



MYANMAR

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DOUBLE JEOPARDY: COVID-19, COUP D'ETAT AND POVERTY IN MYANMAR



Livelihoods and Food Security Fund



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ABSTRACT

Myanmar experienced four distinct COVID shocks to its economy over 2020 to early 2022 as well as a military takeover in February 2021 that created severe political, civil and economic turmoil. COVID and the *coup d'état* reversed a decade of growth and poverty reduction, but the full extent of the crisis on household poverty has remained uncertain because of the challenges of conducting large-scale in-person welfare surveys during the pandemic and recent political instability. Here we combine ex ante simulation models with diverse phone survey evidence from mid-2020 to early 2022 to estimate the poverty impacts of these shocks and some of the mechanisms behind them. Both simulations and surveys are consistent in painting a grim picture of rising poverty, capital-depleting coping mechanisms, and the complete collapse of government-provided social protection.

1. INTRODUCTION

Economic growth is good for the poor (Dollar and Kraay 2002), and before the COVID-19 crisis crashed over the global economy in 2020, Myanmar had plenty of it. Myanmar's average annual growth rate in per capita GDP from 2005 to 2019 was 8.2 percent per annum, and the national poverty headcount declined from 48 percent in 2005 to 25 percent in 2017 (Ferreira, Salvucci, and Tarp 2021). Rapid growth was triggered by the gradual liberalization of the economy in the early 2000s after decades of inward-looking socialism and authoritarian military rule (Myint-U 2019). Liberalization continued under the quasi-democratic system constituted by the military in the 2010s, and growth was accompanied by structural transformation, with expansion in natural resource exports, textile manufacturing, construction, telecommunications, and various services sectors. Rural economic transformation was also important for poverty reduction in a heavily agrarian population (World Bank 2017), with the agri-food system employing half the labor force and contributing roughly one-third to national GDP (MAPSA, 2022a). Indeed, agricultural growth may have driven half of all poverty reduction over 2005-2015 (Ekanayake et al. 2019), although poverty also fell due to out-migration and rising remittances, which also fostered real wage growth in rural areas (Filipski et al. 2021).

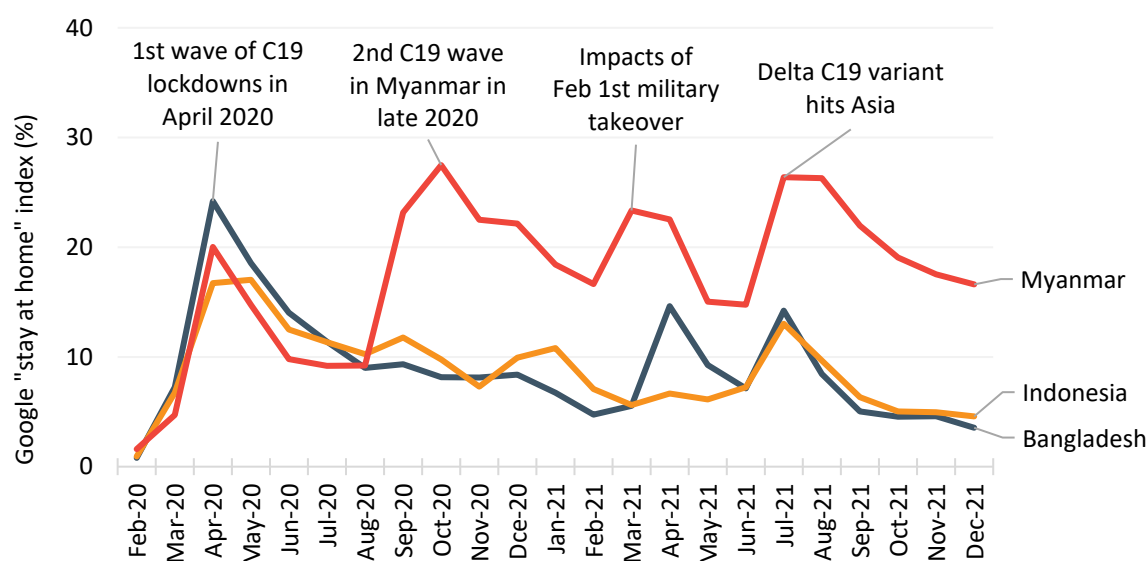
Although economic management in the years prior to COVID-19 was imperfect, the prospects for sustained rapid economic growth in a country bordering both China and India were very promising. However, this period of economic growth masked persistent frailties in Myanmar's economy and polity (Myint-U 2019); frailties which were harshly exposed over 2020-2021, first by COVID-19's economic shocks in 2020 and then by the military takeover in February 2021 and political and economic instability that immediately ensued thereafter.

Myanmar's exposure to COVID's economic shocks was unusually severe and prolonged, as demonstrated by the Google™ "stay-at-home" index in Figure 1, which represents the percentage change in the extent by which phone users stayed at home over 2020-2021 relative to February 2020 prior to the widespread emergence of COVID-19. Previous research has shown this metric to be a strong predictor of international variation in consumption and income shocks during COVID (Headey et al. 2022). Figure 1 shows that Myanmar experienced four distinct economic (mobility) shocks over 2020-2021: three COVID shocks ("waves") and the political shock of February 2021 (and consequent economic collapse).¹ The first COVID shock in 2020 was global in nature – comparator countries like Indonesia and Bangladesh experienced similar reductions in mobility – and largely an economic shock in Myanmar where the country's democratic government took stringent steps to prevent the spread of the disease with a prolonged lockdown in April 2020 involving closures of "non-essential" economic activities (Boughton et al. 2021). Many restrictions stayed in place well after the first lockdown, and actual confirmed COVID-19 case numbers were very low until a second wave struck in September 2020, resulting in many thousands of cases and even more stringent prevention measures.

¹ Myanmar also experienced an Omicron variant wave in early 2022 but this did not appear to cause a major decline in mobility, like earlier waves, possibly because many individuals had already had COVID previously, and symptoms were relatively less severe for Omicron.

By January 2021 the economy appeared to be recovering, but the military takeover of February 1st resulted in widespread strikes, protests and a civil disobedience movement, which further descended into violence, resulting in hundreds of civilian deaths in the ensuing months. The economy was ravaged on multiple fronts, including a depreciation of the kyat, severe financial sector disruptions, supply blockages at ports and along major domestic transport routes, withdrawal of foreign investment, a steep decline in government revenue, and widespread breakdown of public services. To make matters worse, by June 2021 the Delta variant hit Myanmar extremely hard, and was undoubtedly the most severe wave in terms of mortality because of limited prevention measures, low vaccination rates, and the erosion of an already weak public health system following the military takeover (World Bank 2022).

Figure 1. The four distinct shocks to the Myanmar economy as proxied by the Google “stay-at-home index”



Source: The 'stay-at-home index' refers to the residential mobility index from the Google Mobility Reports (Google™ 2021).

Understanding exactly how these severe economic shocks affected household welfare in Myanmar – the subject of the present study – is a major analytical challenge with self-evidently important implications for social protection, food and nutrition security and basic humanitarian relief. The analytical challenge in this context is daunting because the pandemic rendered in-person surveys unfeasible, and because phone surveys have several important limitations. First, achieving representativeness is challenging, especially at a subnational level (Brubaker, Kilic, and Wollburg 2021), which is critical given Myanmar's extreme ethnic and geographical diversity. Second, phone surveys have to be much shorter than in-person surveys, leading to the important omission of the household consumption expenditure modules used to measure poverty in Myanmar (CSO, UNDP, and WB 2019) and most low- and middle-income countries (LMICs) (Deaton and Zaidi 2002). Instead, most phone surveys opted for more qualitative measures of income losses, but such measures still cannot be used to define whether a household is poor in any absolute sense. Finally, although phone surveys can shed some light on the predictors of

poverty, their scope to assess linkages between macroeconomic processes and household welfare is quite limited.

An alternative analytical tool in this context are macro-micro simulation models, which have a long history in assessing the poverty impacts of economic shocks such as the Indonesian financial crisis (Robilliard, Bourguignon, and Robinson 2011, Friedman and Levinsohn 2002). However, although “macro” models have been widely used in this context – particularly social accounting matrix (SAM) multiplier models (Pauw, Smart, and Thurlow 2021) – microsimulations to examine household-level poverty impacts have been more limited.

In the remainder of this study, we take the novel step of trying to distill a narrative around poverty dynamics in Myanmar during its complex and ongoing economic crisis using both simulations and surveys. There is a methodological rationale for doing so insofar as it is insightful to compare the findings of such diverse approaches, but also an important policy rationale. Myanmar’s economic crisis is undoubtedly extremely dire, but the severing of so many forms of international cooperation, in conjunction with the general breakdown of government services in the wake of the military takeover, has meant that Myanmar’s poor are receiving very little external assistance from national or international agencies. Rigorous evidence on the scale of the poverty problem in Myanmar may help motivate more assistance, and provide a first step towards a more rigorous appraisal of how scarce funds can best be targeted to reduce the risk of extreme poverty in the immediate future.

2. DATA AND METHODS

In this study we report results from two simulation models and two phone surveys. On the modelling side we first report the predicted impacts of Myanmar’s shocks on aggregate and sectoral GDP in financial years (FY) 2020 and FY2021 from a SAM multiplier model, before presenting microsimulation results that translate the macro model’s stylized income predictions into total income changes and poverty dynamics in FY2021 at the household level. On the survey side, we then report results from a non-representative but high-frequency 10-round panel phone survey of 2000 households conducted between June 2020 to December 2021, and a new large and subnationally representative phone survey covering over 12,000 households conducted at the end of 2021 and start of 2022.

Our rationale for combining these different methods for deriving evidence on poverty dynamics is that each has different and rather complementary strengths and weaknesses. Simulation models rely on strong assumptions but can be implemented rapidly and are useful for exploring the microeconomic consequences – and mechanisms - of macro shocks. The high frequency panel we report on offer a more granular temporal picture of how these four shocks played out at the household level, but the panel is not representative. In contrast, a second phone survey from late 2021 and early 2022 is nationally and subnationally representative but offers no pre-COVID or pre-coup baseline. Together, then, both simulations and surveys can offer complementary yet sometimes contrasting insights into the magnitudes and mechanisms of escalating poverty during Myanmar’s complex economic, social and political crisis.

The SAM multiplier model

The SAM multiplier model's application to Myanmar for the analysis of COVID shocks in 2020 is described in Diao et al. (2020), so here we only cover basic details and focus on updates to 2021, before reporting updated results.² The SAM itself includes 86 economic activities, 11 factors of production, and 15 representative household groups, thus providing detailed information about input-output relationships, production multipliers, employment patterns and the distribution of income. COVID modelling simulates changes on a quarterly basis, and in Myanmar the shock scenario building is exceptionally detailed, drawing on extensive collation of media reports, government documents on specific COVID prevention measures, local research reports on specific sectors, and supplementation with data from the Purchasing Managers Index and Google Mobility Reports, as described by Diao et al. (2020). Most of these shocks were only assumed to directly apply to non-agricultural activities (lockdown mandates did not restrict farming activities), such that agriculture was only indirectly affected through reduced demand in 2020. In 2021, however, we modelled more direct effects of disruptions to agricultural inputs – via transport and financial sector problems of the military takeover, including sizeable negative shocks imposed on access to inputs such as fertilizers (MAPSA 2021). Here we report results for aggregate GDP as well as for agriculture, industry and services, for financial years 2020 and 2021, but in addition to modelling specific shocks – such as lockdowns – we also model alternative recovery scenarios: faster and slower recovery. However, with the obviously severe economic disruptions in Myanmar 2021 we place much stronger emphasis on the more pessimistic slower recovery scenario.

One important limitation to note is that the SAM multiplier model is a fixed price model, which was a reasonable assumption for much of 2020 and early 2021, although prices have changed quickly since mid-2021 (MAPSA 2022b), as we discuss below.

Household microsimulation model for the financial year 2021

Results from the SAM multiplier analysis are used as an input to the microsimulation model to measure household-level impacts, as described in Diao and Mahrt (2020). In brief, the SAM results yield changes in sector-specific incomes in a stylized way, which are then translated into changes in income and expenditure at the household level – with larger shocks given to temporary employees and non-farm enterprises – using the 2015 Myanmar Poverty and Living Conditions Survey (MPLCS), with expenditure-based poverty measured at the national poverty line. This approach allows us to predict the impact of the plausibly structured economic shocks on poverty for different groups of households in MPLCS. As with the SAM multiplier model, we report results for both a more optimistic and more pessimistic scenario, but with much stronger emphasis on the more plausible pessimistic scenario.

² Other studies document the broader methodological features of these models (Breisinger et al. 2009), and their generic application to COVID-19 shock modelling (Pauw, Smart, and Thurlow 2021).

In terms of limitation, the microsimulation model also has the fixed-price assumption discussed above, but an additional limitation from a household poverty perspective is that it does not allow for behavioral responses to shocks, such as migration or other livelihood changes.

3. INCOME-BASED POVERTY IN THE RURAL-URBAN FOOD SECURITY SURVEY (RUFSS) OVER 2020-2021

The Rural-Urban Food Security Survey (RUFSS) is a non-representative unbalanced panel phone survey of approximately 2000 mothers/households with young children, which was implemented to assess the welfare impacts of the COVID-19 crisis on nutritionally vulnerable households. Details on RUFSS are provided by Headey et al. (2022), but in brief, the sample was designed to be evenly split between mothers in urban and peri-urban Yangon and the rural Dry Zone. However, migration became a key feature of the sample both prior to the military takeover in 2020 and afterwards in 2021, and in this context the phone survey was advantageous insofar as we were still able to track most migrants. Specifically, 12 percent of interviewed households moved away from their original township between December 2021 and January 2020, and around 84 percent of these migrants were from the Yangon sample.³ This rate of migration is extremely high compared to normal years, but also large enough to warrant analyzing this group as a separate sub-sample, which we do here.

While most COVID phone surveys did not attempt to measure poverty, in RUFSS we tried to quantify household income and income-based poverty through a very simple single question asking respondents to estimate total household income in the past month. However, since RUFSS only started in June 2020 – after the first COVID economic shock – we also asked a retrospective question about income in January 2020 to create a pre-COVID income baseline. Income per adult equivalent for January 2020 and all 10 survey rounds was then compared to a \$1.90 per day poverty line updated with food inflation data collected from a food vendor survey implemented at approximately the same time as the RUFSS rounds (MAPSA 2022b). RUFSS also collected a range of other welfare measures – some of which are reported in Headey et al. (2022) – but here we focus on coping mechanisms, as these yield insights on adaptive responses that microsimulations are unable to do.

4. INCOME-BASED POVERTY IN THE NATIONAL MYANMAR HOUSEHOLD WELFARE SURVEY 2021-2022

While RUFSS offers very useful high-frequency data on income and poverty dynamics over the course of Myanmar's four distinct shocks (Figure 1), its major limitation is that it is not nationally representative. However, in response to the dearth of national surveys in the wake of the military program we were able to implement a large subnationally representative phone survey from scratch (i.e. without a baseline) through exploiting an extensive phone database from the implementing survey firm, and setting the firm targets for respondent or household characteristics (education, age, rural/urban location, farm/nonfarm) to minimize the usual biases of phone

³ Attrition was also a problem in the urban sample after the military takeover, so migration out of Yangon may even be underestimated if migrants were more likely to drop out of the survey.

surveys towards better-off, better-educated and more urbanized respondents (Gourlay et al. 2021). Information on the design and questionnaire for this Myanmar Household Welfare Survey (MHWS) is provided in MAPSA (2022c), but one key feature is the unusually high geographical coverage, with the MHWS surveying 310 of Myanmar's 330 townships, including many high-conflict areas that would have been impossible to reach through in-person surveys, even prior to COVID-19 and the current political instability.⁴

As for the income-based poverty measure, the MHWS metric is somewhat more sophisticated than the single-question RUFSS metric described above. We rationalized that asking people to estimate incomes from a wide variety of economic activities or transfers would result in higher accuracy, so we asked households for their total monthly income from 16 different livelihoods as well as net remittances received. We then update the national food poverty line from 2017 using monthly food CPI data until 2020 and then the aforementioned national food vendor surveys thereafter (MAPSA 2022b). For the non-food component of the poverty line, we applied the 2017 ratio of the non-food to food poverty lines to the updated food poverty line for December 2021. Hence the poverty metric in 2021/2022 captures the impacts of food inflation on poverty directly through these poverty line adjustments.

5. RESULTS

SAM multiplier model evidence on aggregate and sectoral GDP in the financial year 2020 and 2021

The predicted effects of Myanmar's economic shocks on total and sectoral GDP relative to a quarter-by-quarter no-COVID counterfactual (to net out seasonality) are depicted in Figure 2. Note that Myanmar's fiscal year runs from October 1st through September 30th, so the impacts of COVID-19 in fiscal year 2020 actually include 6 months of very strong economic growth from October 2019 to March 2020, followed by a major economic contraction from April onwards. Indeed, GDP projections for April-June 2020 predicted a 22.1 percent contraction, followed by a slow recovery quarter over July-September of -9 percent and a fast-recovery estimate of -2.2 percent. Factoring in these alternative recovery scenarios in Figure 1, we observe GDP was 5-6.7 percent lower than under a no-COVID scenario, with the World Bank (2022) estimate falling closer to the fast recovery scenario. At the sector level, services and industry are hit hardest – especially by lockdowns – while agriculture is minimally affected overall.

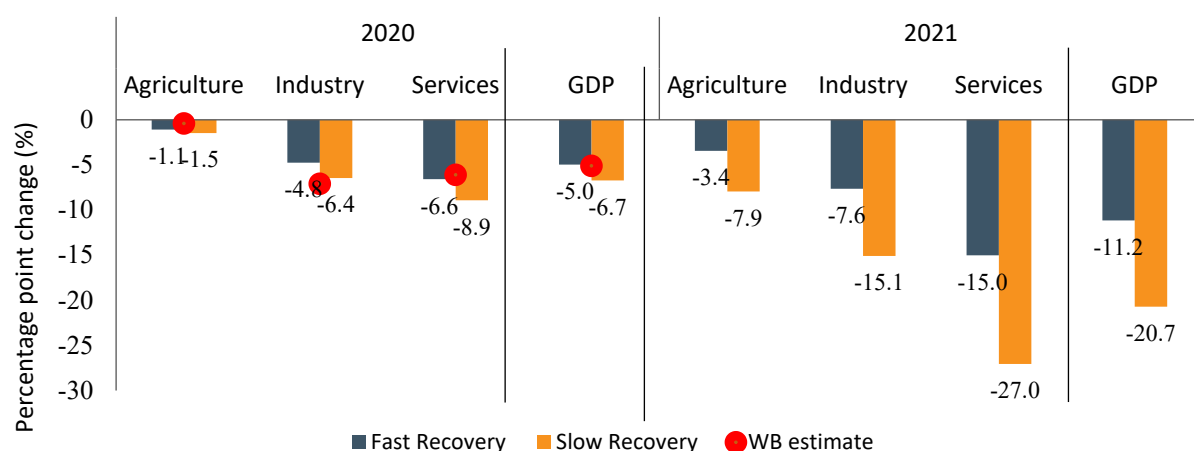
In financial year (FY) 2021 things started much worse, with Myanmar serious second wave of COVID-19 infections leading to severe economic contractions over October-December 2020, following by the military takeover in February 2021, and the Delta wave crashing the economy over June-August 2021. As noted above, the military takeover led to widespread, prolonged and fundamental contractions across the Myanmar economy, including severe financial system turmoil and trade disruptions. The more plausible scenario here is the slow recovery projection, although “recovery” is only used in a relative sense. GDP is projected to be 20.7 percent below a no-COVID scenario, with massive contractions in services (-27 percent) and industry (-15.1

⁴ Indeed, even pre-COVID in-person national surveys reached many fewer townships than MHWS, and particularly struggled in Rakhine. In MHWS we managed to survey every township in Rakhine.

percent), but also a significant contraction in agriculture (-7.9 percent) due to indirect depression of demand as well as input supply disruptions.

How accurate these projections are is difficult to assess because post-coup disruptions even affected the collection of data by Myanmar's government as well as their collaboration with international agencies. However, the July 2021 estimate by the World Bank (2021) predicted an 18 percent contraction in GDP for FY 2021. There is perhaps more uncertainty around sectoral effects, however, as our phone survey evidence from late 2021 and early 2022 suggests that the agricultural sector might have been more resilient than expected.

Figure 2. SAM multiplier analysis of impacts of economic shocks on GDP during financial years 2020 and 2021



Source: Authors' calculations from Myanmar's SAM multiplier model simulations. Note that Myanmar's fiscal year runs from October to September. WB=World Bank. World Bank results are reported in World Bank (2022).

Household microsimulation model evidence on expenditure-based poverty in the financial year 2021

In the 2015 MPLCS baseline for the microsimulations, 32.1 percent of the population was estimated to be poor at the relatively high national poverty line (around \$3.69 in 2017 international dollars), although poverty was much higher in rural (38.9 percent) than urban (14.5 percent) areas. The Delta and Dry Zone geographies also has lower poverty than other regions, although this is partly driven by lower poverty in Yangon and Mandalay, the two largest cities in Myanmar.

In terms of livelihoods, poverty in 2015 was higher among farm (49.7 percent) and mixed farm-nonfarm households (46.3 percent) than among more non-farm based livelihoods (18.2 percent). Unlike the other livelihood groups, remittances receivers are not mutually exclusive and can overlap with other livelihood definitions. Remittance-receiving households have relatively lower poverty rates, at 22.8 percent.

Turning to FY 2021 projections, the optimistic scenario predicts national poverty to increase from 32.1 percent in 2015 to 40.1 percent in FY2021, whereas the arguably more plausible pessimistic scenario predicts poverty increasing to 49.9 percent. In absolute terms, the pessimistic scenario poverty rate increases slightly more in rural areas (18.1 points) than urban

areas (16.9 points), but the fact that the urban poverty rate more than doubles is indicative of how hard these shocks are projected to affect urban populations. All regions are badly affected, and all livelihoods, although the relatively small population of “Other sources only” (3 percent of total population in 2015) and remittance receivers are predicted to do particularly badly.

Among potentially vulnerable households those with children under 5 experience roughly the same poverty increase as the national sample, which is concerning given their nutritional vulnerability. Households with women-only adults also see a sharp 18-point increase in poverty, but older adult families see a more modest increase of just under 10 points. Households with temporary wage earners only have high poverty to start with (50.4 percent) and see a massive 23.7-point increase in poverty, meaning three quarters are estimated to be poor over FY 2021. The rural landless (<5 acres) also have high initial poverty rates and see a 19-point increase.

Table 1. Expenditure-based poverty headcounts at the national poverty line for different household groups in 2015 and in the financial year 2021 under “optimistic” and “pessimistic” simulation scenarios

	Population, 2015	Population share (%)	Expenditure-based poverty headcounts			Poor populations (at 2015 levels)		
			2015 baseline (%)	FY 2021 optimistic (%)	FY 2021 pessimistic (%)	2015 baseline	FY 2021 optimistic	FY 2021 pessimistic
National	49,051,079	100.0	32.1	40.1	49.9	15,745,396	19,669,483	24,476,488
Urban	13,619,238	27.8	14.5	22.7	31.4	1,974,790	3,091,567	4,276,441
Rural	35,431,841	72.2	38.9	46.8	57.0	13,782,986	16,582,102	20,196,149
Agroecological zones								
Hills	8,656,413	17.6	40.1	48.8	57.8	3,471,222	4,224,330	5,003,407
Dry	14,728,273	30.0	32.2	40.1	50.3	4,742,504	5,906,037	7,408,321
Delta	21,038,684	42.9	26.2	34.3	44.4	5,512,135	7,216,269	9,341,176
Coastal	4,627,709	9.4	43.9	50.7	59.1	2,031,564	2,346,248	2,734,976
Livelihoods ^a								
Farm income	15,106,451	30.8	42.9	49.7	58.2	6,480,667	7,507,906	8,791,954
Non-farm income	17,003,575	34.7	18.2	26.8	37.0	3,094,651	4,556,958	6,291,323
Mixed farm/nonfarm	15,481,016	31.6	38.7	46.3	56.0	5,991,153	7,167,710	8,669,369
Other sources only	1,460,036	3.0	12.5	31.0	50.6	182,505	452,611	738,778
Remittance receivers	11,178,037	22.8	28.3	34.8	51.4	3,163,384	3,889,957	5,745,511
Potentially vulnerable								
Any children under 5	19,947,363	40.7	41.1	49.2	59.8	8,198,366	9,814,103	11,928,523
Women-only adults	2,627,627	5.4	20.4	26.2	38.2	536,036	688,438	1,003,754
All adults over 64	426,601	0.9	11.8	22.8	32.3	50,339	97,265	137,792
Temporary wages only	3,136,951	6.4	50.4	69.5	74.1	1,581,023	2,180,181	2,324,481
Landless (<5 acres, rural)	12,407,184	25.3	42.4	51.0	61.1	5,260,646	6,327,664	7,580,789

Source: Authors' calculations. a. Farm, non-farm households and 'other sources' households generate income only from those sources while mixed farm/nonfarm receive income from multiple sources. 'Other sources' includes remittances, transfers, pensions, rent. Remittance receivers are not mutually exclusive, and can include any qualifying household.

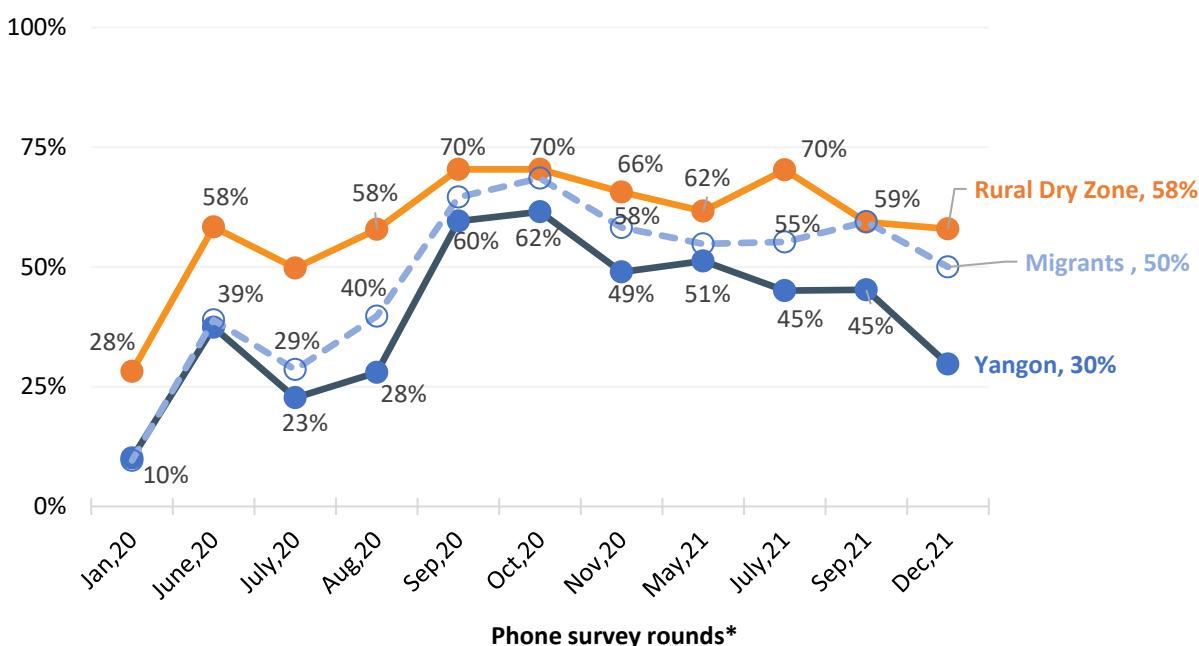
In terms of absolute numbers of poor, there were 15.75 million poor people in 2015, but under the pessimistic scenario this increases to 24.5 million. Poverty is still predominantly rural, although the pessimistic scenario predicts a huge increase in urban poverty from 2015 to 2021, from 1.97 million to 4.28 million. Had we a 2019 baseline the increase in poverty would likely be higher (assuming poverty in 2019 was lower than in 2015). A further caveat is that these estimates abstract both from population growth and internal migration. Migration over 2020-2021 is particularly important phenomenon that we touch on below with phone survey evidence.

High-frequency phone survey evidence on income-based poverty over 2020-2021

Figure 3 reports trends in income-based poverty from a non-representative unbalanced panel phone survey of approximately 2000 mothers/households with young children (Headey et al. 2022). Despite the simplicity of this measure, the patterns and trends in Figure 3 are plausible in several respects. First, like the expenditure-based poverty results reported in Table 1, income-based poverty is much higher in rural areas in January 2020 (28 percent) than in Yangon (10 percent). Second, income-based poverty rises steeply in both rural and urban areas after the April 2020 lockdown – consistent with microsimulation results – then recovers, and then rises extremely steeply during the second COVID wave starting in August 2020, plateauing at 70 percent in the rural sample over September and October, before declining in November as the economy seemed set to recover. The next survey was not conducted until May 2021, after the military takeover. Factoring in the caveat of some attrition, poverty in Yangon stalled at 51 percent and declined only marginally in the dry zone. Then in the peak of the Delta wave poverty rose again in the rural sample to 70 percent, but declined fractionally to 45 percent in the Yangon sample. By December 2021 poverty stood at 58 percent in the rural dry zone sample but had fallen quite sharply to 30 percent in Yangon.

The 12 percent of households who we define as migrants – based on changing townships – deserve special mention, as migration – or livelihood transitions in general – are not modelled in the microsimulations. Most migrants were originally in Yangon, and many left Yangon for rural areas or other urban centers. Poverty rates are higher among the migrant sub-sample than the still-in-Yangon sample from July 2020 onwards, and they are persistently higher for the rest of 2020 and 2021. By December 2021 migrant households were 20 points more likely to be income-poor than households still in Yangon. This – along with the fact that many migrants reported job losses prior to moving – suggests economic distress was the main motivation for moving, but also that migrant households have not found it easy to find remunerative employment in their new destinations.

Figure 3. Income-based poverty trends from a non-representative COVID-19 phone survey in Yangon and the rural dry zone



Source: Authors' estimates from the Rural-Urban Food Security Survey, as described in Headey et al. (2022).

Headey et al. (2022) also report on some of the potential explanations of poverty as reported by respondents who stated they had lower incomes than 12 months ago. These vary by livelihood, but unemployment is the most common reason (half the sample), while travel restrictions and market disruptions are cited by trade/retail households and salary reductions by salaried occupation households. Farmers also cited poor weather (22 percent), consistent by reports of low rainfall in 2020, especially.

It seems inevitable that such prolonged shocks have high potential to deplete financial or human capital through coping mechanisms that are costly either in the short, medium or longer term. For households who reported lower than usual income (typically three quarters of the sample), Table 2 reports the percentage of households who used a coping mechanism at least once, stratified by levels of assets. Reducing non-food consumption was the most common strategy, closely followed by borrowing money and using cash savings. However, the asset-poor were 25 points more likely to have borrowed money and 20 points more likely to have bought goods on credit than the asset-rich, whereas asset rich households were more likely to use savings. Around 42 percent reported reducing food consumption at least once. One quarter of households sold assets at some stage over 2020-21 and 15 percent took a collateral loan. Table 2 therefore illustrates some of the potentially very harmful consequences of rising poverty: reduced food and non-food consumption, high levels of indebtedness, and depletion or mortgaging of assets.

Table 2. The share of households in Yangon and the rural dry zone who reported using various coping strategies to deal with income losses over 2020-2021

	Total sample (%)	Asset-poor (%)	Asset-low (%)	Asset-rich (%)	Difference rich-poor (%)
Reduced non-food consumption	86	88	85	85	-2
Borrowing money	72	81	74	56	-25
Using cash savings	66	62	64	76	14
Reduced food consumption	42	43	42	42	-1
Help from family	36	32	38	38	6
Bought goods on credit	29	37	29	17	-20
Sold assets	25	26	25	24	-1
Took collateral loan(s)	15	13	15	17	4
Reduced savings	6	5	5	7	2
Did nothing	15	15	13	21	7

Source: Authors' estimates from the Rural-Urban Food Security Survey, as described in Headey et al. (2022).

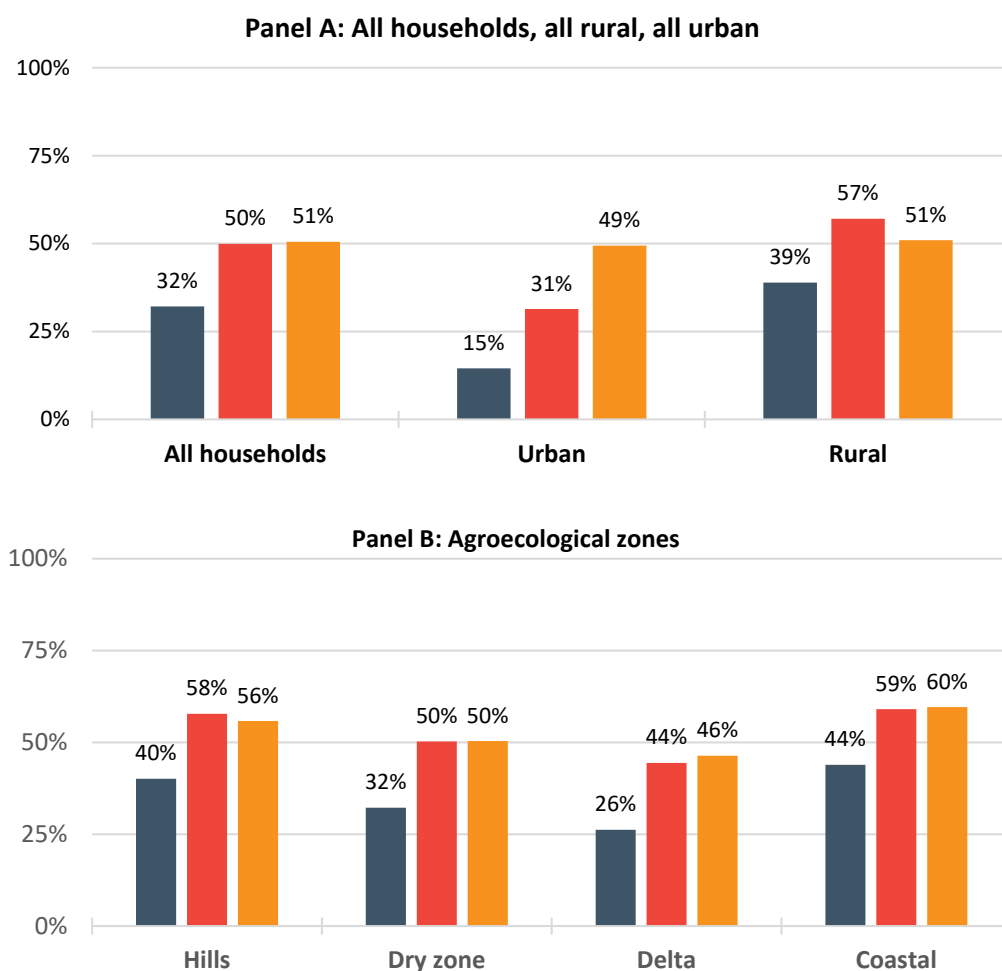
National phone survey: Estimates and potential causes of income-based poverty in 2022

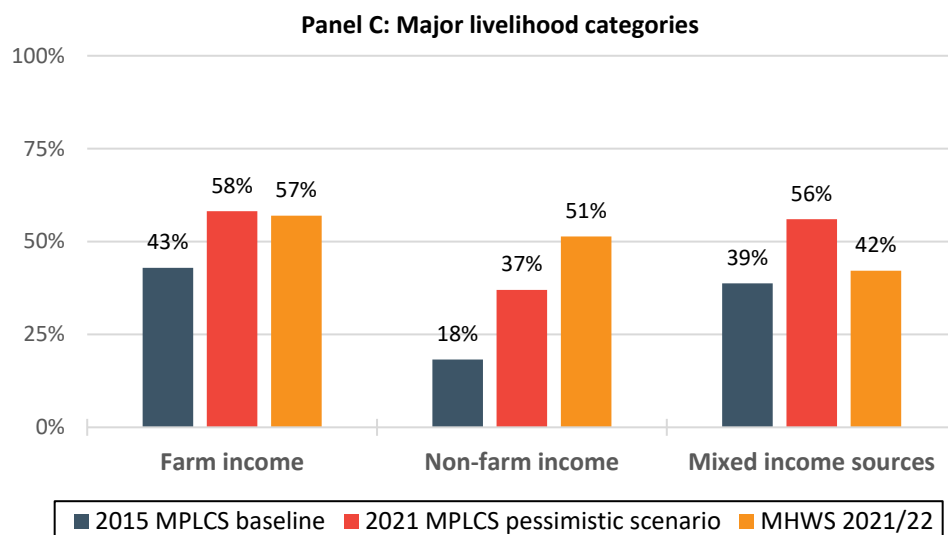
Figure 4 compares the national microsimulation results for expenditure-based poverty in FY 2021 under the pessimistic scenario with the income-based poverty results for MHWS over December 2021-February 2022. In terms of comparisons across the microsimulation and MHWS there is no reason these two very different types of poverty measures (income vs expenditure) should lead to similar poverty headcount estimates, and the results also cover different time periods and could be susceptible to seasonality in MHWS. Even so, it is useful to compare results from two nationally representative surveys, including patterns by geographies and livelihoods.

Given these methodological differences, it is rather striking that the national poverty estimates are almost identical in Panel A of Figure 1, with both the microsimulations and MHWS suggesting that half of the Myanmar population were poor in 2021. However, on the rural-urban divide there is disagreement, with the MHWS suggesting a very high rate of income-based poverty (49 percent) in urban areas compared to microsimulations (31 percent). There could be many explanations for this, although food inflation is a prime suspect: it raises the poverty line for the urban poor, but likely has no short-term impact on their nominal incomes, or even a negative impact. In contrast, although rural incomes are also benchmarked against a higher poverty line, their farm incomes should increase with higher food prices as long as those prices are substantially transmitted to the farmgate (and preliminary evidence from MHWS suggests this to be the case). Another explanation could be the fact that the microsimulation baseline data is now potentially outdated (2015). A third explanation is that MHWS was implemented just after the monsoon season when most farmers were selling their crops and agricultural laborers potentially receiving above-average wage income from harvesting, both of which could have temporary spillovers on the broader rural economy. The urban-rural gap might therefore possibly increase in other periods of the year. Finally, there it is also possible that some of the assumptions in the microsimulations were inaccurate.

Panel B reports results by agroecological zones. Microsimulation projections of expenditure-based poverty and survey estimates of income-based poverty are remarkably close in all regions. Poverty is highest in the Hills (56-58 percent) and Coastal zones (59-60 percent), lower in the dry zone (50 percent) and lower still in the Delta (44-46 percent), which includes Yangon where poverty rates are lower (35 percent in the MHWS).

Figure 4. Comparing expenditure-based poverty in the MPLCS 2015 baseline and 2021 pessimistic scenario to income-based poverty in the 2021-2022 MHWS phone survey





Source: MPLCS baseline data and microsimulations by the authors from (World Bank, MOPFI, and CSO 2015). MHWS data is described in MAPSA (2022c).

We aimed to define livelihoods as similarly as possible across the MPLCS and MHWS, but Panel C shows that there is not always strong agreement in results by broad livelihood categories. The results for farm households are in close agreement – perhaps surprisingly given the seasonality of farm income – but income-based poverty for non-farm households is much higher in MHWS (51 percent) than in the MPLCS microsimulations (37 percent), consistent with the difference in urban results for the two methods. In contrast, mixed income source households have higher poverty in the expenditure-based poverty simulations (56 percent) than in the MHWS (42 percent).

Despite some inevitable discrepancies between two very different measures of poverty, and the caveat that the MHWS has no pre-COVID baseline, the alignment of national and zonal results across the two measures provides some reassurance on the issue of robustness. However, from a welfare perspective both methods paint a very grim picture of poverty in Myanmar 2021 and early 2022. At the national level, the microsimulation results suggest that poverty has risen by 18 points over 2015-2021, a 56 percent increase in relative terms.

Figure 5 uses the MHWS to econometrically explore some of the predictors of income-based poverty status at the national, urban and rural levels with linear probability models that use household weights and control for state and region fixed effects, as well as survey months, and clustered standard errors at the township level. Full regression results are reported in Table A2.

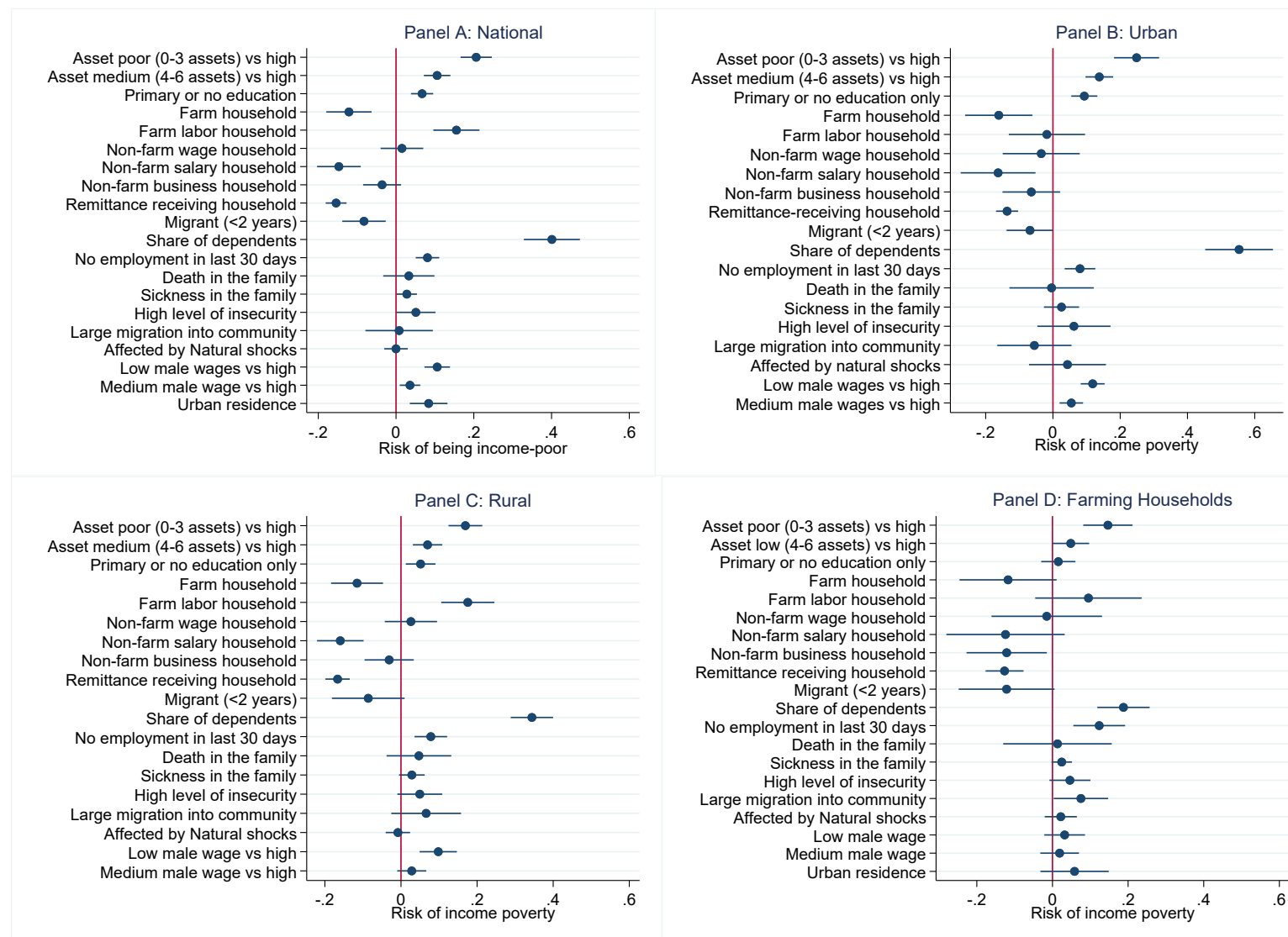
Unsurprisingly, owning fewer assets is a very strong predictor of poverty. Households with 0-3 out of 10 assets (asset-poor) are 17-20 points more likely to be income-poor. Households in which the respondent only has primary education at best are 6-10 points more likely to be poor. Relative to ‘other transfer’ households, own farm households are less likely to be poor, as are non-farm salary households, but farm wage earning households are much more likely to be poor. Remittance-receiving households are 14-17 points less likely to be poor, making this a very strong predictor of reduced risks of poverty, while households that migrated in the past two years are 8-10 points less likely to be poor. This perhaps contradicts the RUFFS panel results reported above,

although establishing the causal directions between poverty and migration is challenging. Moreover, households in rural areas that saw a large influx of migrants are slightly more likely to be poor although the effect is not precisely estimated. Another very strong demographic predictor of poverty is the share of dependents (non-employed individuals) in total household size; the coefficient on this variable is very large in magnitude and precisely estimated.

Households that reported loss of employment are also likely to be poorer, by about 7-9 points. Also striking is that community wage estimates are strongly associated with household poverty status: the lowest tercile of community wages predict that a household is roughly 10 percentage points more likely to be poor compared to the highest tercile of wages, except in the farming household sub-sample. Perhaps surprisingly, exposure to natural shocks is not strongly linked to poverty,⁵ although self-reporting of physical insecurity in the respondent's area increases the risk of poverty by around 6 percentage points.

⁵ The lack of association between poverty and natural shocks may simply reflect a mismatch of timing: recent shocks could affect future income, or past shocks may have affected past income, but not income in the past month.

Figure 5. Linear probability models (95 percent CIs) exploring the risk of income-based poverty in the 2021-2022 MHWS



Source: Results are population-weighted linear probability model coefficients with confidence intervals derived from standard errors clustered at the township level. See Appendix Table A1 for definitions of variables and Table A2 for full results. Household types are compared to transfer-dependent households. Cis=Confidence Intervals

Finally, we note that we found no significant direct associations between household's reported exposure to covid sickness or mortality, although households reporting serious sickness in the past three months were marginally (2.3 points) more likely to be poor. We also note that, controlling for these factors, there are still some significant state/region effects (Appendix Table A2), and that urban households are more likely to be poor once other covariates are controlled for. At the state/region level, compared to Ayeyarwady (a large and quite poor region), national sample results suggest that households from Hilly and more remote regions/states like Kachin, Kayin and Chin are 12-22 points more likely to be poor, while households from Rakhine are 16 points more likely to be poor. Thus, there are factors other than those specified in the model that must explain the strong geographical variation in poverty.

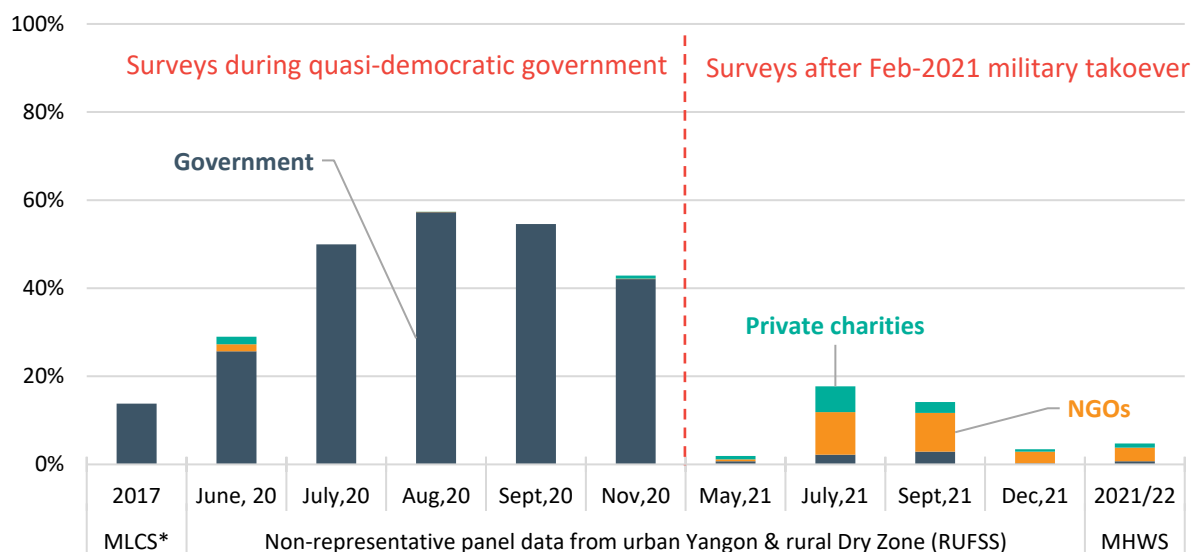
6. DISCUSSION

The combination of COVID-19, a military coup, and recent global price increases of fuel, fertilizers and food, have pushed the limits to the extraordinary resilience of Myanmar's population. The United Nations estimates that the intensified conflict since the February 1st military takeover has resulted in 1 million internally displaced people dependent on assistance for daily survival by April 2022 (OCHA 2021). But in addition to these extreme poor, this study shows that two radically different methodologies suggest that the complex economic crisis in Myanmar has left half the population in poverty as of the end of 2021.

Compounding this dire problem is the complete inadequacy of social protection in Myanmar in the wake of the military takeover. Figure 6 compares social protection coverage from three sources: the nationally representative Myanmar Living Conditions Survey (MLCS); the non-representative panel survey (RUFSS) described above; and the national MHWS 2021/2022. Even prior to COVID-19, decades of military rule left Myanmar lagging far behind its peers in terms of its ability to provide social protection, with just 13.8 percent of its population receiving any social protection in the 2017 MLCS, despite around one third of its population being poor at that time. In contrast, over 40 percent of Bangladesh's population received social protection prior to COVID-19 (World Bank 2020).

After COVID-19 struck the economy, the quasi-democratic government of 2020 scrambled to scale up social protection with limited resources, and many social protection interventions still in their pilot phases (Headey et al. 2020, Headey et al. 2022). However, after an initially slow response, the democratic government introduced a large cash transfer program that was reaching around half the population by July 2020 (CSO and UNDP 2021), and Figure 6 shows that these transfers were sustained throughout 2020, although Headey et al. (2020) find that they were not particularly well targeted. However, there is perhaps no better indicator of state failure since the February 2021 military takeover than the complete collapse of social protection in 2021, as borne out by the four RUFSS rounds conducted over May-December 2021 as well as the national MHWS data (Figure 6). Government social protection disappeared; private charities provided some assistance in July and September (in Yangon and the Dry Zone at least) and NGOs reached a small share of the population. However, in the national MHWS 2021/2022 we find that only 5 percent of households report receiving assistance from any institution, as compared to a 50 percent poverty rate.

Figure 6. The share of surveyed populations receiving assistance from the government, non-government organizations (NGOs) and private charities before and during the 2020-2022 crisis



Source: Trends are estimated from three sources. *The MLCS estimate is taken from the World Bank's ASPIRE database on social protection, but may refer only to government-provided social protection (World Bank 2020). The subnational panel data from RUFSS are described in Headey et al. (2022) and in the text above, and MHWS is described in the text and in MAPSA (2022c).

7. CONCLUSION

Economic recovery will be extremely difficult without a peaceful resolution to major conflicts in the country, and a viable action plan for reinstating a democratic government. International inflationary pressures are mounting up and Myanmar has experienced 41 percent year on year inflation as of March 2022 (MAPSA, 2022b). High fertilizer and fuel prices, as well as conflict, add additional hazards to the already risky business of producing and trading food in Myanmar, so ensuring adequate monsoon and post-monsoon production is essential to preventing serious widespread food insecurity. However, surely the most important priority is to increase both emergency assistance and social protection to the poorest and most vulnerable households, to minimize permanent loss of health, nutrition and human capital, and to preserve the productive assets necessary to maintain smallholder farming and small and medium enterprises.

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APPENDIX

Table A1. Summary statistics for the MHWS variables used in the income-based poverty regressions in Figure 5

Variable	Mean	Std. dev.	Min	Max
Income-poor	0.46	0.50	0.00	1.00
Asset-poor (0-3 out of 10 assets)	0.43	0.49	0.00	1.00
Asset-medium (4-6 out of 10 assets)	0.41	0.49	0.00	1.00
Primary or no education	0.60	0.49	0.00	1.00
Farming household	0.28	0.45	0.00	1.00
Farm labor household	0.12	0.33	0.00	1.00
Non-farm wage labor household	0.14	0.34	0.00	1.00
Non-farm salary labor household	0.12	0.33	0.00	1.00
Non-farm business household	0.28	0.45	0.00	1.00
Remittance-receiving household in past 3 months	0.16	0.37	0.00	1.00
Migrants (< 2 years)	0.04	0.21	0.00	1.00
Share of dependents (in total household size)	0.47	0.24	0.00	1.00
No job in past 30 days, individual level	0.17	0.37	0.00	1.00
Death in the family in last 3 months	0.02	0.15	0.00	1.00
Sickness in the family in the last 3 months	0.57	0.49	0.00	1.00
High level of insecurity (respondent's perception)	0.04	0.20	0.00	1.00
Large migration into community in last 3 months	1.94	0.23	1.00	2.00
Household affected by Natural shocks	0.11	0.31	0.00	1.00
Low wages in community (bottom tercile) vs high	0.37	0.48	0.00	1.00
Medium wages in community (middle tercile) vs high	0.33	0.47	0.00	1.00
Urban locality	0.28	0.45	0.00	1.00

Source: Myanmar Household Welfare Survey, described in MAPSA (2022c).

Table A2. Full linear probability regression results for Figure 5

		National	Urban	Rural	Farm households
Asset-poor vs asset-rich	b	0.200***	0.255***	0.161***	0.139***
	se	0.018	0.03	0.022	0.028
Asset-medium vs asset-rich	b	0.099***	0.135***	0.063***	0.044*
	se	0.016	0.021	0.021	0.025
Primary or no education only	b	0.076***	0.092***	0.064***	0.035**
	se	0.013	0.024	0.015	0.017
Farm household	b	-0.118***	-0.155**	-0.112***	-0.092*
	se	0.028	0.064	0.034	0.051
Farm labor household ^a	b	0.152***	-0.017	0.172***	0.114*
	se	0.029	0.061	0.034	0.063
Non-farm wage household ^a	b	0.022	-0.037	0.033	0.019
	se	0.03	0.048	0.037	0.061
Non-farm salary household ^a	b	-0.144***	-0.167***	-0.154***	-0.110*
	se	0.029	0.045	0.037	0.062
Non-farm business household ^a	b	-0.031	-0.067	-0.024	-0.097*
	se	0.027	0.043	0.034	0.055
Remittance-receiving household	b	-0.160***	-0.142***	-0.171***	-0.131***
	se	0.015	0.021	0.019	0.022
Migrant (<2 years)	b	-0.075***	-0.059*	-0.074*	-0.095
	se	0.025	0.031	0.039	0.06
Share of dependents	b	0.400***	0.562***	0.346***	0.185***
	se	0.021	0.039	0.024	0.032
No employment in last 30 days	b	0.075***	0.080***	0.068***	0.104***
	se	0.014	0.024	0.018	0.032
Death in the family	b	0.03	-0.009	0.044	0.029
	se	0.034	0.058	0.04	0.059
Sickness in the family	b	0.023**	0.024	0.023*	0.018
	se	0.01	0.017	0.012	0.016
High level of insecurity	b	0.059**	0.059	0.064*	0.064
	se	0.026	0.037	0.033	0.041
Large migration into community	b	0.013	-0.051	0.072**	0.083**
	se	0.026	0.037	0.031	0.038
Affected by natural shocks	b	-0.008	0.044	-0.017	0.003
	se	0.016	0.045	0.017	0.022
Low wages vs high	b	0.104***	0.089***	0.107***	0.065***
	se	0.016	0.025	0.02	0.025
Medium wages vs high	b	0.031**	0.039*	0.034**	0.042*
	se	0.014	0.021	0.017	0.024
Urban residence	b	0.085***	0	0	0.070**
	se	0.017	.	.	0.033
Kachin vs Ayeryawady	b	0.154***	0.166***	0.151***	0.149**
	se	0.039	0.061	0.049	0.066
Kayah vs Ayeryawady	b	-0.012	0.194**	-0.045	0.007
	se	0.059	0.077	0.059	0.06
Kayin vs Ayeryawady	b	0.154**	0.141**	0.163*	0.237**

	se	0.072	0.056	0.084	0.099
Chin vs Ayeryawady	b	0.224***	0.287***	0.204***	0.277***
	se	0.049	0.085	0.06	0.089
Sagaing vs Ayeryawady	b	0.061**	0.058	0.057*	0.076*
	se	0.026	0.053	0.029	0.042
Tanintharyi vs Ayeryawady	b	0.027	0.139**	0.002	0.041
	se	0.038	0.062	0.046	0.059
Bago vs Ayeryawady	b	-0.011	0.126**	-0.037	-0.05
	se	0.029	0.051	0.033	0.047
Magway vs Ayeryawady	b	0.048	0.076	0.042	0.012
	se	0.03	0.061	0.033	0.051
Mandalay vs Ayeryawady	b	0.056**	0	0.077**	0.091*
	se	0.029	0.044	0.034	0.048
Mon vs Ayeryawady	b	0.066**	-0.03	0.100***	0.081
	se	0.031	0.049	0.032	0.053
Rakhine vs Ayeryawady	b	0.151***	0.034	0.179***	0.180***
	se	0.036	0.068	0.041	0.068
Yangon vs Ayeryawady	b	0.045	0.080*	0	0.005
	se	0.029	0.045	0.034	0.054
Shan vs Ayeryawady	b	0.044	0.171***	-0.004	0.031
	se	0.03	0.056	0.034	0.046
Nay Pyi Taw vs Ayeryawady	b	0.029	-0.064	0.062	0.021
	se	0.047	0.064	0.046	0.063
R-squared		0.184	0.227	0.183	0.098
N		10,177	2,975	7,202	4,687

Source: Results are population-weighted linear probability model coefficients with confidence intervals derived from standard errors clustered at the township level. See Appendix Table A1 for definitions of variables and Table A2 for full results. a. All household types are compared to transfer-dependent households, which includes households who get most of their income from pensions, remittances or other transfers. b=coefficient; se=standard error.

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