report, but previous analysis has highlighted widespread loss of livelihoods, increasing prices, escalating transportation costs, and breakdown of access to basic services such as health care, sanitation, and electricity (IPC 2015; IPC 2017; World Bank 2018; Tandon 2019; ACAPS 2020).

Furthermore, even prior to 2020, numerous shocks—many a direct result of conflict—contribute to each driver of food insecurity and causes sudden changes in food access. Shocks include large swings in violence, changes in governance from the capture of territory, air and sea blockades, as well as the natural disasters, widespread disease outbreaks, and currency crises (OCHA 2017; OCHA 2019; OCHA 2021). The severity of the food emergency has varied along with the significant variation in shocks over time. Food insecurity worsened each year after 2015, teetering on the edge of famine at the end of 2018; however, the situation improved in 2019 before worsening again in 2020 and 2021 (OCHA 2019; OCHA 2021).

Although we identify a number of factors contributing to the food crisis in Yemen, our analysis does not rule out the possibility of other contributing factors. The complex supply chain that has evolved over the course of the conflict is very difficult to monitor (World Bank 2018; ACAPS 2020). Thus, even though we identify a number of factors that are contributing to the crisis below, the analysis does not rule out the possibility that there are other contributing factors.

2020 Shocks to Food and Fuel Prices

The COVID-19 pandemic and resulting global volatility in food and fuel prices have hurt the Yemeni population. Yemeni fuel and food prices have moved in tandem with global prices. Figure 2a demonstrates that global oil prices significantly dropped in March 2020 and subsequently increased in May 2020. Meanwhile, Figure 2b demonstrates a smaller and gradual increase in global food prices beginning in May 2020. Shortly after each of these global changes in prices, prices in Yemen moved in the same direction. Figure 2c demonstrates a large decline in fuel prices in both regions controlled by the de facto authorities in Sana'a (DFA) and regions controlled by the internationally recognized government (IRG) shortly after global prices began to decline, and the figure shows large increases shortly after global prices began to increase.¹¹ Similarly, Figure 2d demonstrates that selected food prices in both DFA and IRG-held regions increased over the same time period that global food price increases. Selected food prices across all of Yemen also increased immediately after the pandemic began in March 2020.¹²

¹¹ Throughout, when referring to IRG, we are referring to territories not controlled by the DFA. This includes territories where other groups are influential and the IRG has limited control. Furthermore, given the price data is only collected in the capital cities of each governorate, we exclude governorates where neither the DFA nor IRG controls the entire governorate. However, the patterns in the districts of those governorates are most similar to other regions with the same controlling authority.

¹² Throughout the analysis, we use average food price of all food items that have been recorded every month in the WFP's Global Food Price Database since January 2016: wheat, potatoes, tomatoes, oil, kidney beans, sugar, and onions. The average prices are equally weighted across food items. All patterns are qualitatively identical when weighting food items by their share in the average diet. Additionally, all patterns discussed are qualitatively identical when analyzing the price of wheat, which forms a large share of the average diet.

FIGURE 2a. Crude Oil Price Index - IMF



FIGURE 2b. Food Price Index - FAO

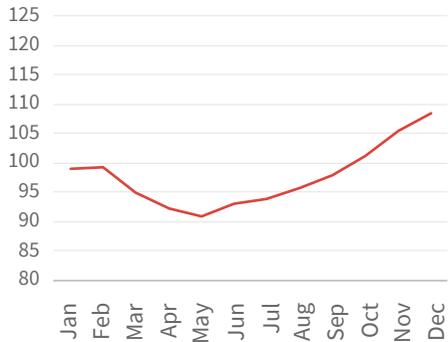


FIGURE 2c. Fuel Prices in 2020- Yemen

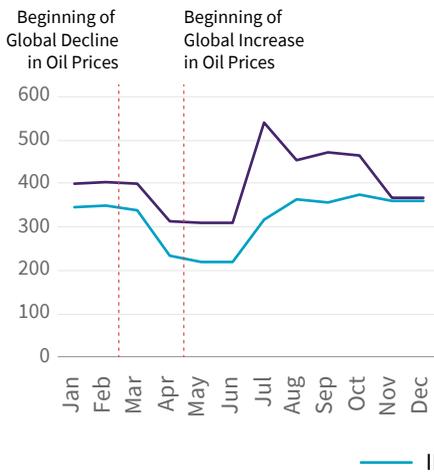
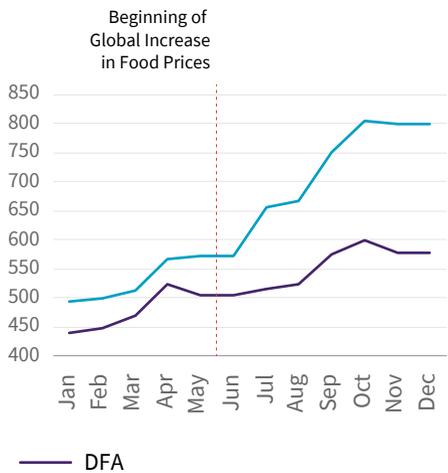


FIGURE 2d. Selected Food Prices in 2020 - Yemen

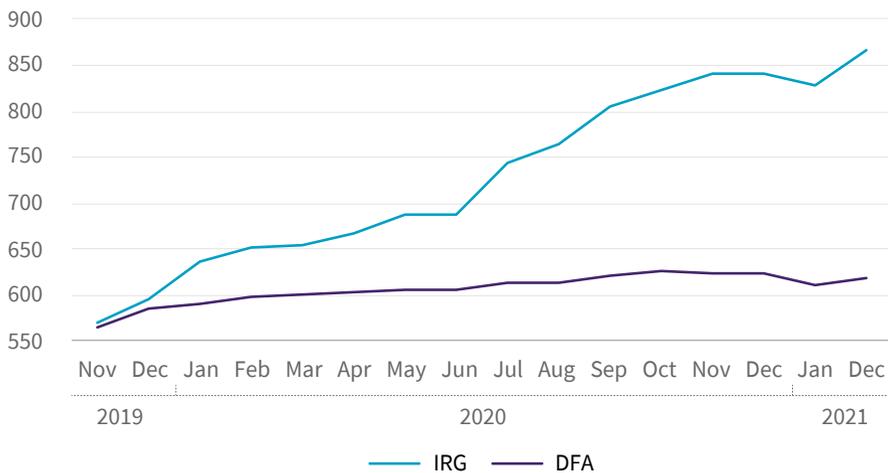


Notes: International oil prices obtained from the IMF Primary Commodity Price System; international food prices obtained from the Food and Agriculture Organization (FAO); and food and fuel prices are obtained from the Global Food Price Database from the World Food Programme (WFP). The average level of fuel prices is the average price of diesel and petrol prices; the average level of food prices is the average price of all food items captured every month by the WFP- wheat, potatoes, oil, sugar, tomatoes, onions, and kidney beans.

However, in addition to global price changes, a currency crisis in Yemen’s IRG-held regions also caused food prices to surge given Yemen’s high dependence on imports. Figure 3 demonstrates that the currency in IRG-held regions had already depreciated 15 percent before the COVID-19 pandemic began in March, and

the currency further depreciated another 29 percent over the rest of the year.¹³ Alternatively, the currency depreciated approximately 6 percent in DFA-held regions over 2020. In addition to causing prices in IRG-held regions to surge relative to DFA-held regions, the dual exchange rate system also creates rent-seeking opportunities for those with access to preferential exchange rates.

FIGURE 3. Average Number of Riyals per US Dollars in Local Markets



Notes: The figure reports commodity prices in Yemen reported by the WFP global food price database.

Currency pressure in IRG-held regions is not only the result of overall weak economic fundamentals and war, but depreciation is linked to increasing Yemeni Central Bank (in Aden) monetization of fiscal deficits. Increased fiscal monetization started in 2019 and accelerated in 2020. This coincided both with higher inflation in IRG-held regions from the end of 2019 to the beginning of 2020, and concomitant currency depreciation. The Central Bank has resorted to monetary deficit financing in the absence of alternative financing sources, resulting in more rapid exchange rate depreciation and inflation (IMF 2021). It is likely that the Central Bank monetized the entire fiscal deficit in 2020 (-9.6 percent of GDP; or US\$1.9 billion) and that monetization will continue to finance immediate fiscal deficits.

¹³ Currency depreciation in IRG-held regions accelerated following global food price increases in May 2020.

Regardless of exact causes and consequences of high inflation and the currency crisis, these factors contributed to large food price increases in IRG-held regions. Between January and December 2020, food prices in IRG-held regions increased 62 percent compared to 31 percent in DFA-held regions. Although Figure 2d demonstrates food prices are high in both regions, food prices in IRG-held regions are significantly higher than in DFA-held regions; by December 2020, average prices of the same food items are 38 percent more expensive in IRG-held regions.

Although currency crises can affect a population beyond prices—for instance, by increasing income— it is unlikely that many Yemenis living in IRG-held regions benefitted from rapid currency depreciation. Remittances from DFA-held regions or from foreign countries increased in value as the riyal in IRG-held regions rapidly depreciated; and workers producing export goods might benefit due to relative price changes in foreign markets.¹⁴ While these factors can compensate for higher food prices, the majority of Yemenis are underemployed or depend on fixed and intermittently-paid government salaries (e.g., OCHA 2019).¹⁵ Furthermore, although many households receive remittances, the COVID-19 pandemic has led to a global drop in remittances (World Bank 2020a).

Alternatively, fuel prices have had a significantly different trajectory than food prices, with volatility and peaks being higher in DFA-held than in IRG-held regions. Figure 2d demonstrates that when global oil prices started increasing, the resulting rise in Yemen was much larger in DFA-held regions than in the rest of the country. Fuel prices increased 76 percent in DFA-held regions compared to 46 percent in IRG-held regions, and the peak fuel price in 2020 in DFA-held regions (July) was 44 percent higher than in IRG-held regions (October). Furthermore, fuel prices continued to remain at near-peak highs for months in DFA-held regions and only decreased to pre-pandemic prices in November and December. Importantly, high fuel prices, especially at the peak of rapid spikes, likely increase food prices through transport costs (e.g., OCHA 2019).

¹⁴ See Chen (2006) for an example where a subset of workers benefitted from Indonesia's currency crisis in the late 1990's, and a subset were especially harmed.

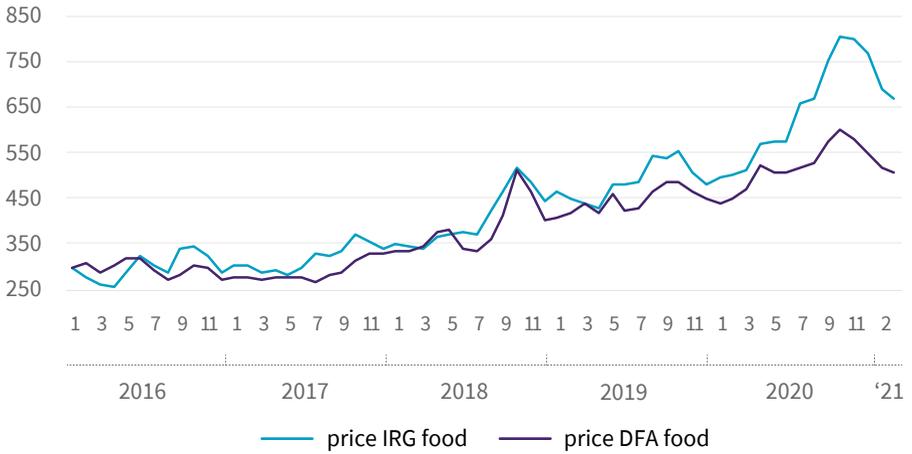
¹⁵ This is corroborated by the monthly mVAM survey, where the vast majority of households rely on non-agricultural income, such as fixed government payments.

In addition to the COVID-19 shock to fuel prices, reported fuel import blockages to DFA-held regions have caused fuel shortages. For example, the Norwegian Refugee Council reported widespread fuel shortages in Yemen's primarily DFA-controlled northern governorates, as fuel prices spiked in mid-2020 (NRC 2020). These fuel shortages are continuing in 2021, and WFP has reported that no fuel has been allowed to enter the port of Al Hudaydah for the first three months of the year, which is the port through which much of DFA-held region oil imports flow (WFP 2021). Although it is difficult to measure the degree to which fuel imports are blocked, it has likely contributed to higher volatility and peak fuel prices in DFA-held regions. This is a longstanding problem as fuel imports have been intermittently blocked during the conflict and resulted in higher fuel price volatility in DFA-held regions (OCHA 2019).

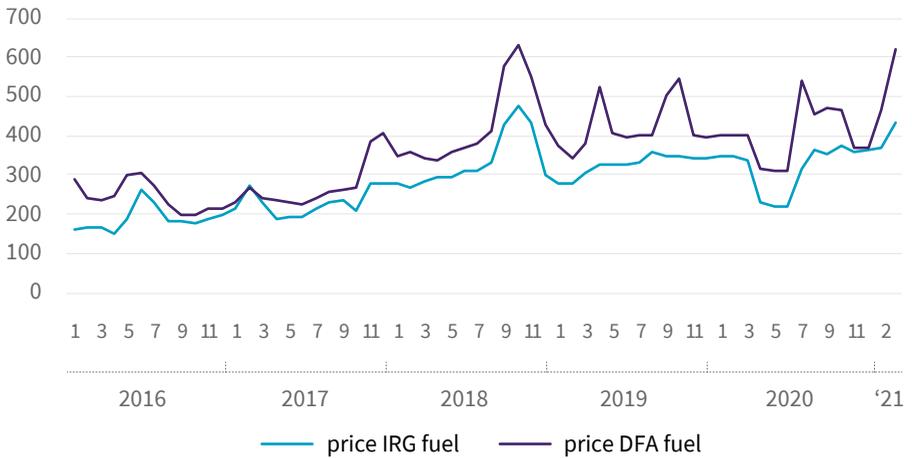
Regardless of the relative contribution of each shock, Yemeni food and fuel prices are very high and pose a significant threat to the population. Figure 4 presents average selected food and fuel prices during the conflict. Food and fuel prices peaked during the 2018 currency crisis, which, as mentioned, was also the point the population may have been closest to famine during the conflict (IPC 2018; OCHA 2019). However, selected food prices in both DFA and IRG-held regions have now exceeded 2018 peaks, and fuel prices have nearly reached their peak during 2020 and remain historically high. Record high food and near-record high fuel prices are putting extraordinary pressure on households who struggled to access food and basic services even before the current food security crisis (OCHA 2021).

FIGURE 4. Food and Fuel Prices Over the Course of the Conflict

4a. Average Selected Food Prices



4b. Average Fuel Prices



Notes: The figure reports commodity prices in Yemen reported by the WFP global food price database. The average level of fuel prices is the average price of diesel and petrol prices; the average level of food prices is the average price of all food items captured every month by the WFP- wheat, potatoes, oil, sugar, tomatoes, onions, and kidney beans.

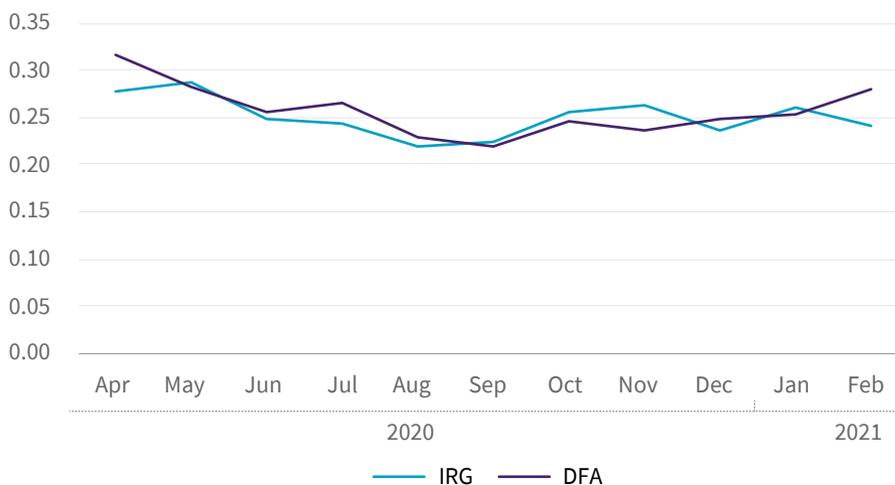
Shocks Directly Harming Food Access

The COVID-19 pandemic significantly reduced food access through declining income and remittances. Figure 5 shows that about one-third of the phone-using population reported either losing all income immediately after the start of the pandemic, or earned less than prior to the pandemic. The share was nearly identical in both DFA and IRG-held regions. Although slightly improving since the pandemic started, approximately 25 percent of Yemenis still reported earning less than prior to the pandemic in December 2020. Furthermore, as mentioned, the global economic slowdown along with declining economic conditions in Yemen have reduced remittances on which a large share of the population relied. Although it is difficult to precisely monitor the situation inside Yemen, global estimates suggest that remittance flows shrunk 14 percent in 2020 (World Bank 2021).¹⁶

In addition to the COVID-19 pandemic, a series of natural disasters in Yemen have led to lost income and assets, and in some cases, caused death and disease. Flooding in Sana'a and neighboring governorates in the north of the country killed over 100 Yemenis, destroyed assets, and helped spread mosquito-borne and other sanitation-related diseases such as cholera; locust swarms significantly diminished agricultural income in the south of the country in 2020; and fighting renewed in 2021, particularly in Marib (OCHA 2021; ACLED 2021; etc.). Although precise estimates are not available, these issues affect smaller regions of the country than other shocks described in Figure 1, and were similar to many shocks that have intermittently afflicted the population over the course of the conflict (OCHA 2019). However, these events further stress households and magnify the negative effects of concurrent shocks.

¹⁶ The monthly WFP phone survey does capture the two primary income sources, where one of the options is "remittances from abroad." However, very few people captured in this survey report this as one of their two primary income sources (less than one percent). Although, this does not preclude the possibility that people receive remittances and it is not one of their primary income sources, and it is possible that people without access to mobile phones have a higher reliance on remittances.

FIGURE 5. Share of Respondents Earning Less than Before the Pandemic



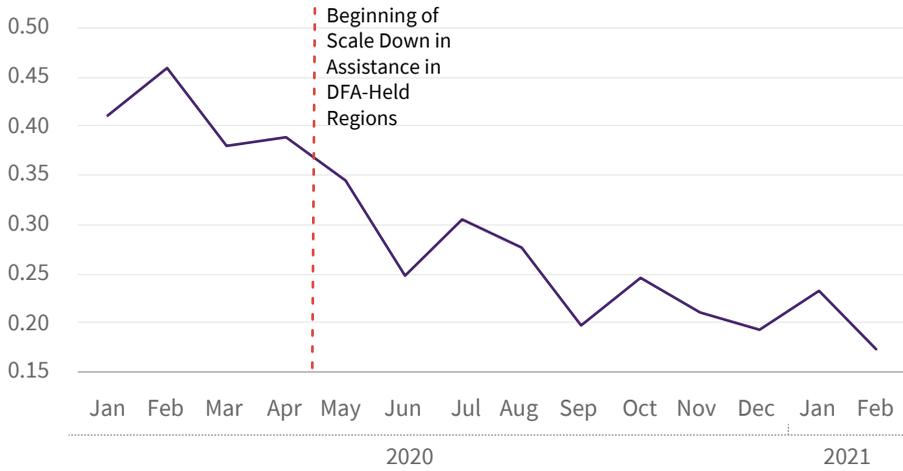
Notes: Figure reports the share of respondents that have lower income relative to prior to the COVID-19 pandemic as captured by the mobile Vulnerability and Mapping Survey performed by the WFP.

Compounding the loss of income, humanitarian operations were scaled down in DFA-held regions over 2020. The UN estimated that approximately 80 percent of Yemenis required some form of humanitarian assistance prior to the crisis in 2019 (OCHA 2019), and that figure has likely increased following price increases and declining income. However, two of the largest humanitarian agencies reported the need to scale back their assistance from 2019 levels due to a lack of resources (UNICEF 2020; WFP 2020).

WFP monthly phone surveys corroborate reports of declining humanitarian assistance in DFA-held regions. Figure 6 presents the share of households receiving food assistance—the largest form of assistance in Yemen prior to the current crisis—in the past month in DFA-held regions (OCHA 2019). In January and February of 2020, about 41 percent of people received food assistance. However, the share receiving food assistance declined by approximately 27 percentage points in DFA-held regions from the peak.¹⁷

¹⁷ There was increased volatility in the share of respondents in IRG-held regions that received food assistance in the past month. The peaks occurring in June and November 2020 were similar to the share prior to the start of the pandemic, and the troughs were lower. Although there were no reports of scale downs in food assistance in the region, there have been reports from households of difficulty in receiving humanitarian assistance in IRG-held regions (e.g., social distancing, etc.). These factors could be contributing to the increased volatility despite no changes in targeting in the region.

FIGURE 6. Share Receiving Food Assistance in DFA - controlled Regions in the Past Month



Notes: Figure reports the share of respondents that received food assistance in the past month from the mobile Vulnerability and Mapping Survey performed by the WFP.

Timing and Location of Declining Food Access

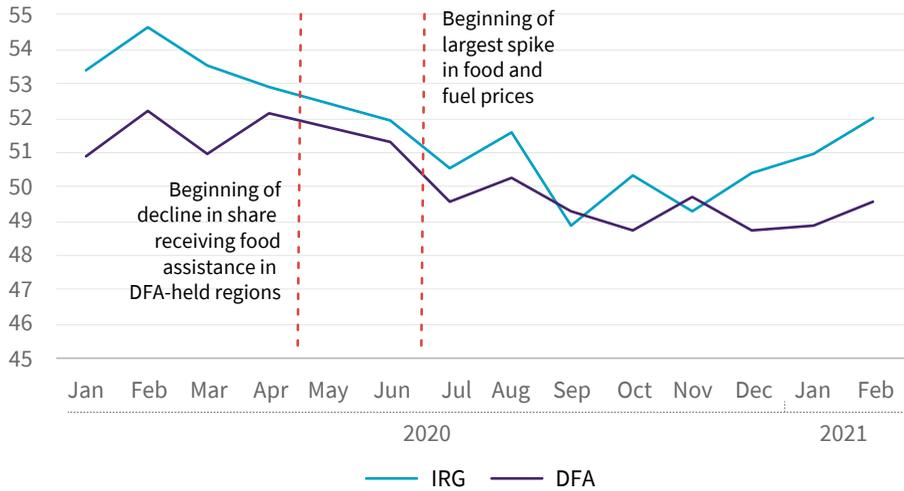
The timing and location of the largest declines in food access suggest that rising food prices are particularly important to the current food security crisis. Although many factors are contributing to the current food emergency in Yemen, each event started at slightly different times and some had region-specific effects. By better linking the drops in food access that occurred to specific events, we can begin to understand the relative contribution of some of the most important shocks to the current crisis.

Food access declined most rapidly between June and July 2020, shortly after humanitarian agencies began scaling down and food and fuel prices most rapidly escalated. Figure 7a demonstrates that average Food Consumption Score (FCS) rapidly decreased after July, which corresponds to decreases in the number of days and/or the kind of food a household has consumed from large food groups in the week before the survey. Figure 7b demonstrates the Reduced Food Coping Strategy Index increased over the same time, which corresponds to a household relying on a larger number of severe food coping strategies such as skipping meals and reducing portion sizes for a larger number of days the week before the survey. Combined, the timing suggests that both rising prices and declining humanitarian assistance have decreased access to food.

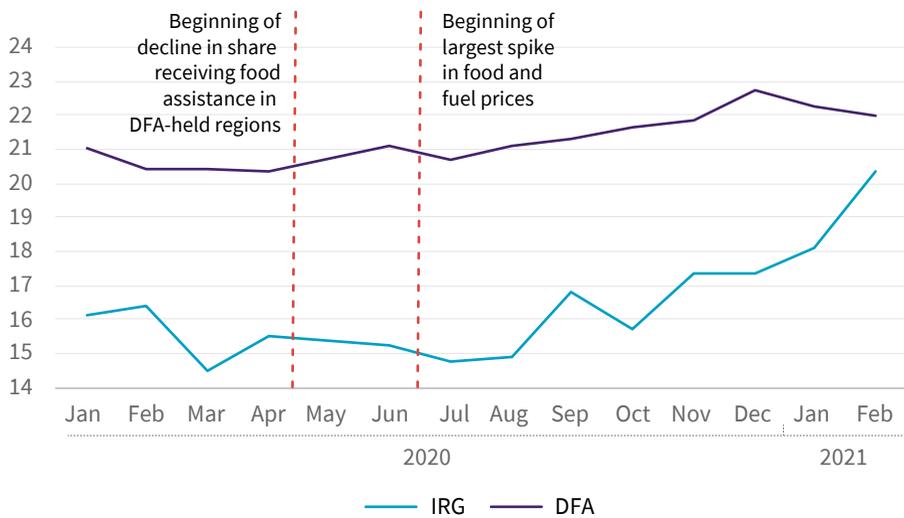
Alternatively, we did not observe large declines in food access immediately following either the start of the COVID-19 income losses or shocks that affected more concentrated population segments. Importantly, as noted, COVID-19 and other income shocks were still an important determinant of food security in 2020. For example, one cannot reject the hypothesis that these other factors did not have large and delayed impacts on food security; and these income shocks could further have put additional strain on households and magnified the impacts of escalating prices and declining humanitarian assistance.

FIGURE 7. Food Access Over the Course of 2020 by Region

7a. Average Food Consumption Score (lower values imply worse food access)



7b. Average Reduced Coping Strategy Index (higher values imply worse food access)



Notes: Figure reports the Food Consumption Score from the mobile Vulnerability and Mapping Survey performed by the WFP.

Given the strong regional component of both price increases and declining humanitarian assistance, the current crisis is significantly different in DFA-held and IRG-held regions. Declining humanitarian assistance is largest and fuel prices are more volatile in DFA-held regions, while increasing food prices is more significant in IRG-held regions. Importantly, since the crisis is not driven by a single factor, addressing factors for food insecurity in one region might not address factors in the rest of the country.

Declining food access has been greatest in IRG-held regions, which is where food prices increased the most. Figure 7 demonstrates that decline in the Food Consumption Score (FCS) is especially pronounced in IRG-held regions. Prior to the current crisis, the average FCS was better in IRG-held regions, but the FCS decreased more rapidly in IRG-held regions over 2020 than the rest of the country, converging to near identical levels as in DFA-held regions.¹⁸ Similarly, Figure 9b shows more significant Reduced Coping Strategy Index (rCSI) worsening in IRG-held regions than in DFA-held regions. Given much larger food price increases in IRG-held regions, these results are consistent with the view that rising food prices are particularly important to the current food security crisis.

¹⁸ However, the FCS in IRG-held regions has rebounded in the first months of 2021.

Effects of the 2020 Food Security Crisis on Internally Displaced Households

The strong effects of the 2020 food security crisis could be obscuring an even larger impact on internally displaced and other disadvantaged households. During displacement, displaced households often are forced to sell assets, exhaust what little savings they might have, and leave their homes and possessions behind in order to migrate during the conflict. With potentially fewer resources at their disposal to weather shocks, it is possible that the current and past crises might have had stronger adverse impacts on displaced households than host communities.

However, declines in food access were nearly identical between displaced households and host communities over the course of 2020. Figures 8a and 8b demonstrate that changes in the average Food Consumption Score (FCS) were nearly identical between displaced households and host communities in regions controlled by the internationally recognized government (IRG) and regions controlled by the de facto authorities in Sana'a (DFA). Furthermore, Figure 9 further demonstrates that the increase in the share with a poor or borderline FCS was very similar between the two groups in both IRG and DFA-held regions and was actually slightly larger for host communities than displaced households.^{19,20}

¹⁹ The results are qualitatively identical when using the Reduced Coping Strategies Index.

²⁰ The similarity between the effects of the 2020 food security crisis on displaced households and host communities is similar to other price shocks during Yemen's conflict. Appendix 2 demonstrates that both the 2018 currency crisis and the complete air and sea blockade in 2017 both similarly affected IDP's and host populations as well. In all these shocks, including in the 2020 food security crisis, the average food access of displaced households is slightly worse than for host communities. However, the change in food access measures following each of these incidents is nearly identical between displaced households and host communities.

Importantly, Yemen is a case where both displaced households and hosts are similarly battered by a large number of conflict-related shocks. The rationale for greater resilience of host communities is that displaced households have been more battered by shocks than host communities (e.g., World Bank 2017b). However, in Yemen’s conflict, this is not necessarily the case. Host communities have also been battered by shocks and face a dire humanitarian situation; they have also likely lost much of their assets and savings; and their potentially better networks and support systems might be less valuable when all households are struggling (e.g., OCHA 2020). Combined, the rationale for displaced households being less resilient than host communities in the face of adverse shocks is less strong in Yemen than in other contexts.

However, displaced households continue to have worse average food security outcomes over the entire course of the conflict. Figure 8 demonstrates that average food access measures are worse for displaced households over the entire course of 2020 and the beginning of 2021; and Figure 9 demonstrates that a higher share of displaced households have a poor or borderline FCS. However, partially as a result of already having a higher share with poor food access, the increase in the share with a poor FCS in Figure 9 is slightly lower for displaced households than for host communities.

FIGURE 8. Food Access Over 2020 by Region and Displacement Status

8a. Average Food Consumption Score- IRG (lower values imply worse food access)



8b. Average Food Consumption Score- DFA (lower values imply worse food access)



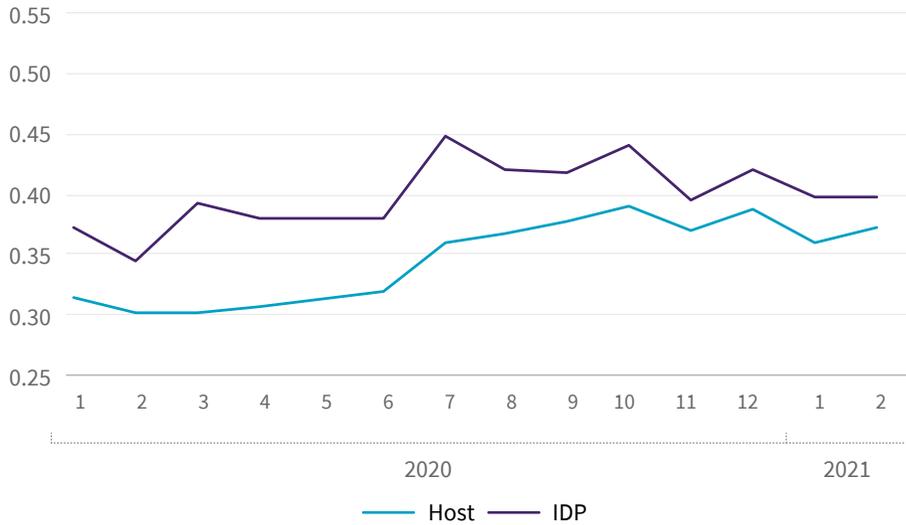
Notes: Figure reports the Food Consumption Score from the mobile Vulnerability and Mapping Survey performed by the WFP.

FIGURE 9. Share with Poor Food Access Over 2020 by Region and Displacement Status

9a. Share with a Poor or Borderline Food Consumption Score- IRG



9b. Share with a Poor or Borderline Food Consumption Score- DFA



Notes: Figure reports the share with a Food Consumption Score at or below 42 from the mobile Vulnerability and Mapping Survey performed by the WFP.

Multidimensionality of the Current Food Security Crisis

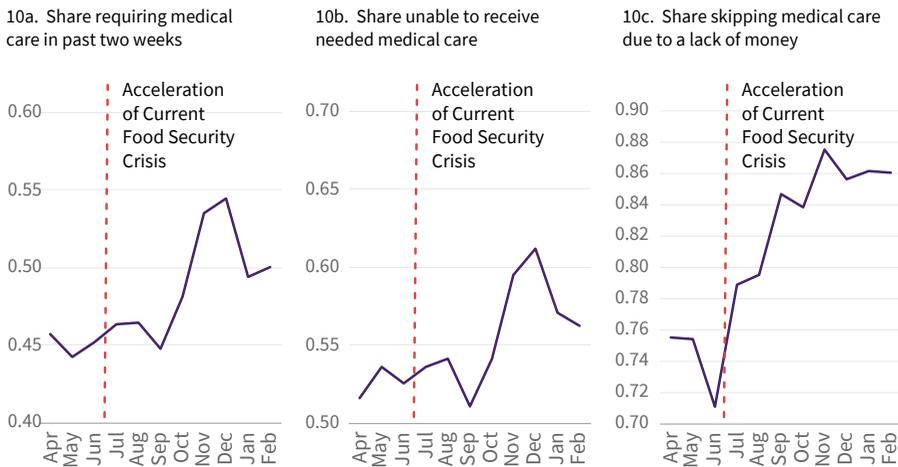
The current food security crisis extends beyond the ability to afford food and is a crisis in which households have difficulty affording all urgent needs- both food and non-food. As described above, the combination of rising food prices and declining incomes over the past year have significantly reduced the real income of the entire population, including struggling households that have the least ability to cope with any additional decline in purchasing power. These factors lead to a significant decline in resources available to purchase key non-food goods and services once a household has purchased a minimally sufficient amount of food. Furthermore, this is all happening at a time when the COVID-19 pandemic has increased medical needs, and at a time when the costs of other basic services might have risen as well.

Households are likely being forced to choose between which urgent needs to satisfy more than at any other time during the conflict. In any given month, households might be forced to forgo a minimally adequate diet, needed medical care, schooling for children, adequate housing, and a number of other urgent needs. The household survey conducted by WFP captures access to needed medical care and is able to illustrate the difficulty that households have in accessing non-food needs.

Access to health care significantly worsened during the current food security crisis. Over the course of 2020, Figure 10 demonstrates that there were increases in the share of households requiring medical care, the share unable to access needed medical care, and the share of those who skipped medical care reporting that the reason was the inability to afford services. All shares have been trending upwards over the course of the past year and are near their peaks since moni-

toring began.²¹ Importantly, nearly all households that skipped needed medical care- between 86 and 88 percent- did so because of the inability to afford medical care. Although this figure was high even before the worst points in the current food security crisis, the share increased by 10 percent since monitoring began.

FIGURE 10. Trends in Access to Health Care, April 2020- Feb 2021



Notes: Authors’ calculations using the WFP’s Mobile Analysis and Mapping Survey. Figure 10a includes all households in the sample; Figure 10b excludes households that did not require medical care; and Figure 10c restricts the sample to households that were unable to access necessary medical care.

Although we are only able to report figures for access to healthcare, households likely struggle to access a number of other key services. In previous surveys and analytical work, lack of income has been a key determinant of consistent access to key services of a sufficient quality. For example, one of the many reasons that children faced many temporary absences from school was due to the need to help support the household.²² With the decline in real income and the likely increase in the share of overall income devoted to food that has occurred over the past year, these negative coping strategies have likely magnified.

²¹ These figures highlight results from questions added to the mVAM survey in April 2020 after the COVID-19 pandemic began. Other questions on access to health care show that have been asked since March 2019 show similar patterns. However, the question about the reason for skipping needed medical care has only been asked since April 2020.

²² For example, see Almoayad et al. (2020).

Lessons from Previous Spikes in Food and Fuel Prices

Four Lessons from Previous Price Spikes in Yemen:

1. **Previous price spikes similar to those during 2020 have significantly decreased food access.** The currency crisis in mid-to-late 2018 most closely resembles the price escalation during the 2020 food security crisis. As both food and fuel prices increased in 2018, the share of households with poor food access increased 12 percentage points in a matter of months. The event is one of the largest swings in food access over the entire course of the conflict in Yemen.
2. **Food price spikes have a larger negative effect on food access compared to fuel price spikes.** Some price spikes increase all prices, while some only affect fuel prices. Evidence suggests that food price spikes have a large effect on food access at all points of the welfare distribution, while fuel price spikes tend to hurt better-off households more. The difference in food access repercussions between food and fuel price spikes are especially important to the 2020 crisis, as food prices have risen especially high in Internationally Recognized Government (IRG)-controlled regions, while fuel prices have especially spiked in De Facto Authorities in Sana'a (DFA)-controlled regions.
3. **Food access in Yemen after past price spikes improved surprisingly quickly.** Households experiencing price crises in other countries often engage in a number of coping strategies that have long-term negative effects on food access. However, in past price crises in Yemen, food access improved within months once prices normalized, even when prices did not recede to pre-crisis levels.

4. **A significant portion of the increase in poor food access in 2020 is likely attributable to rapidly rising food prices alone.** The current crisis has numerous causes that occurred at roughly similar times. However, we estimate that about 89 percent of the increase in the share of households with poor food access in IRG-held regions, and about 39 percent in DFA-held regions, is attributable to increased food prices alone. Combined with the fact that previous crises caused food emergencies without the additional aggravating 2020 factors, rising food prices significantly threaten food security in Yemen.

Given the importance of rising prices to the current food security crisis, this analysis further investigates the impacts of previous price spikes during the conflict. Between January 2016 and December 2020, there have been repeated spikes in the prices of selected food items that put significant pressure on households. Figure 11a reports the WFP’s month-to-month average percentage change for all food items since 2016, including a broad range of commonly consumed staples, fruits, vegetables, and oils. Large spikes in prices of these food items have commonly occurred, ranging between approximately 10 and 20 percent.²³ In all instances when prices spiked, the increases lasted no more than three months before either levelling or returning to pre-spike levels.

Fuel prices have shown even larger and more frequent spikes over the course of the conflict. Figure 11b reports the month-to-month percentage change in fuel prices.²⁴ The figure demonstrates six episodes where month-to-month percentage change in fuel prices exceed 20 percent between January 2016 and December 2020, and three episodes where the percentage change exceeds 30 percent. One of the reasons contributing to fuel price volatility is recurring fuel shortages (OCHA 2019).

²³ Although the figures used here average all food items that are available monthly since 2016 with equal weights, the results are similar when weighting food items by their share in the average diet. Additionally, all patterns discussed are qualitatively identical when analyzing the price of wheat, which forms a large share of the average diet. However, throughout the rest of the analysis, we will use the average percentage increase across all food items that have been recorded monthly in WFP’s Global Food Price Database- wheat, potatoes, tomatoes, oil, kidney beans, sugar, and onions.

²⁴ Following December 2019 and the announcement that the new currency accepted in regions controlled by the Internationally Recognized Government (IRG) would no longer be accepted in regions controlled by the De Facto Authorities in Sana’a (DFA), prices diverged between the two regions. In 2020, food prices surged much more in IRG-controlled regions and there was much higher volatility in fuel prices in DFA-controlled regions.

FIGURE 11a. Percentage Change (month-to-month) – Selected Food Prices

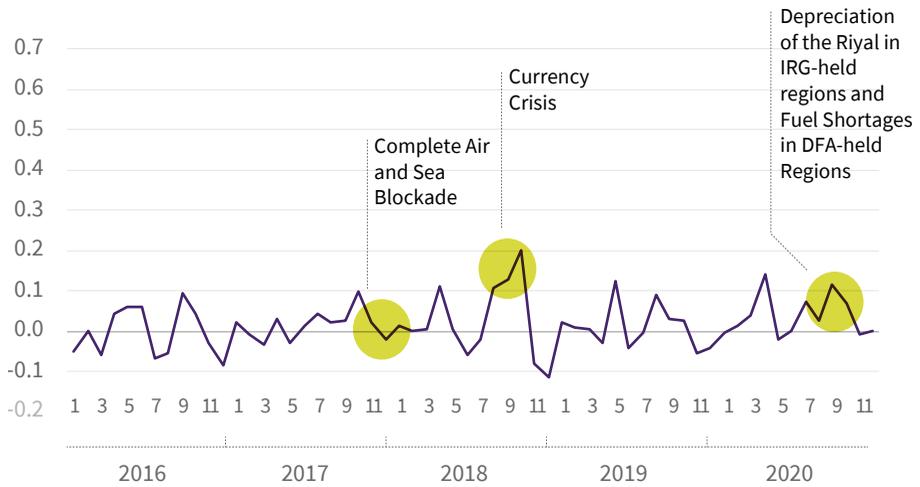
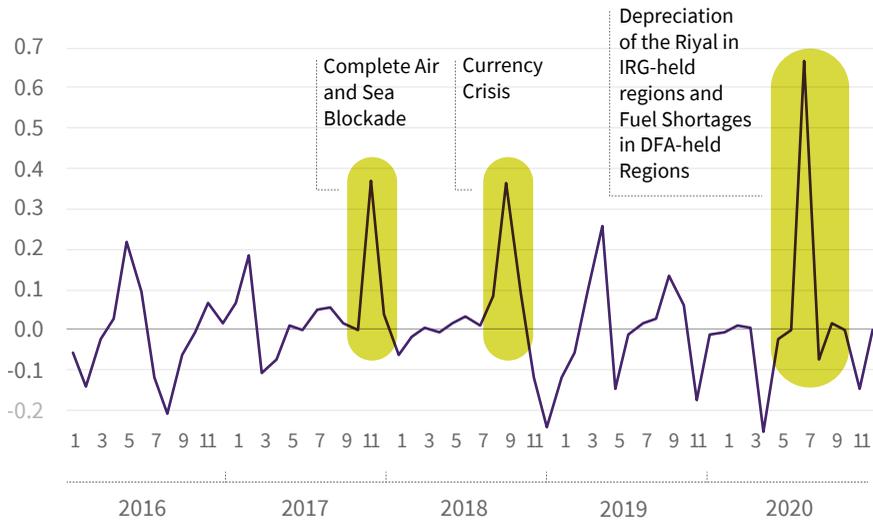


FIGURE 11b. Percent Change (month-to-month) – Fuel Prices



Notes: Figures report the percentage change of fuel prices and food prices in Yemen reported by the WFP global food price database. Each average percentage change represents the average percentage change across a number of items within each group. The average percentage change in fuel prices is the average of the percentage change in diesel prices and percentage change in petrol prices; the average change in food prices is the average percentage change in the price of all food items captured every month by the WFP- wheat, potatoes, oil, sugar, tomatoes, onions, and kidney beans.

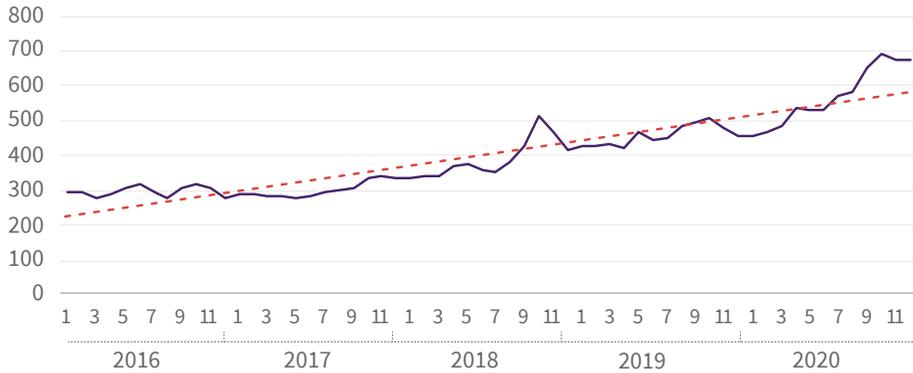
The very large spikes in food and fuel prices are distinct from general increasing price trends. Consistent with a number of sources finding that prices in Yemen have been increasing over the course of the conflict (ACAPS 2020), Figure 12 reports the average increase in food and fuel prices over time. More investigation is needed to fully understand causes, but prices tend to not fully decline following rapid price spikes, and small month-to-month increases in prices occur even during relatively stable time periods. Overall, average selected food prices increased 25 percentage points annually between January 2016 and December 2020 and average annual fuel prices increased 7.5 percentage points. Although food price spikes are not as large as fuel, the average increases over time have been significantly larger. More importantly, as of December 2020, average food prices across the entire country are higher than at any other point during the conflict.

Likely causes of price spikes vary across episodes. For example, the three largest fuel price spikes are associated with three key events: (i) the complete November 2017 air and sea blockade in response to Houthi rockets striking the Riyadh international airport, (ii) the currency crisis in mid-to-late 2018 following foreign currency depletion and inability to import essential food and commodities, and (iii) the currency depreciation in mid-to-late 2020 in IRG-controlled regions due to the DFA no longer accepting the new IRG-printed currency, global increases in food prices, and fuel import blockages to DFA-controlled regions. While food price spikes tend to occur alongside fuel price spikes, that is not always the case.

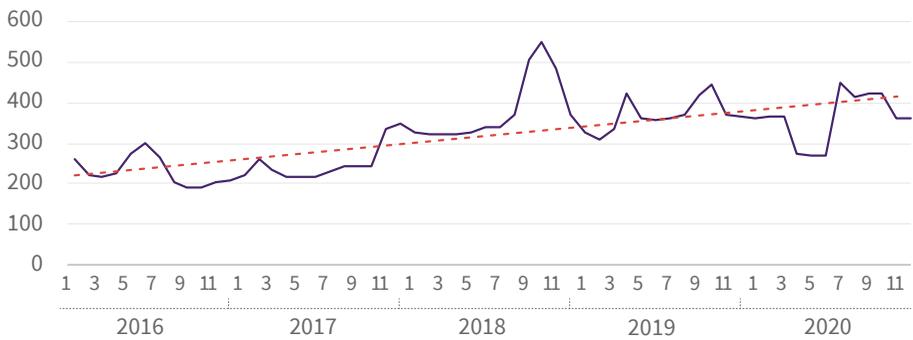
We look at previous price spikes to analyze how food access changed in response. We report these experiences in four separate lessons for the 2020 food security crisis. The primary events analyzed are the 2018 currency crisis and the complete air and sea blockade in November 2017. Although they are not an exhaustive set of findings from each of these previous experiences, they are the lessons that are likely most relevant to the 2020 food security crisis.

FIGURE 12. Average Price Levels

12a. Average Selected Food Prices



12b. Average Fuel Prices



Notes: Figures report the average of fuel prices and food prices in Yemen reported by the WFP global food price database. Each average percentage change represents the average percentage change across a number of items within each group. The average level of fuel prices is the average price of diesel and petrol prices; the average level of food prices is the average price of all food items captured every month by the WFP- wheat, potatoes, oil, sugar, tomatoes, onions, and kidney beans.

Lesson 1: Previous price spikes, similar to those in 2020, have led to significant increases in the share with poor food access.

The currency crisis in mid-to-late 2018 represents the price spike most closely resembling 2020 price escalation and food insecurity. 2018 was also the period in which the country was arguably closest to famine during the conflict (IPC 2018; OCHA 2019), and also corresponded to one of the largest spikes in both food and fuel prices (Figure 11).

Food access significantly declined during the 2018 currency crisis as commodity prices rose. Figure 13 demonstrates that the share of households with poor or borderline food access increased based on two common measures used to target food assistance: (i) the Food Consumption Score (FCS), and (ii) the Reduced Coping Strategy Index (rCSI).^{25,26} The share of households suffering poor food access using either measure peaked in October 2018, the same month both food and fuel prices peaked (Figure 13). Overall, the share of households with a poor or borderline FCS increased about 12 percentage points between July and October 2018, and the percentage with a low or medium rCSI increased by approximately 7 percentage points. The percent change in the share of households with a poor FCS—one of the primary food assistance targeting indicators used in Yemen—represents an approximately 37 percent increase in the share of households with poor food access, one of the largest changes over the course of the entire conflict.²⁷

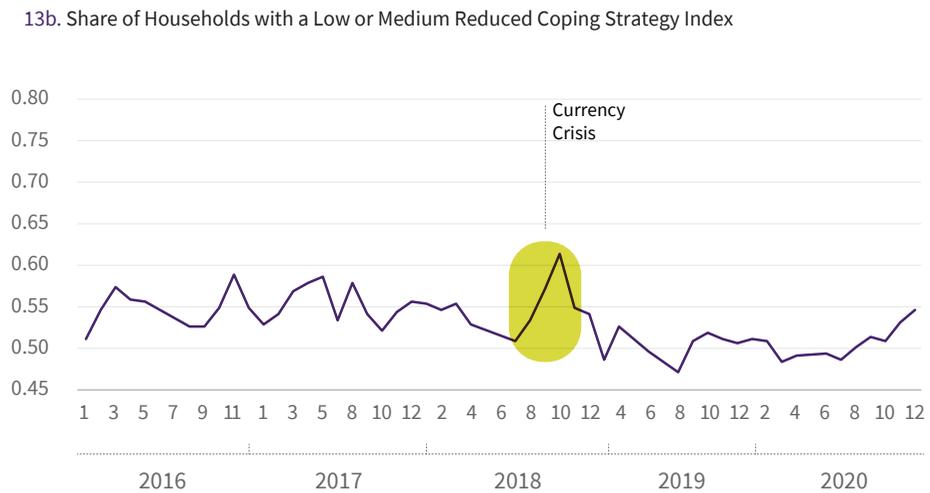
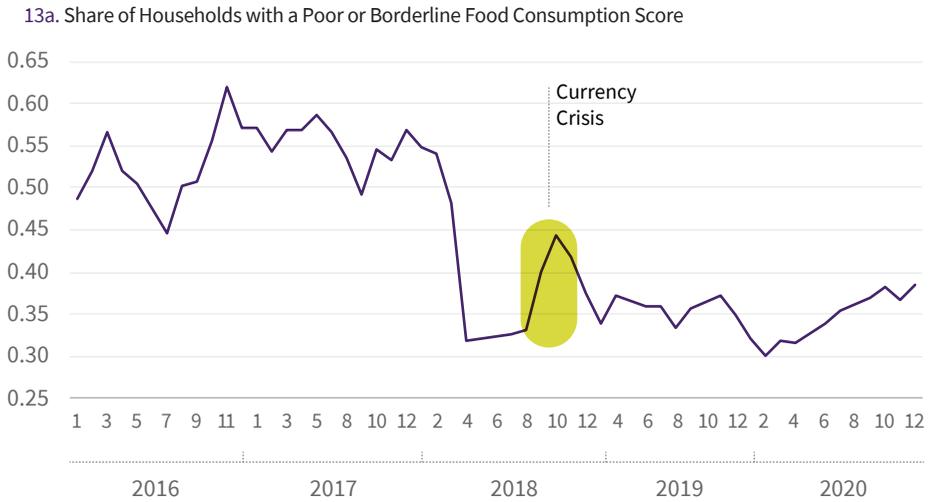
The decline in food access during price spikes is compounding the pervasive crisis in employment and income over the entire course of the conflict, which is resulting in increased reliance on negative household coping strategies. Repeated price spikes that reduce real income occur in an environment where the conflict has already exacerbated an employment crisis and caused widespread income losses. Thus, households have an even more difficult time coping with shocks than in less precarious settings, and households likely are forced to engage in a number of extreme and harmful coping strategies.

²⁵ The Food Consumption Score (FCS) is calculated by summing the days in the past week that households consumed items from large food groups in the past week, with some food groups weighted higher than others based on the relative energy value of items from each food group. The FCS can range between 0 and 112, and a higher FCS corresponds to better food access. Figure 13a uses an FCS below 28 to denote poor food access, and an FCS between 28 and 42 to denote borderline food access.

²⁶ The Reduced Coping Strategy Index (rCSI) is calculated by summing up the number of days in the past week that households relied on extreme food coping strategies, with some strategies weighted higher based on their relative severity. The rCSI can range between 0 and 56, and a higher rCSI corresponds to worse food access. Although there are no universal thresholds to determine a low or medium rCSI, the figure below uses the cut-off used by the Integrated Phase Classification for IPC 3 and above. This corresponds to an rCSI of 19 or above. The results are qualitatively identical when you use other IPC designations as the cut-off.

²⁷ All changes highlighted in the text are statistically significant at conventional significance levels when estimated more completely. For simplicity, we only report the change in the estimates and not the associated standard errors, confidence intervals, and more formal hypothesis testing.

FIGURE 13. Changes in Food Security Over the Entire Course of the Conflict



Notes: Figures report the Reduced Coping Strategy Index and Food Consumption Score from the mobile Vulnerability and Mapping Survey performed by the WFP, January 2016 – December 2020.

To meet basic needs, households have exhausted what little savings they might have, sold productive assets, forgone medical care, kept children out of school to help support the household, and reduced spending on all but the most critical needs. These coping strategies are in addition to the reduction in the quantity and quality of food they consume, as implied by the worsening FCS and rCSI reported (Figure 13).

Importantly, large price spikes and their negative consequences for food security plagued Yemen even before 2016. For example, the 2011 global spike in food prices increased both food insecurity and poverty (WFP 2012; World Bank 2017). Additionally, conflict spread in 2014 and also decreased food access as food prices increased (Tandon 2019). Thus, rapidly rising prices are an important factor that needs to be addressed in the reconstruction and recovery of Yemen as well.

However, it is important to note that a number of large changes in food access—both positive and negative—are not a direct result of large price spikes. For example, a number of adverse shocks aside from sharp price spikes adversely affected food access for the population between mid-2016 and the end of 2017. Cessation of regular government salary payments, emergence of health epidemics that decrease household earnings, and the escalation of conflict violence all struck the population during this time period. Figure 13 demonstrates that food access was significantly worse than average during this time. Thus, although large price spikes appear to have one of the largest and most regular negative effects on food access, other factors are still important to overall food security.

Lesson 2: Food price spikes increase poor food access more than fuel price spikes.

Commodity price spikes can significantly vary depending on the type of commodity. The mid-to-late 2018 currency crisis caused large increases in food prices, as Figure 11a shows, in addition to fuel prices, as Figure 11b shows. However, the figures also demonstrate that the complete air and sea blockade did not cause food prices increases despite large fuel price increases.

People consume fuel differently than food, leading to differences in how fuel price spikes affect people across the welfare distribution. For example, at the time of the blockade, approximately one-quarter of Yemeni households used generators for their primary electricity source, and this figure was highest for households with acceptable access to food²⁸; and households with poor food access might have already prioritized food spending over all other spending, such as fuel for vehicles. Furthermore, in March 2021, better-off households were still more likely to have purchased fuel in the past month than worse-off households.²⁹

²⁸ This figure was obtained from a special module inserted in the November 2017 mVAM survey. However, in surveys conducted since, the reliance on generators for electricity has declined.

²⁹ We obtained this from a new hot-spot mobile phone survey that is being launched jointly by the WFP and the World Bank in June 2021.

Combined, these patterns suggest that large changes in fuel prices are more likely to affect better-off households. Some spending on fuel, such as for generators or to reach jobs and basic services, would be difficult to quickly adjust in the event of a large fuel price spike, and households using fuel would experience large short-term increases in the share of resources devoted to fuel. In such an event, these better-off households might have to adjust their food consumption to cope until they can pivot from fuel consumption over time.

Consistent with the limited fuel that households with poor food access consume, previous fuel price spikes had very little effect on their food access. For example, the complete November 2017 air and sea blockade did not cause a large change in the share of households with poor food access (Figure 13). The share with poor or borderline FCS actually declined by approximately one percentage point in November 2017 relative to October, and the share with a poor or borderline rCSI increased by only two percentage points.

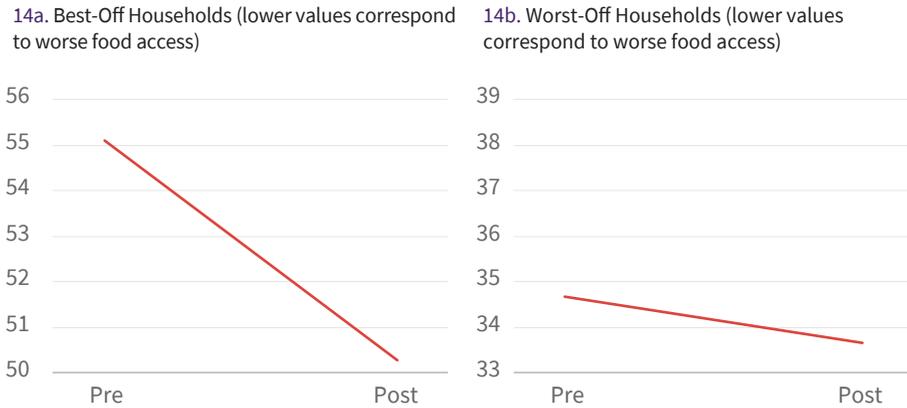
However, the lack of a large average effect on the total sample masks the large negative influence on better-off households. The November 2017 household survey can estimate the effects of the complete air and sea blockade at different points of the welfare distribution. Specifically, we can estimate how the blockade changed food access by comparing food access data prior to November 6 to responses after.³⁰ Furthermore, we can estimate this separately for better-off household prior to the blockade and worse-off households, as measured by having an acceptable FCS in surveys prior to November 2017.

Better-off households had large declines in food access, while worse-off households were not significantly adversely affected. Figure 14a demonstrates that relatively better-off households had large declines in average FCS, while figure 14b demonstrates that worse-off households had little-to-no change in average FCS.³¹

³⁰ The results can further be sorted into those interviewed during the complete blockade, and those interviewed after the blockade to IRG-held regions was lifted but the blockade to DFA-held regions continued.

³¹ Specifically, for households that had responded to a prior mVAM survey, we analyzed food access in the most recently completed survey. For Figure 14, only households with an acceptable FCS in the most recently completed survey (FCS over 42) were included. The results are qualitatively identical when using rCSI instead of FCS to assess changes in food access, and the results are qualitatively identical when using other indicators from the survey to proxy for whether the household was better off than average (e.g., owning a house).

FIGURE 14. Change in Food Consumption Score Following the Complete Air and Sea Blockade



Notes: Figures report the Food Consumption Score from the mobile Vulnerability and Mapping Survey performed by the WFP before and after the complete air and sea blockade, November 2017.

These patterns are consistent with larger reliance better-off households have on fuel, and are in stark contrast to the large negative effects from the currency crisis on all points of the welfare distribution (Figure 13).³²

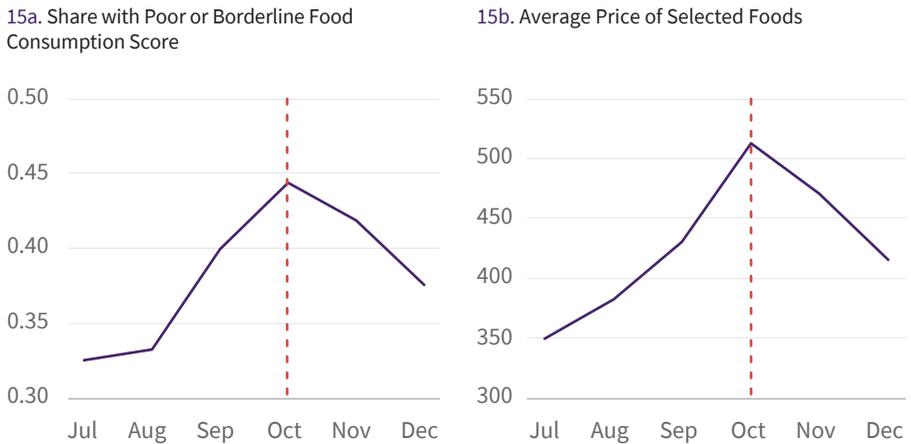
However, despite relatively small influence on food access, the air and sea blockades may have imposed significant costs in other dimensions on relatively poorer households. For example, fuel is needed for many basic services, such as municipal waste collection or water delivery, which can be restricted in the event of fuel shortages. Furthermore, households need fuel to access other basic services—such as health clinics and schools—particularly in regions far from large cities, and large increases in transport costs can harm access to services for worse-off households. Thus, although fuel price increases appear to cause only small declines in food access of struggling households, this only captures one of the many ways in which fuel prices might impact such households overall.

³² A variety of supporting evidence suggests that these patterns are blockade-driven and not by other incidents happening at the same time, such as increased airstrikes. The food access patterns did not emerge until Nov 7, the day the blockade started; the changes were uniform across the country, and no other shock of which we are aware covered the entire country at the same time. Further, there is little evidence of other conflict shocks, like airstrikes, having this large an impact on food access previously in the conflict; and if other shocks, like airstrikes, were driving food access results, they would likely affect the entire population and not just better-off households.

Lesson 3: Food access metrics in Yemen improved surprisingly quickly once prices stabilize.

During the 2018 currency crisis, food access measures improved quickly once prices stopped increasing. Figure 15 demonstrates that the share of households with poor food access reached its lowest point during October 2018, the month during which food and fuel prices peaked. Households on average reduced all non-staples consumption while maintaining staples consumption, which is consistent with how households have adjusted to price spikes in other contexts (e.g., D’Souza and Jolliffe 2014). However, average food access measures nearly improved to pre-crisis levels within two months of the price spike after prices decreased to only slightly higher than their pre-crisis levels.³³

FIGURE 15. Change in Food Consumption Score and Fuel Prices During the 2018 Currency Crisis

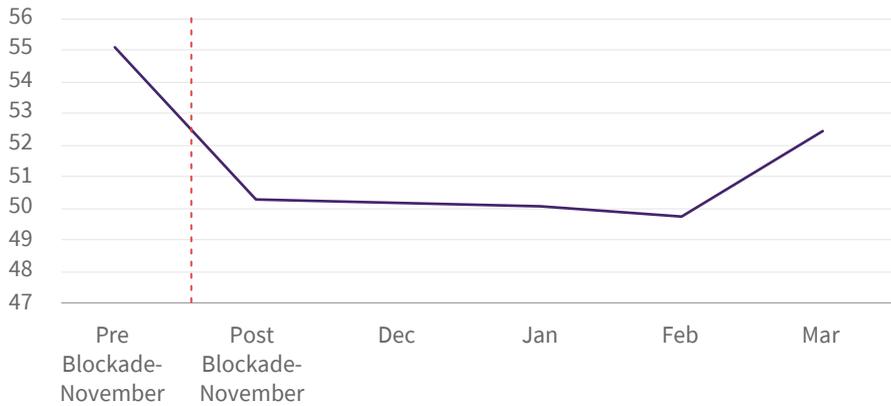


Notes: Figures report the Food Consumption Score from the mobile Vulnerability and Mapping Survey performed by the WFP before and after the 2018 currency crisis; and the figure also reports fuel prices in Yemen reported by the WFP global food price database.

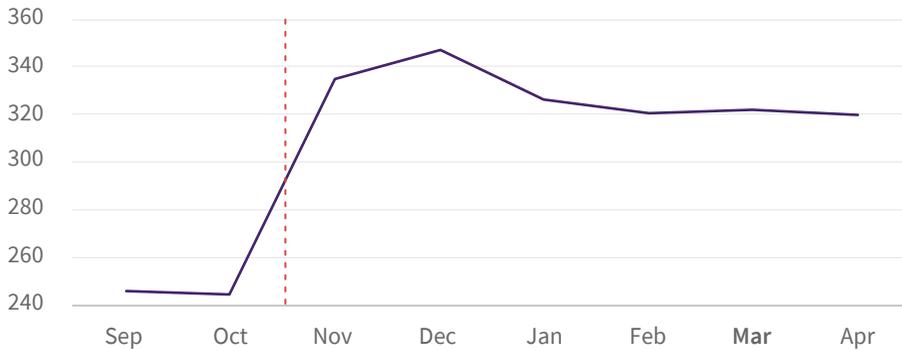
³³ The conflict in Yemen is a volatile setting and we can never fully rule out the possibility of other shocks occurring at the same time, such as a change in salary payments, that might affect food access at the same time as price spikes. However, we focus on the 2018 currency crisis and the 2017 complete air and sea blockade here because far fewer major shocks occurred at the same time. Furthermore, other factors such as changes in salary payments would likely have regional differences and potentially only affect different segments of the populations. However, the patterns in Figures 12 and 13, which show declines and recoveries for the entire sample corresponding to price spikes, suggest that the price changes significantly decrease food access.

FIGURE 16. Change in Food Consumption Score and Fuel Prices During the Complete Blockade

16a. Food Consumption Score of Better-Off Households (lower values correspond to worse food access)



16b. Average Fuel Prices



Notes: Figures report the Food Consumption Score from the mobile Vulnerability and Mapping Survey performed by the WFP before and after the complete air and sea blockade; and the figure also reports fuel prices in Yemen reported by the WFP global food price database.

Importantly, substantial increases in food and other assistance averted even worse outcomes during the 2018 currency crisis. For example, WFP continued to scale-up food assistance during 2018 as prices increased and food security deteriorated (WFP 2018); and other organizations developed plans in early 2019 to increase assistance (FAO 2018; OCHA 2019). Given that the decline in food access was still large despite increased assistance, Figure 15 likely understates the impact of rapidly rising food prices in absence of such a sustained effort.

However, even with the significant increase in assistance, the quick improvement in food access following price stabilization is surprising. Typically, households exhaust coping strategies during a crisis, with often long-lasting negative effects. In other crisis settings, households have spent savings, sold assets, borrowed money, or delayed spending in other dimensions to purchase food during (Barrett 2002). Once a crisis ends, it is often difficult for consumption to improve after households have spent all savings, begin to repay loans, and devote spending on ignored dimensions. While the quick improvement in food access requires more investigation, it is likely in part due to substantial increases in humanitarian assistance.

Furthermore, the air and sea blockade demonstrates that food access can improve even if prices remain high following the crisis. Unlike the currency crisis, Figure 16 demonstrates that fuel prices only leveled once the blockade lifted and prices never returned to pre-blockade levels. In this instance—where prices only stabilized and did not return to pre-crisis levels—food access for the most-affected population improved within months after price spikes.^{34,35} The data are not detailed enough to understand exactly how Yemeni households were able to increase consumption despite persistently high fuel prices, but results are consistent with households eventually reducing fuel usage over time to devote more resources to food. For example, households could adjust from diesel generators to lower-quality solar power, or other adjustments to reduce fuel reliance.

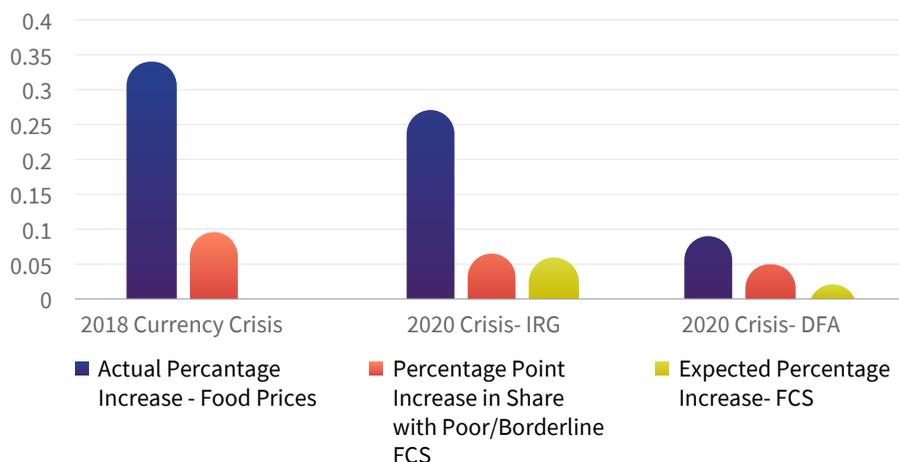
Lesson 4: A significant portion of the decline in food access in the current food security crisis is likely attributable to rapidly rising food prices alone.

As discussed above, the current food security crisis has numerous causes that occurred at roughly similar times. Although food access did not begin to rapidly decline until June and July 2020, large declines in humanitarian assistance and coincided with large increases in prices, making it difficult to precisely differentiate the influence of each event. However, we can estimate effects from rapidly rising food prices alone on food access in past crises. By combining the estimated

³⁴ Rather than using the share of households with a poor or borderline FCS, the figure uses the average FCS of the affected population.

³⁵ Similar to the 2018 currency crisis analyzed in Figure 15, there was a decline in all non-staples consumption in response to the fuel spike of households that had previously had good access to food in the most recent survey prior to the blockade. However, unlike the 2018 currency crisis, staples consumption also decreased in this case. This is consistent with D’Souza and Jolliffe (2014) as well, where better-off households, like those included in Figure 16, reduced staples consumption.

FIGURE 17. Percentage Increase in Food Prices and Percentage Decrease in Food Access During the Most Acute Phase of Crises



Notes: Figures report the Food Consumption Score from the mobile Vulnerability Analysis and Mapping Survey performed by the WFP; and the figure also reports fuel prices in Yemen reported by the WFP global food price database. The percentage change in food prices and FCS were taken between July and November 2018 for the 2018 currency crisis; and the percentage change in food prices and FCS were taken between April and September 2020 for the 2020 food security crisis. May 2020 was not used as the starting point for the current crisis to avoid using a month during which Ramadan occurred and might have provided an exaggerated decline in food access. The expected percentage decrease for the current crisis was estimated by taking decline in FCS per one percent increase in the 2018 currency crisis (0.22 percent), and multiplying the actual percentage increase in food prices during the current crisis.

figure from past crises with the actual increase in food prices in the current crisis, we can estimate the expected effects of rising prices on food access. We can then compare these estimates to change in food access that actually occurred during 2020.³⁶

Based on analysis of the 2018 currency crisis, rising food prices in the current food security crisis likely have a strong negative effect on food access. Figure 17 reports the percentage increase in food prices and percentage decline in food

³⁶ We use the change in food prices instead of fuel because the large fuel spikes in previous crises have not had a large impact on the share with poor food access and primarily affect food access of better-off households. Furthermore, we use the average percentage change in six food items recorded every month in the WFP Global Food Price Database since 2016. However, the key results—large share of change in poor access attributable to price rises and the larger share in IRG-held regions than DFA-held regions—are identical if including fuel price changes or only food items and weighted by share in total consumption.

access during the 2018 currency crisis, and the same for the current crisis in both IRG and DFA-held regions. During the 2018 currency crisis, food prices increased 38 percent in the four months leading up to the peak of the crisis in November 2018,³⁷ during which the share of households with a poor FCS declined about 10 percentage points.³⁸ Thus, for each one percent increase in food prices during the 2018 currency crisis, the share with poor food access declined about 0.28 percentage points.³⁹

Based on the impact of rising food prices on food access in the 2018 currency crisis, the impact that rising food prices has had on food access in the current crisis is likely large. In IRG-held regions, our estimates suggest that food price increases alone explain approximately 89 percent of the increase in the share of households with poor food access. In DFA-held regions, estimates suggest food prices are responsible for approximately 39 percent of the increase in food-insecure households.⁴⁰

The significantly smaller effect of rising food prices on food access in DFA-held regions is consistent with the view that non-price shocks in the region are stronger. Figure 17 demonstrates that food prices in DFA-held regions increased approximately nine percent in the four months leading up to the peak food prices in September 2020,⁴¹ during which time the share with poor food access increased by about 5 percentage points. The increase in the share of households with poor food access is larger than we would expect from the rise in food prices alone, but

³⁷ The change in the 2018 currency crisis represents the change between July and November 2018.

³⁸ The first lesson highlights a 12 percentage point increase in the share with poor food access over the entire 2018 currency crisis, while this analysis focuses on the 10 percent decline that occurred in the four months preceding the peak of the crisis. The time period was chosen to match the length of the period of the most rapid price increases during the 2020 crisis, and the results are similar if the entire time period of the 2018 currency crisis and the full 12 percentage point increase in the share with poor food access is used.

³⁹ We obtained this figure by dividing the 10-percentage point decline in the share with a poor FCS by the 34 percent increase in food prices.

⁴⁰ These figures were obtained by multiplying the percentage change in food prices in each region reported in Figure 17 to get the expected decline in food access predicted by food price changes alone; and then we divide that expected change by the actual percentage change in food access reported in Figure 17. Although the exact results depend on the exact time periods chosen, the range of patterns are similar regardless of the exact months chosen.

⁴¹ The change in the current crisis represents the change between April and September, 2020. Ramadan occurred during May 2020, and given the higher food consumption on average, would provide an exaggerated decline in food access if it was used as the base period.

this pattern is consistent with the view that non-price shocks affect food security more in DFA than in IRG-held areas. The share of households receiving food assistance in DFA-held regions declined sharply, for instance.

Combined evidence suggests that current food price increases have had significant adverse effects on the entire Yemeni population. Even apart from the estimates above, previous episodes of rapidly rising food prices demonstrate that a food emergency can be precipitated by the food price rises experienced over the course of 2020 alone, even in the absence of any aggravating factors that are currently affecting Yemen. Given the importance of price rises to the current crisis, lessons from previous price spikes can likely help identify conditions under which food access might ultimately be improved.

Conclusions

The empirical patterns suggest that rapidly rising food prices are an especially important contributor to the 2020 food security crisis. The timing and the location of the most rapid declines in food access correspond to times and places where food prices were escalating most rapidly. Further, rapidly rising food prices were especially harmful during previous food security crises. Importantly, the results further demonstrate that rising food prices are not only affecting food access, and that rising food prices further puts financial strain on households and limits access to essential and basic services.

Our analysis of the timing and location of food and fuel price increases during the current crisis suggests three factors driving food price increases:

- i. **Increases in global food prices during the COVID-19 pandemic have led to substantial increase in food prices across all of Yemen.**
- ii. **Rapid increase in inflation and substantial currency depreciation in IRG-held regions in 2020 have significantly increased prices in the region, most likely due to increasing monetary financing of fiscal deficits (monetization) in the absence of alternative fiscal resources.**
- iii. **Intermittent difficulties in importing fuel in DFA-held regions has contributed to high peak fuel prices in the region, high fuel price volatility, likely contributing to rises in food prices through transport costs.**

However, more analytical work is needed to better understand the impacts of the current food security crisis. Although it is not clear that supply chain blockages worsened in the past year, the lack of data on Yemen makes it difficult to analyze these blockages. Complications in the supply chain has significantly increased transport costs and food prices since the start of the conflict (World Bank 2018; ACAPS 2020), and more study is needed to understand whether these complications have worsened in the past year.

Furthermore, we need a better understanding of the urgent services that households are more frequently forgoing in the current crisis. For example, what types of medical care are households increasingly likely to skip? Are children less likely to attend school? If so, which children are more at risk? In order to better identify the urgent needs that are most necessary to support, it is important to continue to monitor access to a wide range of services and to better investigate the tradeoffs that individual households are being forced to make in these difficult times.

And lastly, we need to further identify the effects of the current crisis on regions and populations that are underrepresented in the surveys used in the analysis. Specifically, we need to further analyze price data for food and non-food goods in more rural areas outside of the capital of each governorate; and we also need to better understand the evolution of food access in more rural regions that are underrepresented in the monthly food security monitoring and the evolution of food access amongst households without mobile access to mobile phones.

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Appendix 1

Data Sources

This report utilizes two data sources. First, the survey utilizes a WFP monthly mobile phone survey conducted since the early months of the conflict. On average, the survey reaches approximately 4,200 households from all governorates of Yemen, except the island of Socotra.⁴² The survey takes about 15 minutes to complete. Roughly 80 percent of the sample each month have previously responded to a monthly survey, and each of these households was originally reached through random digit dialing. About 20 percent of the sample of each month have never responded to one of the monthly surveys, and the households are also identified by random digit dialing.

The survey collects information on access to food and other basic services. In particular, the Food Consumption Score and the Reduced Coping Strategy Index are constructed for each household in each month. The survey also includes information on access to schooling, access to healthcare, livelihoods, and a module on the COVID-19 impacts. These indicators make up a multidimensional welfare measure tracked by the WFP and the World Bank.⁴³

⁴² The survey reached approximately 2400 households each month prior to April 2020, at which time the sample was increased to approximately 4200 per month.

⁴³ The sample is stratified at the governorate level and weighted by the population of each governorate beginning in 2020. Prior to 2020, estimates were weighted by the share of the population that is displaced as reported by IOM and the number of mobile phones a household owns.

However, there are a number of caveats regarding mobile phone surveys. First, the surveys only cover households and regions with access to mobile phones. Although, this is the majority of the country, this survey cannot reach a subset of regions and households, likely with very poor access to food.^{44,45}

In addition to the issue of how mobile phone access has changed since the beginning of the conflict, there is the possibility that sample selection (i.e., non-random, non-response) could be affecting the generalizability of estimates. For example, random digit dialing phone surveys over-predict the amount of civic engagement due to differences in who is most likely to respond to a phone survey (Abraham et al. 2009). However, despite the potential difficulty, the monthly mobile phone survey is capturing trends corroborated by other sources and other population-level estimates.⁴⁶

The second data source we use is a monthly market survey in the capital of each governorate of Yemen, except Socotra, and reported in the WFP Global Food Price Database. The survey tracks average local prices of dozens of commodities. Since the start of the conflict, the following commodities have been reported each year and in each governorate: wheat, potatoes, oil, sugar, tomatoes, onions, kidney beans, diesel, and petrol. Over time, the survey has tracked additional food items.

⁴⁴ Although we are unable to estimate the share of households that do not have access to mobile phones, a more technical paper compares the number of mobile phones owned by households in the WFP mobile phone survey to the number of mobile phones owned by households in the last nationally-representative estimates in 2014 (2014 Household Budget Survey). In that comparison, it is demonstrated that in many governorates, the number of cell phones owned has largely not changed; however, in a number of governorates, the number of mobile phones has declined due to the significant migration of the population (e.g., TFPM 2017), the significant worsening of living standards in the country (e.g., OCHA 2019), and the six years that have passed since the last estimate (Almoayad et al. 2020).

⁴⁵ We are also unable to document how mobile phone reception might be changing during this time as well. Although much of the country continues to have reception, there are places in which reception in places is severely limited (e.g., Sa'ada), and there have been reports of cell phone reception being limited at times in places with usually reliable cell phone networks (e.g., OCHA 2019).

⁴⁶For example, see Almoayad et al. (2020).

Appendix 2

The Effects of Prior Food Price Shocks by Displacement Status

FIGURE A2a. Average Food Consumption Score During 2018 Currency Crisis (lower values imply worse food access)

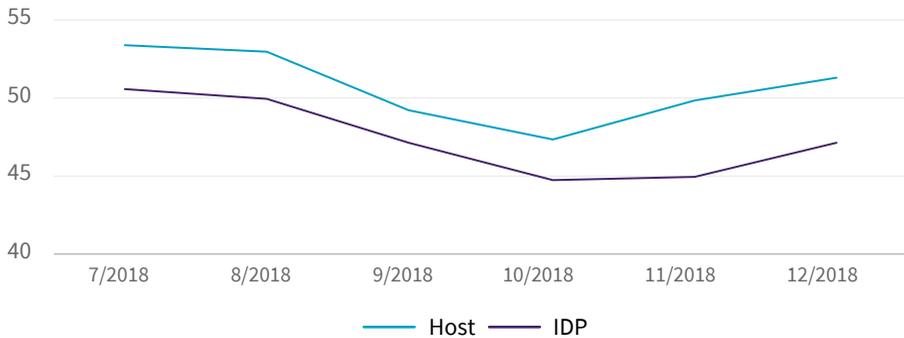


FIGURE A2b. Average Food Consumption Score of those with Adequate Access to Food Prior to the Blockade (lower values imply worse food access)

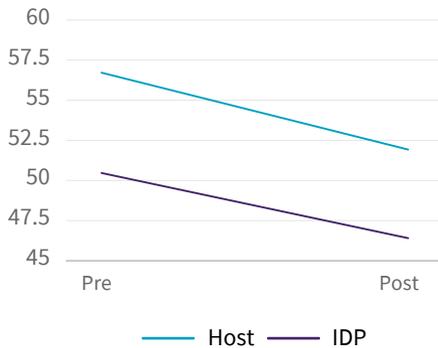


FIGURE A2c. Average Food Consumption Score of those with Inadequate Access to Food Prior to the Blockade (lower values imply worse food access)



Notes: Figure reports the Food Consumption Score from the mobile Vulnerability and Mapping Survey performed by the WFP.

