Seasonal Poverty and the COVID-19 Pandemic *

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Abstract

We report on changes in economic activity, incomes, food security and mental health by tracking 2636 rural households in Nepal between September 2019 and May 2020 using six rounds of surveys during both lean and harvest seasons, before and after the COVID-19 lockdown. Labor supply in the village, labor migration, remittance earnings, and total incomes have fallen dramatically compared to harvest periods, and even relative to the pre-harvest lean season. Food insecurity has risen to levels seen during the lean season. Mental health indicators have dropped significantly below levels observed during the lean season. The COVID-19 pandemic luckily hit rural Nepal several months prior to the period of peak seasonal hunger, but this implies that economic outcomes are likely to continue to worsen over the next few months until the next rice harvest in October. Stored grain stocks have depleted steadily from January to April to May. The usual outflow of migration have almost stopped, which implies lower future remittances. The substantial erosion of income during lockdown is likely to reduce fertilizer and other agricultural investments during the upcoming planting season in July. This will lower yield during the November harvest, perpetuating the cycle of poverty.

1 Introduction

There is continued robust debate about the human costs of social distancing in low income countries, and how those compare against the benefits of limiting disease spread. Lockdown politics and policy have shifted back and forth in India, Pakistan, Ghana, Bangladesh, U.K., and several U.S. states, depending on how vociferous the complaints from consumers, business owners, and other interest groups have been regarding the economic toll of distancing, relative to the daily publicity surrounding the escalating numbers of infections and fatalities. Such comparisons miss a critical piece of information: The economic hardships already felt by the poor provides an incomplete picture of the longer-term costs of continued lockdowns given reductions in current investments. Furthermore, given the seasonality in crop cycles in rural agrarian economies, we may observe even more acute deprivations in the next few months, after the pre-harvest lean season arrives. The double whammy of a lockdown layered on top of the lean season (which poses difficulties even during "normal" years) may lead to extreme deprivation, hunger and malnutrition.

This note describes a dataset that tracks 2636 poor rural households in Nepal between September 2019 and May 2020 using six rounds of surveys during both lean and harvest seasons, before and after the COVID-19 lockdown. The main purpose of this document is to provide the empirical results underlying the arguments we make in op-eds in Nepali and Bangladeshi newspapers, and in Foreign Policy magazine, in a piece entitled - "For the Rural Poor, the Coronavirus Crash Isn't Here Yet."

2 Data and Context

2.1 Sampling Frame

Our sample consists of 2,636 households in rural villages in the districts of Kailali and Kanchanpur in the Westerin Terai (plains) region of Nepal. This sample of households

reside in villages where we conducted a field experiment in partnership with the Nepali NGO *Backward Society Education* (BASE) that provided micro-loans during the pre-harvest lean season in Summer, 2019. Households were selected to approximate the bottom half of the wealth distribution of rural households in the two districts.

The initial sampling frame consisted of 15 of 20 sub-districts in the districts of Kailali and Kanchanpur. We randomly selected 33 of the 73 rural wards in these sub-districts, and we randomly selected 97 villages from the set of 227 villages in these wards. At the time of baseline data collection, seven of these 97 villages were dropped from the study because they were inaccessible due to flooding, leaving a data sample of 90 villages.

Within the study villages we collected survey data from 2,935 households from the approximate bottom two-thirds of the wealth distribution. In each village, survey teams from the Centre for the Study of Labour and Mobility (CESLAM) conducted a census and facilitated a participatory wealth ranking exercise. The wealth ranking involved gathering 10-12 knowledgeable community members, including at least one formal village leader, in a public space. With facilitation from the present researchers, the community members then developed consensus definitions of "Wealthy", "Middle Income", "Poor" and "Very Poor" in their community and assigned each member of the community present in the census to one of these four categories. Using the descriptions of each wealth category recorded during the wealth ranking exercises, researchers then harmonized wealth categories across villages to create equivalencies. Households in the top third of the wealth distribution according to these harmonized wealth categories were excluded from the study sample.

2.2   Data Collection

Between July 2019 and May 2020, we collected seven rounds of survey data from our study sample: one round of in-person baseline surveys conducted in July of 2019, five rounds of phone surveys conducted from August 2019-January 2020, and a sixth round of phone surveys conducted in April of 2020, immediately following the beginning of the COVID-19

lockdown in Nepal.

Figure 1 shows the timeline of data collection for this project. In-person baseline surveys were conducted in July of 2019 and included 2,935 households across 90 villages. Of these, 2,636 responded to at least one phone survey between August 2019 and January 2020. Our first two rounds of phone surveys were conducted from late August to late September 2019, our third and fourth rounds of phone surveys were conducted from mid-October to late November 2019, and a fifth round of phone surveys was conducted from mid-December 2019 to early January 2020. Phone surveys collected data on labor and wage income, food security, subjective-wellbeing, migration and remittances, agricultural decisions and output, and grain storage.

Immediately following the onset of the COVID-19 lockdown in April 2020 we launched a sixth round of phone surveys in our sample. The questionnaire covered labor, wage income, migration and remittances for all households, as well as data on food security, subjective well being, and grain stores for a subset of households.
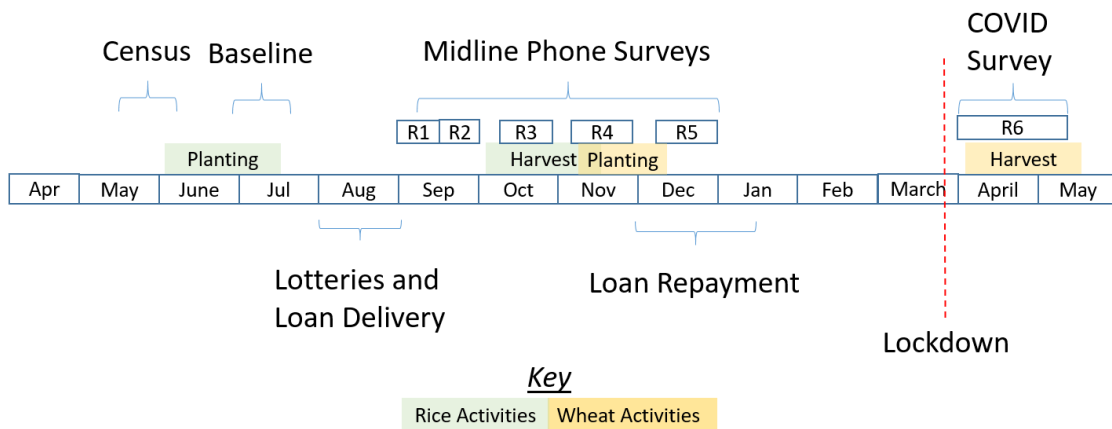

Figure 1: Project Timeline

2.3 Study Context

Our study population is characterized by both high levels of subsistence farming and circular labor migration. In our sample 86% of households cultivate rice and 75% of households

have a circular labor migrant that returns home at least once during the 8 months of the panel. Agricultural income, migration, remittances, and food security also vary according to seasonal patterns. Agricultural income, return-migration, and remittances all peak in the fall, as migrants return for festivals and the rice harvest in October, and bring back remittances by hand. As we discuss more in subsection 3.1, this variation in income leads to seasonality in food security. Food insecurity peaks during the 'lean season' of July-September leading up to the rice harvest, and drops in October as households receive increased remittances and income from the rice harvest.

3　Results

## 3.1　Seasonal Deprivation in Rural Nepal and Rural Bangladesh

We will report data from surveys we conducted during both lean seasons and harvest periods in 2019 and 2020. To help readers properly interpret those results, we need to benchmark them against *expected* seasonal variation in incomes and food insecurity at baseline. To that end, Figure 2a show month-by-month variation in food insecurity reported to us at baseline (in early 2019) by a sample of 160 rural households in our study districts. Most households are food-secure in the first half of the year (January-June), but food insecurity rises sharply during July, August and September. Nearly a quarter of households are forced to reduce food portion sizes in August. It is fortunate that COVID-19 hit Nepal during a period when the rural poor are otherwise food-secure, at least during a "normal" year when there is no global pandemic. Figure 2a also provides grave cause for concern about the possible economic effects of COVID in rural Nepal if the lockdown is extended into the traditional pre-harvest lean period of July, August and September.

Figure 2b, taken from Mobarak and Reimão (2020), further shows that such large seasonal variations in food insecurity is not limited to Nepal, but is also a feature of the agrarian economy of rural Bangladesh. In interviews conducted in 2016, up to a quarter of rural Bangladeshis also report "regularly" missing meals during their own pre-harvest lean season of September and October. The concerns we express below about the potential deleterious effects on human welfare when the COVID-19 lockdown is extended into period of seasonal food insecurity is likely relevant for large swaths of agrarian societies in the global south where income and work opportunities fluctuate seasonally.

From subsection 3.2 onwards, we will turn to the six rounds of survey data we collected in rural Nepal between September 2019 and May 2020, to document the effects of the COVID-19 lockdown on labor supply, income, food security and mental health.
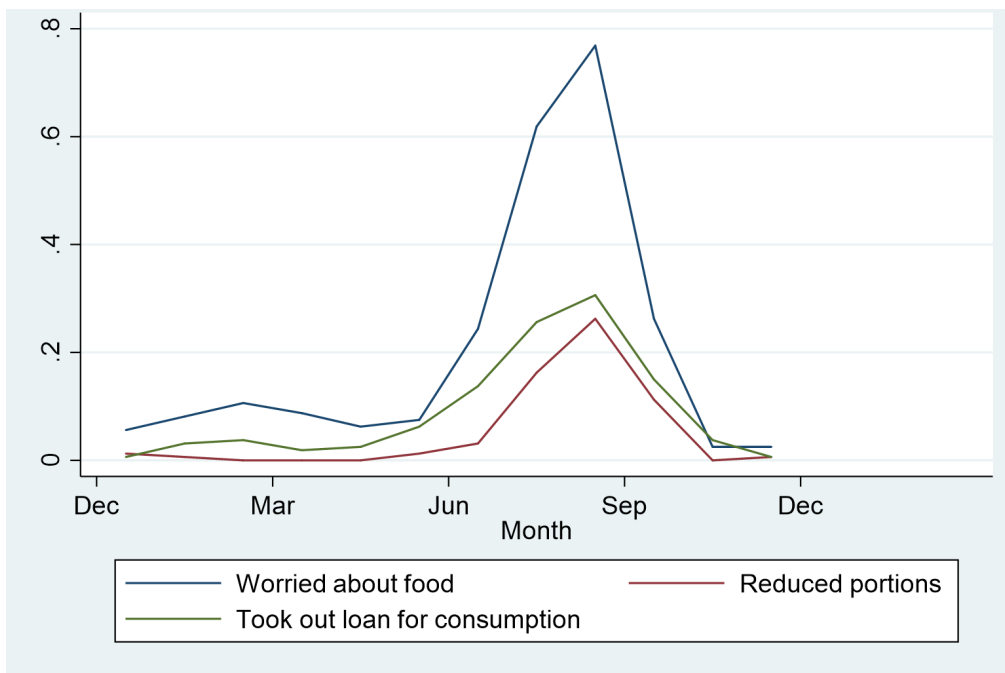
(a) Month-by-Month Food Insecurity Reported in 2019
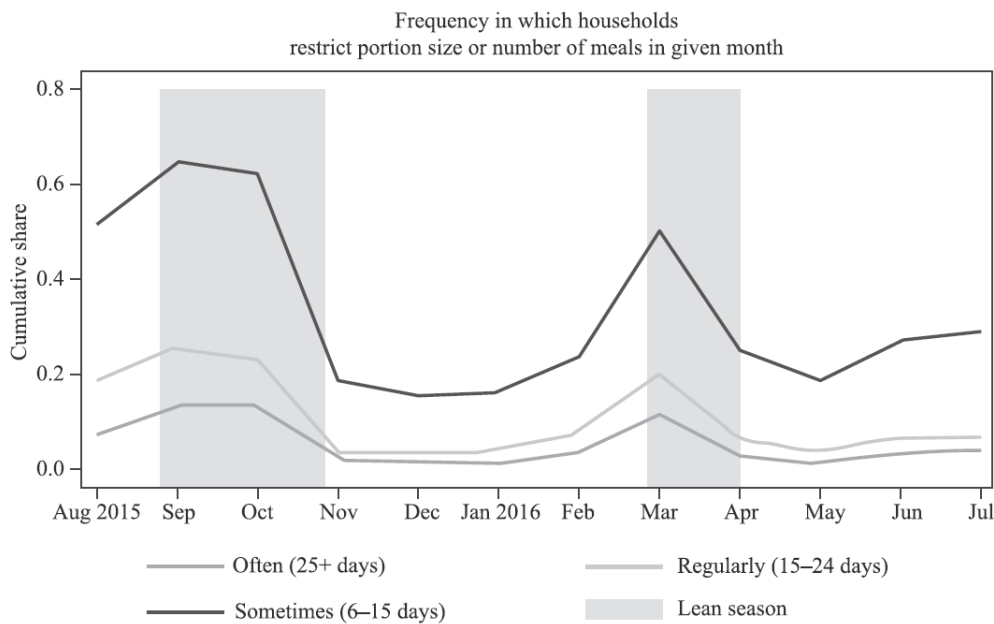
(b) Month-by-Month Food Insecurity in Northern Bangladesh, Reported in 2016

Figure 2: Seasonality in Food Security in Western Terai of Nepal and Northern Bangladesh

3.2 Economic Activity in the Village

Figures 3 and 4 show the change in hours worked per week over time, respectively, for men and women aged 18-65 who were present in the village. Non-farm work (wage work and labor on family-owned businesses) is shown in blue. Total hours, which also includes work on the family farm is shown in red. The rice and wheat harvest periods are shaded green, and the red vertical line at March 24 marks the beginning of the COVID-19 lockdown in Nepal. Non-farm hours and total hours have dropped significantly for both men and women relative to their rice-harvest averages. For men, the total hours worked after lockdwon are significantly lower than even hours they get to work during the pre-harvest lean season. Women generally work fewer hours outside the home, and the fall in labor hours is not as dramatic as it is for men.
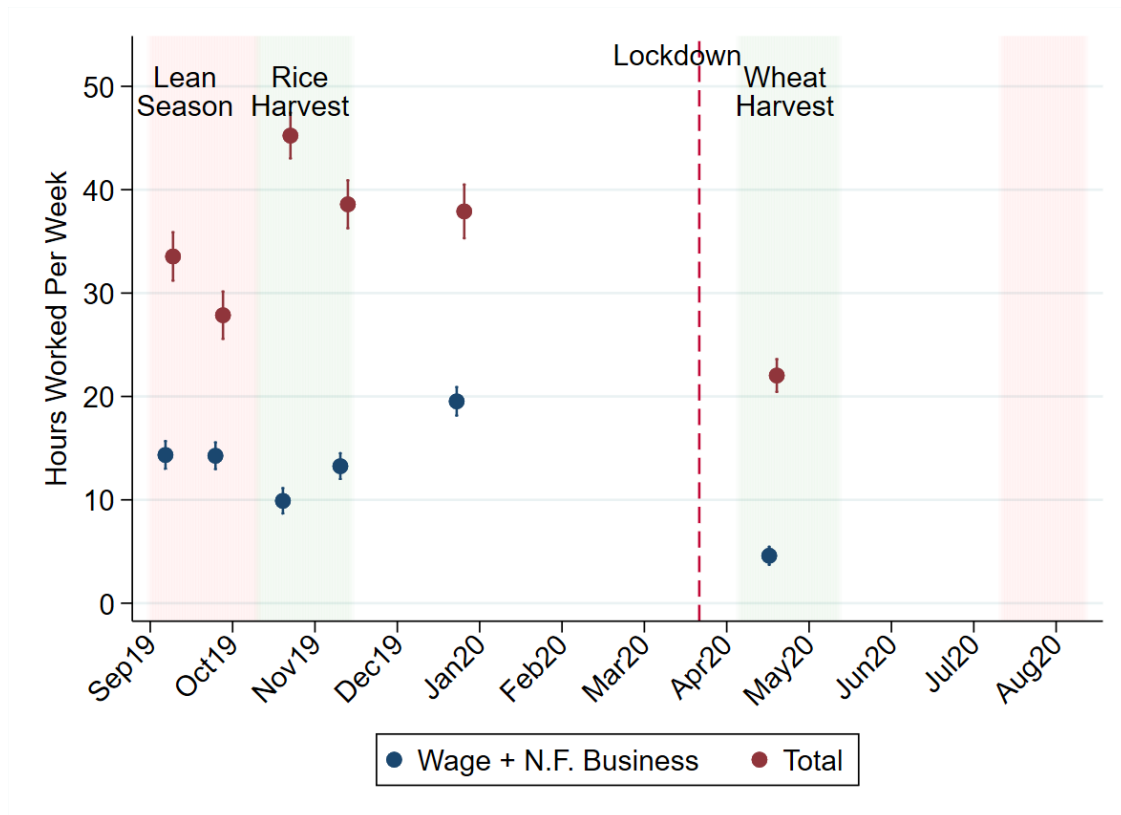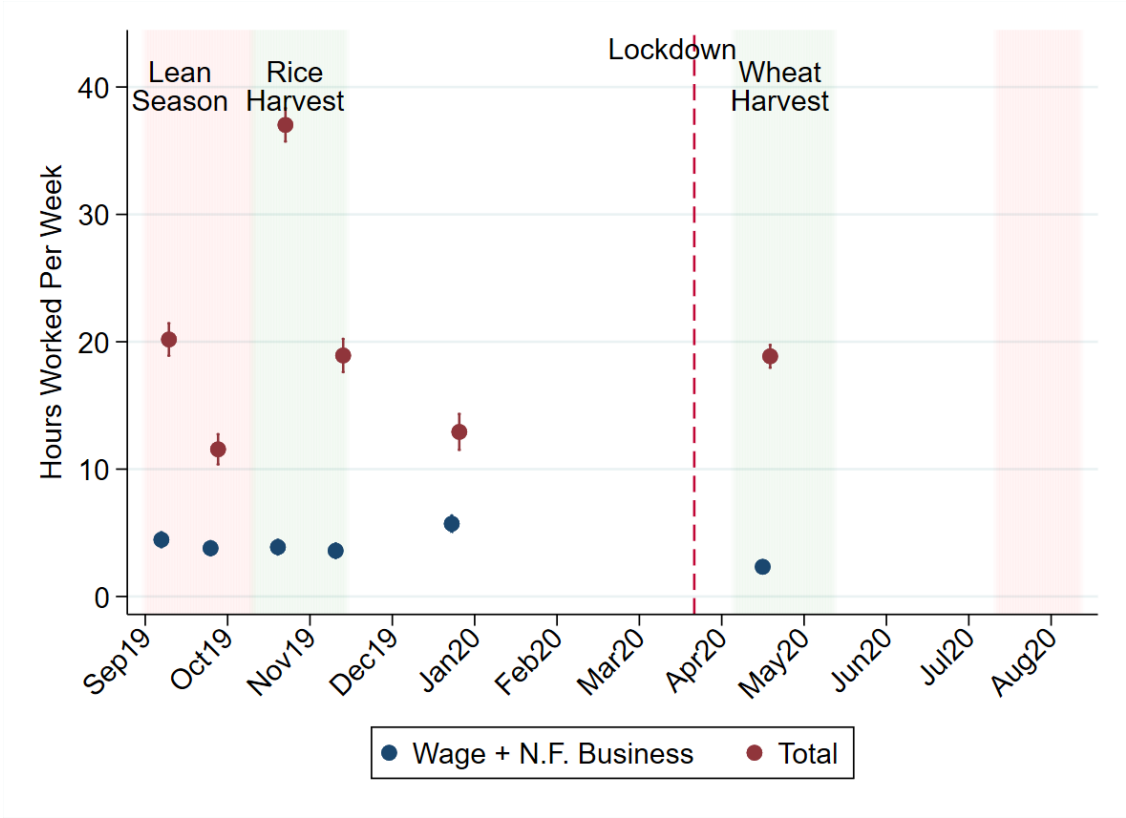

Figure 3: Hours Worked by Survey Round, Men

Figure 4: Hours Worked by Survey Round, Women

3.3 Migration

Figure 5 shows the fraction of households with at least one (temporary) male migrant age 18-65 away during each survey round. Temporary migrants are defined as household members currently living away from home, but who are reported at home at the time of at least one of the other survey rounds. The migration rate post lockdown has dropped sharply relative to all other survey rounds.
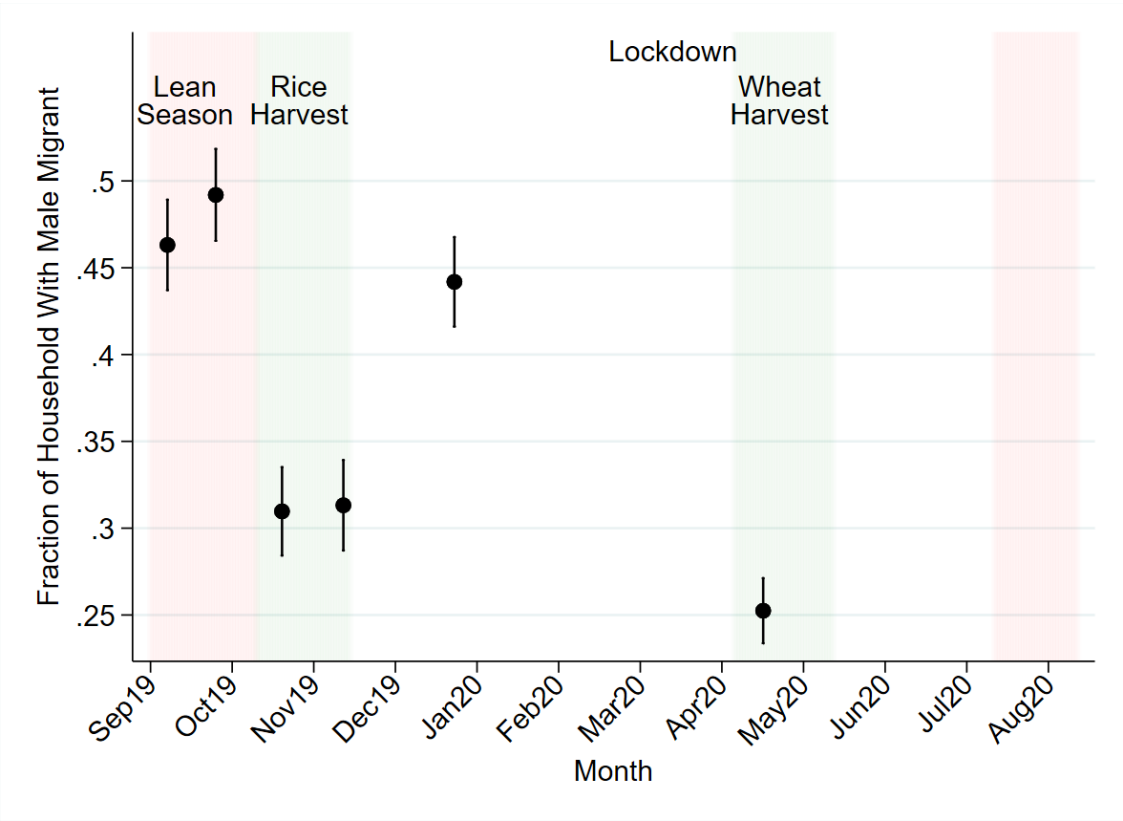

Figure 5: Male Temporary Migration by Survey Round

3.4 Non-Farm Income and Remittances

Figure 6 shows monthly remittances and total non-farm income over time. Remittances include any money sent to the household from migrants currently away in the last month as well as money brought home by hand with returning migrants in the last month. Remittances have dropped from around Rs. 5000 during earlier survey rounds to around Rs. 2000 after the lockdown. Non-farm income is the sum of remittances and the monthly wage income of all adults at home at the time of the survey. Total non-farm income also shows a dramatic drop of approximately 50% after the lockdown.
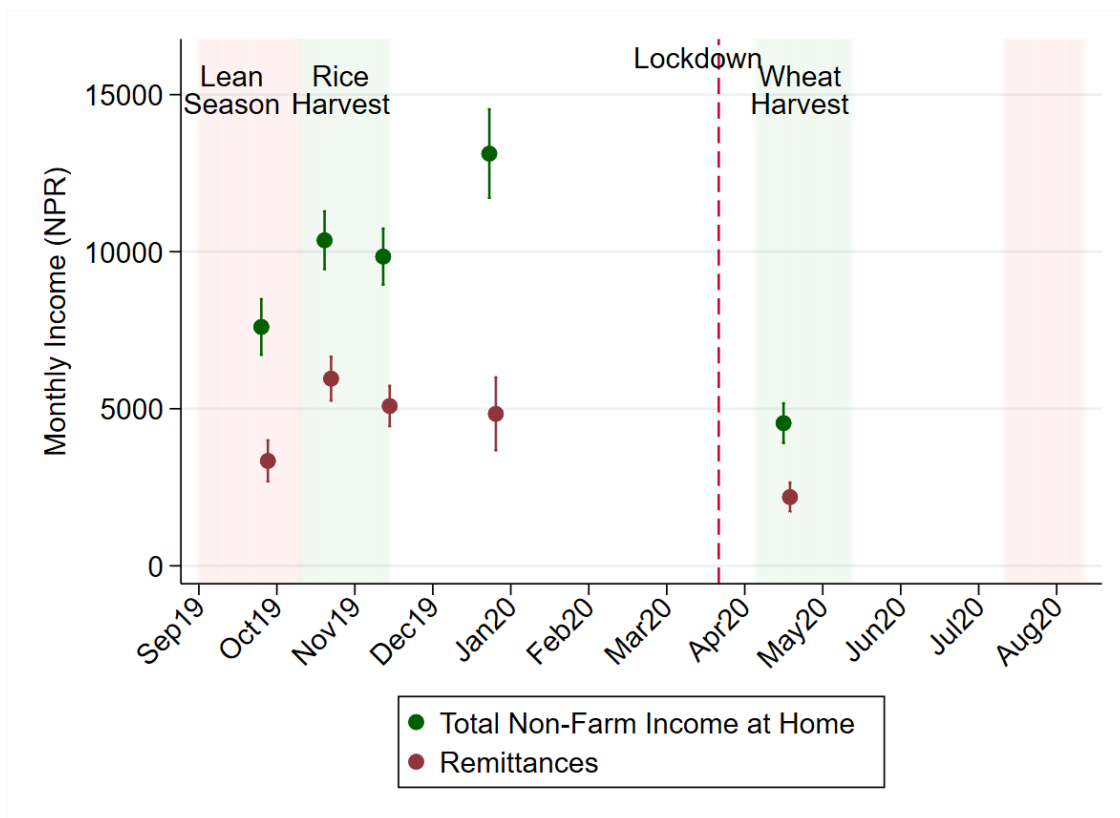

Figure 6: Non-Farm Income by Survey Round

3.5 Food Insecurity

Figure 7 shows changes in food insecurity over time. The data shown are derived from six food insecurity questions adapted from Household Food Insecurity Access Scale (HFIAS)

(Coates et al., 2007). We use two-week recall period instead of 30 day recall. The fraction of households that report worrying about running out of food or reducing portions during the previous two weeks are shown in red and blue respectively. The other four measures not displayed are frequency of switching to less preferred foods, skipping meals, running out of food, and going an entire day without eating. An inverse covariance-weighted index of all six measures following Anderson (2008) is plotted in black. The fraction of people worried about running out of food has risen by over 20 percentage points, to levels normally observed in a lean season. People are evidently drawing down their grain stocks to eat, but the overall index of insecurity is approaching lean-season levels.
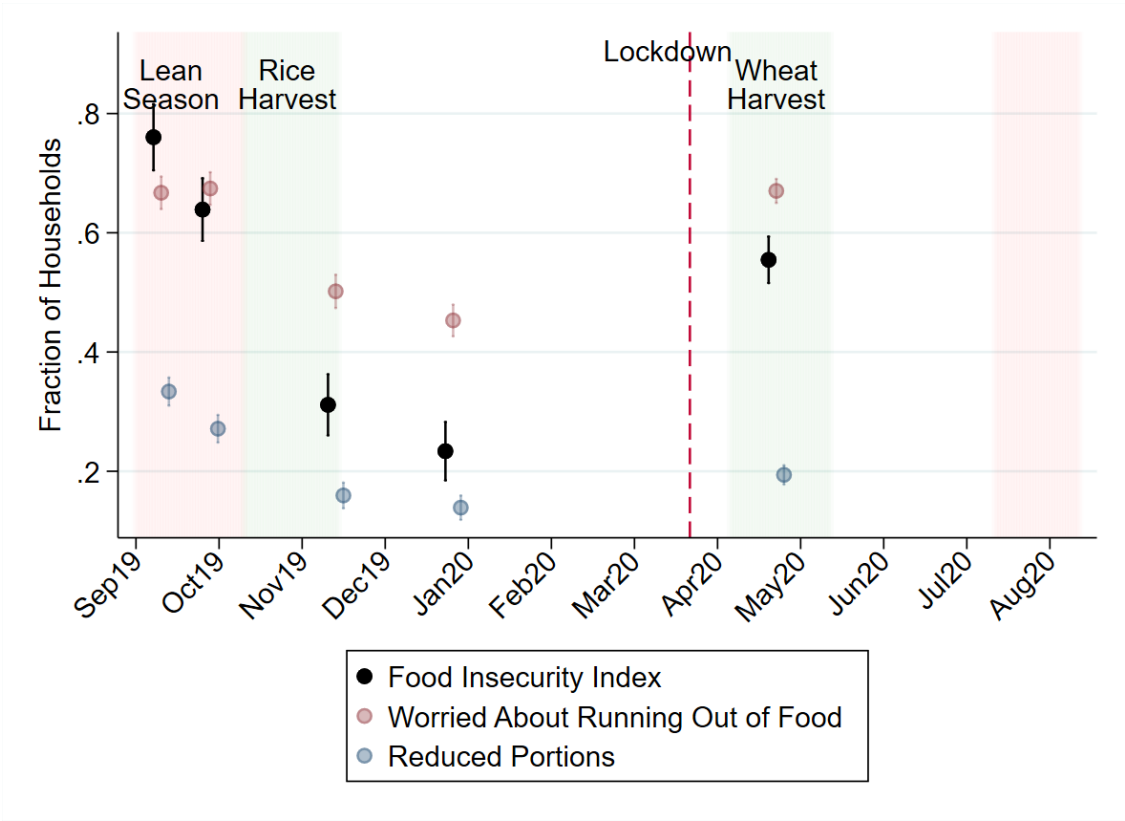

Figure 7: Food Security by Survey Round

3.6 Mental Health

Figure 8 shows the change in two mental health measures over time. The fraction of respondents that report feeling sad or depressed "Sometimes", "Often" or "Always" (as opposed to "Rarely" or "Never") in the past two weeks are displayed in green. The fraction of respondents that report feeling stressed or worried "Sometimes" , "Often", or "Always" in the past two weeks are displayed in red. The fraction of people sad, depressed, stressed has exceeded the levels typically observed during teh periods of seasonal deprivation.
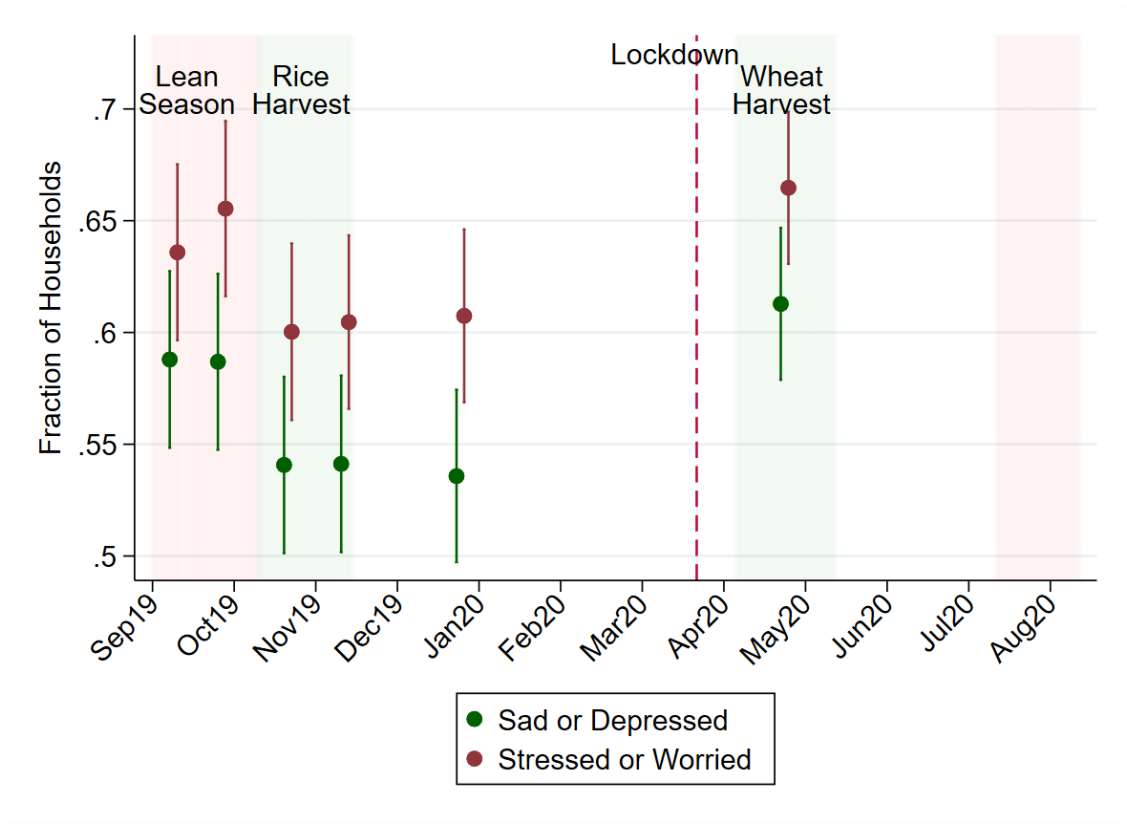

Figure 8: Mental Health by Survey Round

3.7 Depletion of Rice Stocks

Figure 9 shows the number of months households predict the rice currently stored in their dwelling will last. This data comes from a sub-sample of 408 households re-surveyed three times at high frequency from early April to mid May, allowing us to show trends in household

savings over time during the pandemic. The grain stocks are steadily depleting. Our concern is that these stocks are not expected to be replenished until the next rice harvest in November. These data suggest that the period July to October, when households are typically short on food even during "normal" years, may prove to be especially difficult this year.
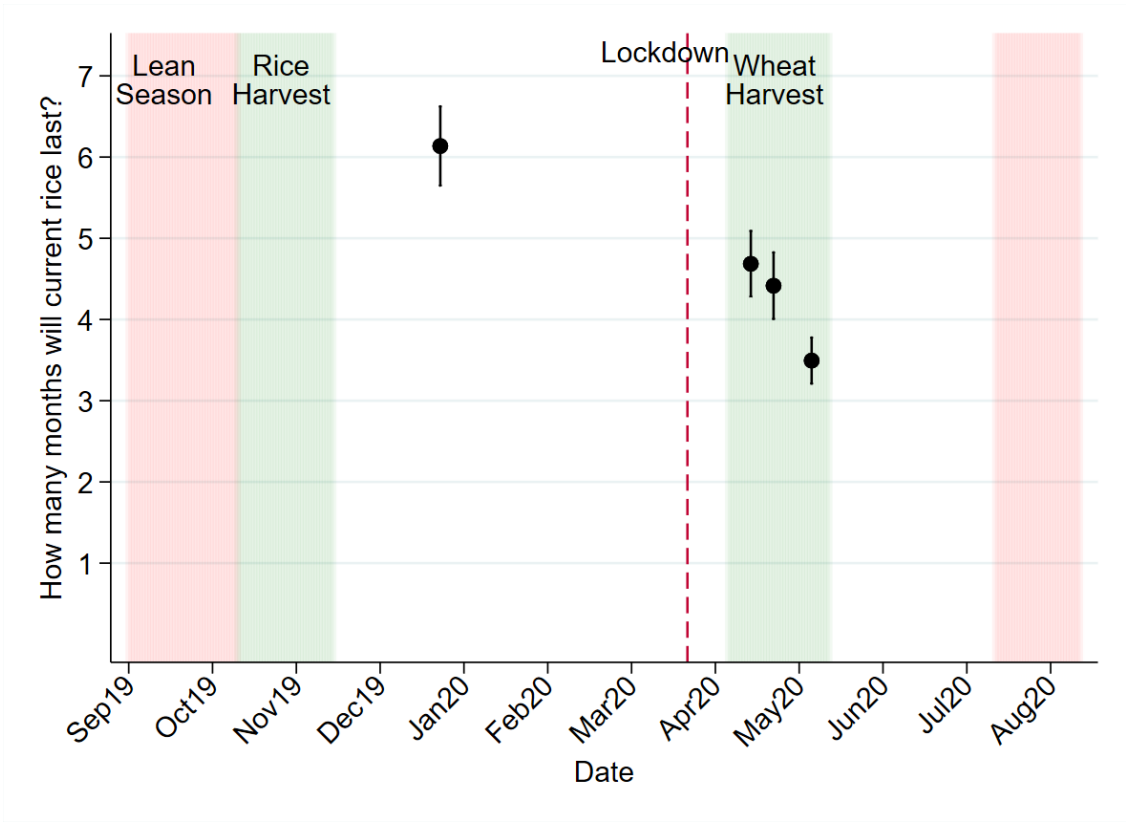

Figure 9: Months of Grain Stored by Survey Round

4   Discussion

The majority of the world's poor continues to live in rural, agrarian areas where incomes and work opportunities are seasonal, and fluctuate with the crop cycle. In deciding whether to extend lockdowns, it is therefore imperative that we think carefully about whether the economic pressures currently experienced by the poor are expected to get better over the next few months, or worse. Many countries in Sub-Saharan Africa and South Asia suffer from pre-harvest lean or "hungry" seasons when the rural poor experience food deprivation

even during 'normal' years. A continued lockdown can exacerbate that deprivation when the lockdown and lean periods overlap. A second concern is that investments that are being held back now will lower productivity in the near future, perpetuating cycles of poverty.

In 90 villages in Western Nepal, we tracked labour mobility, wages, remittances, food security, and mental health in monthly intervals since September 2019, and then conducted phone surveys in April, 2020, immediately after the lockdown measures were enforced. The sharp declines in post-lockdown welfare evident in the data are already quite stunning. Total work hours in April are significantly below even the pre-harvest lean season in October. The subdued local economic activity will push many families below the poverty line. Remittance earnings - which is another major income is sharply down. Migrants to Indian and Nepali cities returned home in a rush in early April. Further, migrants who remained are remitting only half of what they used to send before the lockdown. The usual outflow of migration during this period has almost stopped. A prolonged lockdown therefore implies lower future remittances, risking further poverty and deprivation in a few months. The substantial erosion of income is also likely to lower agricultural investments in the upcoming planting season in June-July, which will adversely affect yields during the November harvest,

The seasonality inherent in agrarian economies has two important implications for policymakers in low-income countries. First, while the economic costs of lockdown we observe in the data are already quite concerning, it still does not provide a complete sense of how much worse it can get when the lean season arrives in August. 2019 was a "normal" year by all accounts, and even then, food deprivation quadrupled from April to September. Of grave concern is how these poor families will fare when the double whammy of the lean season and the COVID-10 lock-down hits them simultaneously.

Second, the investments that are being held back now, in either reduced fertilizer or lower emigration rates, will have persistent effects on agricultural productivity, remittance income, and food security in a few months. Even if the rural poor are surviving right now, we cannot become complacent and extend the lockdown on that basis. The current food deprivation

will permanently affect productivity, welfare, and the cognitive and physical development of children. The lower investment today will perpetuate poverty for years to come. The lower migration today will cause further deprivation and hunger in a few months.

References

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