

Morgan, Peter J.; Long Quang Trinh

Working Paper

Impacts of COVID-19 on households in ASEAN countries and their implications for human capital development

ADB Working Paper Series, No. 1226

Provided in Cooperation with:

Asian Development Bank Institute (ADBI), Tokyo

Suggested Citation: Morgan, Peter J.; Long Quang Trinh (2021) : Impacts of COVID-19 on households in ASEAN countries and their implications for human capital development, ADB Working Paper Series, No. 1226, Asian Development Bank Institute (ADBI), Tokyo

This Version is available at:

<https://hdl.handle.net/10419/238583>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by-nc-nd/3.0/igo/>



ADB Working Paper Series

IMPACTS OF COVID-19 ON HOUSEHOLDS IN ASEAN COUNTRIES AND THEIR IMPLICATIONS FOR HUMAN CAPITAL DEVELOPMENT

Peter J. Morgan and Long Q. Trinh

No. 1226
March 2021

Asian Development Bank Institute

Peter J. Morgan is Senior Consulting Economist and Vice Chair of Research at the Asian Development Bank Institute (ADBI). Long Q. Trinh is a Project Consultant at ADBI.

The views expressed in this paper are the views of the author and do not necessarily reflect the views or policies of ADBI, ADB, its Board of Directors, or the governments they represent. ADBI does not guarantee the accuracy of the data included in this paper and accepts no responsibility for any consequences of their use. Terminology used may not necessarily be consistent with ADB official terms.

Working papers are subject to formal revision and correction before they are finalized and considered published.

The Working Paper series is a continuation of the formerly named Discussion Paper series; the numbering of the papers continued without interruption or change. ADBI's working papers reflect initial ideas on a topic and are posted online for discussion. Some working papers may develop into other forms of publication.

Suggested citation:

Morgan, P. J. and L. Q. Trinh. 2021. Impacts of COVID-19 on Households in ASEAN Countries and Their Implications for Human Capital Development. ADBI Working Paper 1226. Tokyo: Asian Development Bank Institute. Available: <https://www.adb.org/publications/impacts-covid-19-households-asean-countries>

Please contact the authors for information about this paper.

Email: pmorgan@adbi.org, ltrinh@adbi.org

Asian Development Bank Institute
Kasumigaseki Building, 8th Floor
3-2-5 Kasumigaseki, Chiyoda-ku
Tokyo 100-6008, Japan

Tel: +81-3-3593-5500
Fax: +81-3-3593-5571
URL: www.adbi.org
E-mail: info@adbi.org

© 2021 Asian Development Bank Institute

Abstract

The outbreak of the COVID-19 virus and the resulting falls in demand due both to uncertainty and policy interventions such as lockdowns, “social distancing,” and travel restrictions are having a severe impact on Asian economies and hence on Asian households. These negative impacts come through a variety of channels, including loss of employment or reduced working hours, loss of sales and income of a household business, inability to travel to work, increased need to stay at home to look after children or sick household members, higher prices and/or lack of availability of staple items, reduced access to schooling, etc. In order to better understand these impacts, we carried out computer-assisted telephone interviews of households in eight ADB developing member countries: Cambodia, the Lao People’s Democratic Republic, Indonesia, Malaysia, Myanmar, the Philippines, Thailand, and Viet Nam. Our empirical results suggest that various household characteristics, including household income class (before COVID-19), household demographic factors, and COVID-19-induced factors such as having at least one person who lost their job or being located in lockdown areas, all affected the likelihood of a decline in income. In all countries, having at least one person who lost their job or had reduced working time increases the likelihood of experiencing financial difficulties by 17 percentage points. About 27% of children who stopped attending school could not fully participate in online learning programs due to weak/insufficient internet connections and a lack of digital devices. Two COVID-19-related factors—having at least one person who lost their job or had working hours reduced and experiencing financial difficulties—significantly affect the intensity of online classes taken by children in an average household.

Keywords: COVID-19, ASEAN, household income, employment, consumption, household finance, education, online learning

JEL Classification: D14, G51, H12, H84, I10, I24, J6

Contents

1.	INTRODUCTION.....	1
2.	LITERATURE REVIEW	1
3.	SPREAD OF COVID-19 AND GOVERNMENT RESPONSES.....	3
3.1	COVID-19 in ASEAN Economies	3
3.2	Government Responses	3
4.	ADBI HOUSEHOLD SURVEY IN ASEAN COUNTRIES	5
5.	COVID-19 IMPACTS AND COPING STRATEGIES	6
6.	IMPACT OF THE COVID-19 PANDEMIC ON EMPLOYMENT	20
7.	EDUCATION IMPACTS OF THE COVID-19 PANDEMIC	22
8.	CONCLUDING REMARKS	29
	REFERENCES	30

1. INTRODUCTION

The outbreak of the COVID-19 virus and the resulting falls in demand due both to uncertainty and policy interventions such as lockdowns, “social distancing,” and travel restrictions are having a severe impact on Asian economies and hence on Asian households. These negative impacts come through a variety of channels, including loss of employment or reduced working hours, loss of sales and income of a household business, inability to travel to work, increased need to stay at home to look after children or sick household members, higher prices and/or lack of availability of staple items, reduced access to schooling, etc. Low-income and vulnerable groups are likely to be particularly susceptible due to a lack of resources they can draw on during periods of reduced income. In order to develop appropriate policy responses, it is necessary to obtain a correct understanding of the current situation of households. As part of the Asian Development Bank’s overall strategy to deal with the current crisis, ADBI has carried out surveys of households to better understand the size, aspects, and incidence of impacts on them, especially vulnerable groups. In particular, this study focuses on the implications for human capital formation of reduced access to education due to reduced school attendance because of the pandemic and inability to access online learning due to insufficient internet connectivity and a lack of devices to connect.

Specifically, we carried out computer-assisted telephone interviews (CATIs) and online surveys of households in eight ADB developing member countries: Cambodia, the Lao People’s Democratic Republic (Lao PDR), Indonesia, Malaysia, Myanmar, the Philippines, Thailand, and Viet Nam. (Face-to-face surveys were impractical due to the lockdowns being implemented in response to the pandemic.) The surveys were carried out from the end of May to the end of July. Representative samples of 1,000 households in each country were surveyed.

2. LITERATURE REVIEW

Since the first case was reported in Hubei province in the People’s Republic of China (PRC) in December 2019, the new coronavirus has spread rapidly throughout the world, and the World Health Organization (WHO) declared it a global pandemic in March 2020 (Cucinotta and Vanelli 2020). The disease has since become one of the largest public health crises in history, and it has led to economic and social crises as well. In some ASEAN economies, the first cases of COVID-19 were reported quite early, in January 2020. Since then, the disease has continued to spread in the region. ASEAN economies’ governments have instituted various restrictions to contain the spread of the disease within their boundaries, such as movement restrictions, border closures, social distancing, quarantine, and closure of nonessential services. Implementation of such stringent measures could disrupt the economy and ultimately people’s living standards. Reports show that the region will face disruptions in several ways, including the loss of jobs and income, and potentially reduced accumulation of human capital for children (Demeke and Kariuki 2020; ILO 2020; UN-Habitat and WFP 2020).

Many studies have shown profound impacts of the COVID-19 pandemic on economic activities. McKibbin and Fernando (2020) argue that pandemics can affect households, governments, and businesses through increased business costs, increased public healthcare expenditures, changes in labor supply due to mortality and morbidity, etc. COVID-19-related restrictions have obstructed all stages of the food supply chain, including production, distribution, processing, and consumption (Siche 2020; Torero

2020), and have caused damage to perishable agricultural commodities such as meat and vegetables (Nicola *et al.* 2020).

While various studies have examined potential impacts of the pandemic on global and national economic indicators such as poverty, government expenditures, GDP growth, budget deficits, and employment (ILO 2020; Nicola *et al.* 2020; Sumner, Hoy, and Ortiz-Juarez 2020; UN-Habitat and WFP 2020), there is limited information on how the pandemic and associated lockdown policies are affecting individuals at the household level. Economic effects of a pandemic may disproportionately impact members of society, depending on their income status, livelihood strategies, access to markets, etc. Therefore it is important to understand the household-level impacts as well as the support mechanisms that could contribute to income smoothing.

Kansiime *et al.* (2020) assessed implications of the COVID-19 pandemic for household income and food security in two East African countries, using online survey data from 442 respondents. They found that more than two-thirds of the respondents experienced income shocks due to the COVID-19 crisis. Food security and dietary quality worsened: the proportion of food-insecure¹ respondents increased by 38% and 44% in Kenya and Uganda, respectively. Results from probit regressions show that the low-income households and those dependent on labor income were more vulnerable to income shocks and consumed less food during the COVID-19 pandemic compared to other respondent categories.

Ceballos, Kannan, and Kramer (2020) and Harris *et al.* (2020) studied the impacts of COVID-19 and related restrictions on smallholders in India and reported a large degree of heterogeneity in the impacts of COVID-19 responses on agricultural activity, income, and food security. Ceballos, Kannan, and Kramer (2020) analyzed data from phone-based surveys on disruptions to agricultural production and food security administered to 1,515 smallholder producers in the states of Haryana and Odisha, India. They found substantial heterogeneity in how the lockdown affected farmers in these two states, which was likely related to existing structural differences in market infrastructure and to differences in state-specific COVID-19-related policies. Harris *et al.* (2020) investigated effects of the COVID-19-induced shock on the production, sales, prices, incomes, and diets of vegetable farmers in India as both producers and consumers of nutrient-dense foods. They undertook a rapid telephone survey with 448 farmers in four states. They found that a majority of farmers reported negative impacts on production, sales, prices, and incomes. Over 80% of farmers reported some decline in sales, and over 20% reported very large declines (sold almost nothing). Price reductions were reported by over 80% of farmers, and reductions of more than half by 50% of them. Similarly, farm income reportedly dropped for 90% of farmers, and by more than half for 60% of them. The data also showed a higher level of vulnerability among female farmers in terms of both livelihoods and diet, and differential effects on smaller and larger farms, which suggests that different farms may require different types of support in order to continue to operate. Farms reported diverse coping strategies to maintain sales, though often with negative implications for reported incomes. The ability to consume one's own produce may help to support diets.

We add to the growing body of literature on the impacts of the COVID-19 pandemic by examining its implications for household income, household financial viability, and schooling decisions, covering eight Southeast Asian countries: Cambodia, the Lao PDR, Indonesia, Malaysia, Myanmar, the Philippines, Thailand, and Viet Nam. The

¹ Food insecurity is defined as the disruption of food intake or eating patterns because of a lack of money and other resources.

results should contribute to guiding policy discussions on the provision of necessary measures to cope with the potential negative impacts of the COVID-19 pandemic.

3. SPREAD OF COVID-19 AND GOVERNMENT RESPONSES

3.1 COVID-19 in ASEAN Economies

Table 1 presents the progress of COVID-19 in the eight ASEAN countries in which we implemented our survey. It shows the progress of COVID-19 on four major dates: the date when the first case of COVID-19 was identified in each country, end of May, end of July, and 29 August. By the time our survey was completed, the COVID-19 spread seemed to be under control in most countries except for Indonesia and the Philippines. Indonesia and the Philippines also had by far the highest numbers of deaths due to COVID-19.

Table 1: Progress of COVID-19 Pandemic in 8 ASEAN Economies

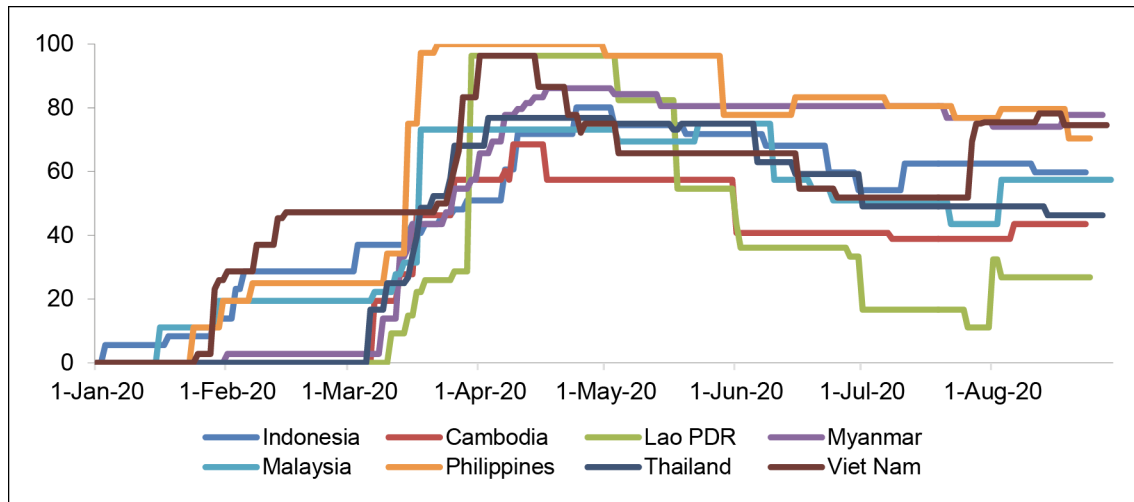
	Cambodia	Indonesia	Lao PDR	Myanmar	Malaysia	Philippines	Thailand	Viet Nam
First case (date)	28 Jan	02 Mar	25 Mar	24 Mar	25 Jan	30 Jan	13 Jan	24 Jan
Total cases (by 31 May)	125	25,773	19	224	7,762	17,224	3,081	327
Total cases (by 31 July)	234	106,336	20	353	8,964	89,374	3,310	509
Total cases (by 29 Aug)	273	165,887	22	656	9,306	209,544	3,411	1,038
First death (date)	NA	12 Mar	NA	01 Apr	18 Mar	2 Feb	01 Mar	01 Aug
Total deaths (by 31 May)	0	1,573	0	6	115	950	57	0
Total deaths (by 31 July)	0	5,058	0	6	124	1,983	58	0
Total deaths (by 29 Aug)	0	7,169	0	6	125	3,325	58	31

Source: Our World Database.

3.2 Government Responses

ASEAN governments have implemented various measures, including school closures, lockdowns and social distancing requirements, and border closures. However, the times at which each country implemented such policies are different. The intensity and duration of such measures also differ by country. Figure 1 presents stringency indices of the measures that ASEAN countries have adopted to contain the spread of COVID-19, as calculated by a team at Oxford University (Hale et al. 2020). Among those countries, Viet Nam adopted relatively strict measures quite early. As a result, Viet Nam suffered less from the pandemic than did other populous countries such as Indonesia and the Philippines. While both Indonesia and the Philippines implemented some measures such as border closures quite early, the intensity of such measures seemed low, which allowed the rapid increase of cases in these two countries. This forced Indonesia and the Philippines to prolong their nonpharmaceutical interventions, especially in the Philippines. Some other countries such as Myanmar also implemented strict measures in terms of nonpharmaceutical interventions, partly due to their proximity to other countries that had a high number of COVID-19 cases.

ASEAN governments have also implemented various economic policies to mitigate the negative effects of COVID-19 on firms and households, which are summarized in Table 2. Those policies range from direct money transfer to wage subsidies, (utility) price subsidies, and training facilities to help individuals who lost jobs.

Figure 1: Stringency Index of Government Nonpharmaceutical Intervention Measures

Source: Hale et al. (2020).

Table 2: ASEAN Countries' Government Economic Support Policies

Country	Policies Toward Households
Cambodia	<ul style="list-style-type: none"> Social assistance of nearly USD400 million (incl. USD300 million for a new monthly cash transfer program for poor and vulnerable households and USD100 million cash for a work program). USD64 million allocated for wage subsidies and skill training programs; several tax relief measures.
Indonesia	<ul style="list-style-type: none"> About IDR710 trillion (about USD50 billion or 4.4% of GDP) in stimulus packages have been approved; increased benefits and broader coverage of existing social assistance schemes to low-income households; expanded unemployment benefit; and tax relief.
Lao PDR	<ul style="list-style-type: none"> Income tax exemption for low-income civil servants and employees of private sector; compensation of 60% of workers' salary (for eligible workers); an unemployment allowance for terminated workers; and a new electricity tariff.
Malaysia	<ul style="list-style-type: none"> Four stimulus packages, accounting for 4.3% of GDP: electricity discounts and temporary paid leave; cash transfers to low-income households; wage subsidies to help employers retain workers; employees allowed special withdrawals from their Employment Provident Fund (EPF); and hiring and training subsidies.
Myanmar	<ul style="list-style-type: none"> Deferred income tax payments; food provision for households without a regular income during the long holidays; reduced electricity bills from April to December 2020; 40% of the social security fees for about 1.3 million insured workers covered; and further tax relief on additional salary and wage expenses.
Philippines	<ul style="list-style-type: none"> A PHP595.6 billion fiscal package (about 3.1% of 2019 GDP) for vulnerable individuals and groups including cash aid program for 18 million low-income households (each is expected to receive from PHP10,000 to PHP16,000) and social protection measures for vulnerable workers, including displaced and overseas Filipino workers.
Thailand	<ul style="list-style-type: none"> 3 packages (amounting to 9.6% of GDP) to assist workers, farmers, and entrepreneurs (including THB5,000/month/person for three months to about 14 million nonfarm workers outside the social security system and 10 million farmers); support for individuals and businesses through soft loans and tax relief; lower water and electricity bills; and coverage of social security contributions.
Viet Nam	<ul style="list-style-type: none"> A fiscal support package valued up to 3.6% of GDP; measures including deferred tax payments; deferred contributions to the pension fund and survivorship fund; cash transfer package worth VND36 trillion (0.5% of GDP) for affected workers and households with monthly cash transfers provided for no more than three months (about 10% of population).

Source: IMF (2020).

4. ADBI HOUSEHOLD SURVEY IN ASEAN COUNTRIES

We carried out our household surveys in eight ASEAN countries: Cambodia, Indonesia, the Lao PDR, Malaysia, Myanmar, the Philippines, Thailand, and Viet Nam. The survey was designed by ADBI and implemented by five survey companies in those countries. The survey was implemented from the end of May (including pilots test in all eight countries). All the fieldwork was finished by the end of July. Major characteristics of the survey included:

- Telephone survey (due to COVID-19)
- Respondent: Household head or person knowledgeable in HH finance
- Length of interview: 12–15 mins (in some countries about 17–19 mins, partly due to screening questions)
- Questionnaire collected information on:
 - Characteristics of the households, including number of members, gender, number employed, number in school, age of head of household, education level, urban vs. rural residence, and income, including types of income;
 - Changes in income, employment, and working hours compared with the base period of end-2019;
 - Whether or not the household experienced financial difficulties, and, if so, what coping measures it used, including reducing consumption, borrowing, delaying payments, and applying for government aid; and
 - Whether their children stopped attending school due to the pandemic, whether the school offered online learning, how much the household children participated in online learning, and the reasons for their scant or no participation if that was the case.

Table 3 presents a summary of our sample (urban vs. rural and by income group).

Table 3: Characteristics of the Sample

Country	Total	Urban	Rural	SEC 1 (Richest)	SEC 2	SEC 3	SEC 4	SEC 5	SEC 6 (Poorest)	DK/ Refused
Cambodia	1,026	332	694	116	258	327	211	114	–	–
Indonesia	1,046	443	603	129	193	235	362	127	–	–
Lao PDR	1,000	348	652	74	25	139	117	400	245	–
Malaysia	1,006	638	368	59	108	426	401	–	–	12
Myanmar	1,000	400	600	240	260	295	205	–	–	–
Philippines	1,000	520	480	9	–	48	165	479	299	–
Thailand	1,000	400	600	121	115	478	206	80	–	–
Viet Nam	1,000	366	634	62	74	149	250	206	243	16
Total	8,078	3,447	4,631	810	1,033	2,097	1,917	1,406	787	28

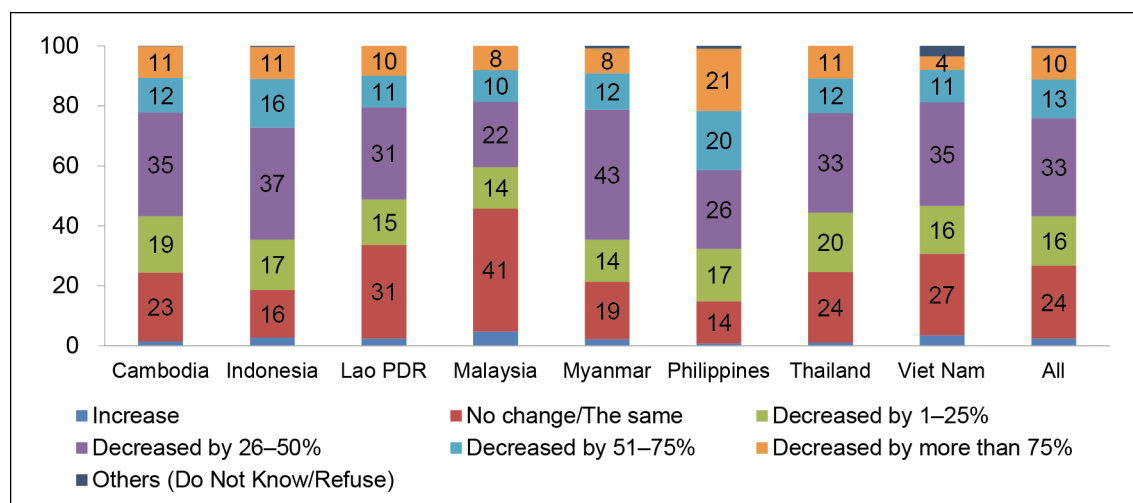
SEC = income class.

Source: Authors' calculation based on ADBI's database.

5. COVID-19 IMPACTS AND COPING STRATEGIES

Figure 2 presents the impact of COVID-19 on household income. The figure shows that about 73% of the households in our sample experienced a decline in income. Among households with a declining income, most of them (33%) reported that their income had fallen by 26%–50%, 23% reported that their income had declined by more than 50%, while only 16% experienced a slight decline of 1%–25 %. In Malaysia, the highest-income country, the percentage of households with no change in income was quite high (41%). Not surprisingly, the two countries that suffered from the COVID-19 pandemic the most (Indonesia and the Philippines) had the largest shares reporting declining incomes, 81% and 84%, respectively. While Myanmar did not experience a rapid increase in COVID-19 incidence, the strict interventions imposed by the government may have had strong effects on household income. Nearly 80% of households in Myanmar reported that they experienced a decline in income and, among those, more than 67% reported that their income declined by more than 25%.

Figure 2: Effects of COVID-19 on Household Income, % of Households



Source: Authors' calculation based on ADBI's database. Relative to base period of end-2019.

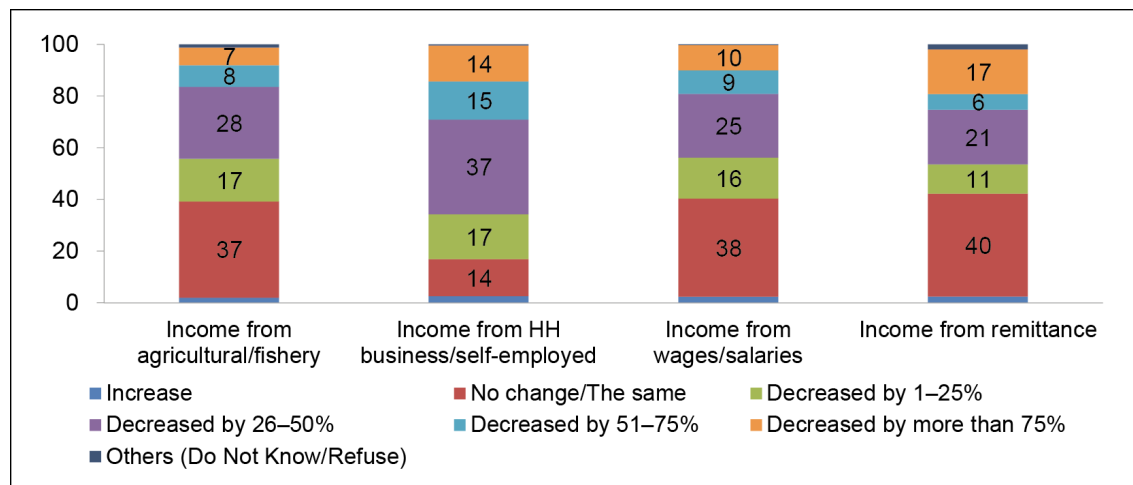
Figure 3 presents declines in income by source. Income from household businesses or self-employment declines the most, with more than 80% of households with income from those sources reporting declines. This may not be surprising, as government restriction measures may directly affect their business activities. On the other hand, income from agriculture-related activities and from wages and salaries and remittances did not decline as much as that from household business or self-employment, although still about 60% of households with income from these sources reported declines.

We further examine whether the COVID-19 pandemic has had different effects on different household types. Overall, the effects are not very different (Figure 4). For example, 73.2% of poorer households² have experienced a decline in income while the figure for richer groups (the remaining households) is about 72.9%. Rural households seem to suffer somewhat more with 74.1% of households in rural areas experiencing

² The poorest group comprises households in income classes 3, 4, and 5 in Cambodia, Indonesia, and Thailand; households in income classes 4, 5, and 6 in the Lao PDR and Viet Nam; households in income classes 3 and 4 in Malaysia and Myanmar; and households in income classes 5 and 6 in Philippines.

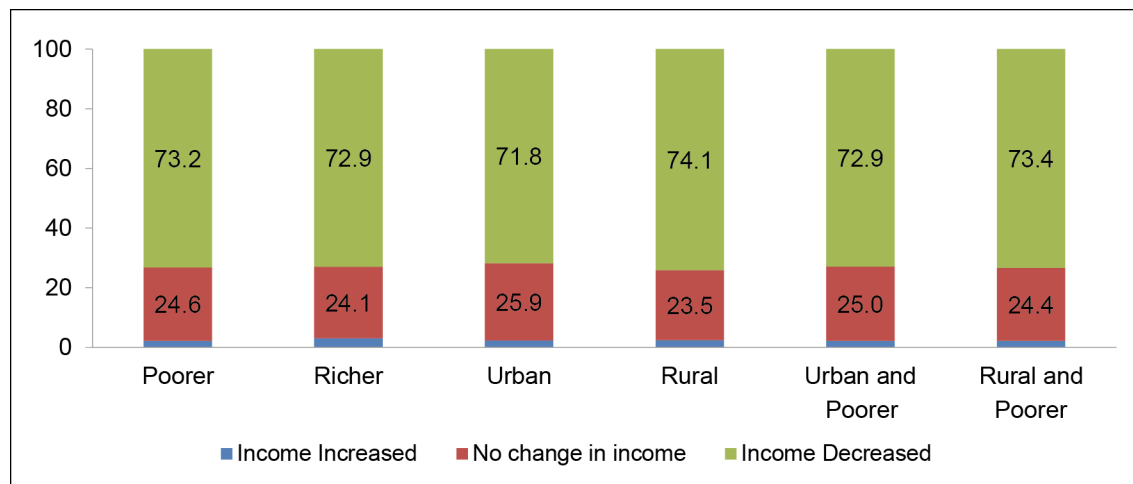
income decline versus 71.8% of urban households. However, there is no significant difference between poorer urban households and poorer rural households (72.9% vs. 73.4%).

Figure 3: Change in Income, by Source of Income, % of Households



Source: Authors' calculation based on ADBI's database.

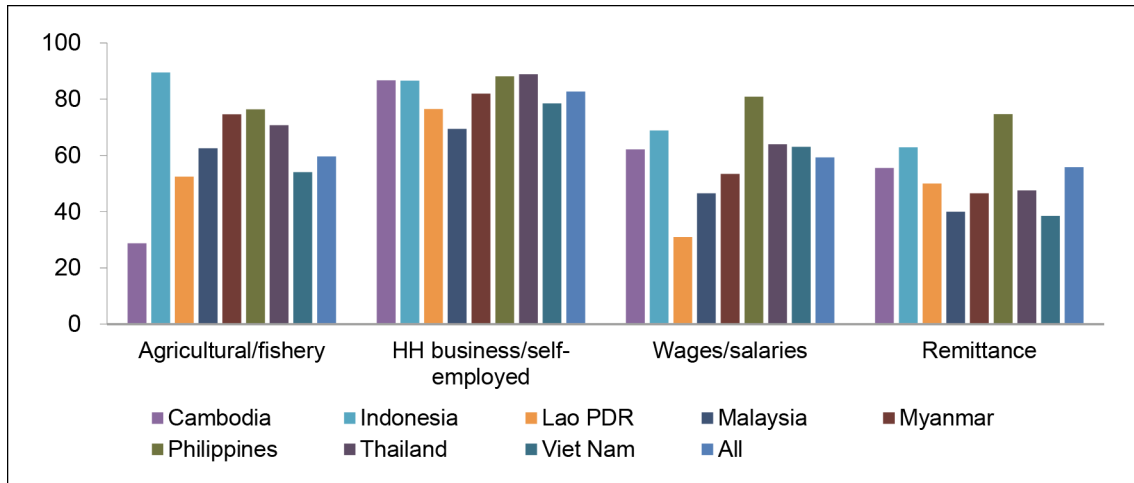
Figure 4: Change in Income, by Income Class, Urban and Rural, % of Total Subgroup



Notes: Poorer are households in Socio-economic Classes 3, 4, 5 and 6 while richer are households in the Socio-economic Classes 1 and 2.

Source: Authors' calculation based on ADBI's database.

Figure 5 further documents sources of income decline for each country in our sample. Household business/self-employed income fell the most in all countries except Indonesia, where agricultural/fishery income showed the highest percentage of decline.

Figure 5: Sources of Income Decline, by Country, % of Households

Source: Authors' calculation based on ADBI's database.

Determinants of Household Income during the Pandemic

We examine the effects of the COVID-19 pandemic on household income by estimating the following equation:

$$iDecline_i = \alpha_0 + \alpha_1 SEC_i + \alpha_2 HH_i + \alpha_3 COVID_i + \epsilon_i \quad (1)$$

in which $iDecline_i$ is a dummy variable that takes value of one if household i experienced a decline in income during the COVID-19 period; SEC_i is a set of dummy variables indicating the income class that household i belongs to³; HH_i is a set of household characteristics including sources of income, household head's education, age, and gender, household location (i.e., rural vs. urban areas), dependency ratio (the ratio of adults aged from 18 to 60 to the total number of household members), and household size (measured by the total number of household members); $COVID_i$ is a set of variables reflecting COVID-19-induced effects such as whether household i had anyone who lost their job or had their working time reduced, and whether the house was located in a lockdown area or not, and ϵ_i is the error term. We estimate the above equations for pooled data of eight countries (with country dummy being controlled) and separately for each of the eight countries.

Table 4 presents our estimation results. The first column reports the results using pooled data and the subsequent columns show results for the individual countries. The income class of household on average is not related to the likelihood of experiencing a decline in income, suggesting that the COVID-19 pandemic affects the income of all households regardless of their economic status before the COVID-19 pandemic. However, in Cambodia and the Philippines, the COVID-19 pandemic does have different effects on different households. For example, in Cambodia, lower-income households are less likely to experience a decline in income than those in higher-income classes. In the Philippines, households in the lower-income classes are more likely to have income declines than those in the upper-income classes. This implies

³ Due to differences across countries in categorizing income classes (some countries have four classes, some have six classes, and some use wealth rather than income to construct income classes), we reconstruct our own income classes. There are four groups of income by the income quartile (25%, 50%, and 75%).

that the income inequality may be widened after the COVID-19 pandemic in the Philippines and narrowed in Cambodia.

Different sources of income may also have different effects on the likelihood of a decline in income. In general, those households with income from agricultural production and from household businesses or self-employment are more likely to experience a decline in income. This situation is observed in nearly all countries in our sample. Cambodian, Indonesian, and Filipino households that have income from agricultural production are not different from other households that do not have this source of income. This may suggest that people in these ASEAN economies lack a well-developed social safety net to support them when there is a shock. Households whose income is mainly from salaries are less likely to experience income declines. However, this relationship is only observed in three countries: Indonesia, the Lao PDR, and Thailand. In other countries, the likelihood of experiencing a decline in income is not affected by whether the households have wages/salaries from formal sectors as an income source. This finding shows that households with remittance income are not different from other households that do not have remittance income. Also, households with income from other sources, such as house rental, moneylending, or receiving regular government support/aid, are less likely to suffer from income declines, but this is only observed in three countries: Myanmar, Indonesia, and the Philippines.

The education level of the household head in general is negatively associated with the likelihood of experiencing an income decline. For example, household heads with a high school degree have a lower probability of income decline by 2.5 percentage points than those who have lower degrees. The figure for those who have a higher education level than high school is 8.7 percentage points lower. However, the role of the household head's education level is not observed in all countries in our sample. In the Lao PDR, Myanmar, the Philippines, and Viet Nam, the household head's education did not determine whether the household experienced a decline in income.

Household head's age is not associated with the COVID-19-induced income decline in our pooled sample, but it has some effects in some countries. In Cambodia and Malaysia, the likelihood of experiencing a decline in income is lower for households whose head is older than 50, but in the Lao PDR and the Philippines, households whose head is aged between 30 and 39 may be more likely to experience a decline in income than younger or older households. The effects of other household characteristics such as household size, dependency ratio, and house location are generally not found to be significant in most countries.

Two variables that are directly related to the COVID-19 pandemic are significantly associated with income declines. Being located in a lockdown area increases the likelihood of having an income decline in half of the countries (Indonesia, the Lao PDR, the Philippines, and Viet Nam). While the effects of this in Indonesia and the Lao PDR are quite small and marginally significant, the effect is much stronger in other two countries, especially in the Philippines. Malaysia is an interesting case, where those living in lockdown areas have a lower likelihood of experiencing income decline. A potential explanation for this negative relation is that those living in lockdown areas receive government aid, which may help to keep their income stable.

Having someone in the household who has lost their job (or has had to reduce working hours) is positively associated with income decline in all countries. However, the effect differs widely, with the smallest effect being observed in Indonesia and the largest in Thailand.

Table 4: Determinants of Having Income Decline Due to the COVID-19 Pandemic

	(1) All Countries	(2) Cambodia	(3) Indonesia	(4) Lao PDR	(5) Malaysia
SEC 2	0.024 [0.017]	−0.070* [0.042]	0.024 [0.045]	0.000 [0.059]	−0.065 [0.073]
SEC 3	0.019 [0.016]	−0.093** [0.043]	0.045 [0.043]	−0.077 [0.063]	0.013 [0.065]
SEC 4	0.025 [0.016]	−0.105** [0.044]	0.037 [0.042]	−0.014 [0.049]	0.032 [0.068]
Income source: Agriculture related	0.070*** [0.013]	−0.020 [0.034]	0.054 [0.039]	0.108*** [0.035]	0.152** [0.074]
Income source: Household business/self-employed	0.186*** [0.011]	0.268*** [0.031]	0.113*** [0.030]	0.229*** [0.034]	0.251*** [0.051]
Income source: Wage	−0.031*** [0.012]	0.029 [0.031]	−0.070** [0.029]	−0.063* [0.034]	0.007 [0.056]
Income source: Remittance	0.010 [0.023]	0.059 [0.099]	0.052 [0.054]	0.032 [0.046]	−0.209 [0.163]
Income source: Others	−0.068*** [0.017]	−0.068 [0.076]	−0.096* [0.051]	0.032 [0.038]	−0.044 [0.082]
HH head with high school degree	−0.025** [0.012]	−0.043 [0.032]	−0.058** [0.029]	0.018 [0.037]	−0.054 [0.048]
HH head with more than high school degree	−0.087*** [0.013]	−0.166*** [0.045]	−0.133*** [0.035]	−0.043 [0.042]	−0.163*** [0.038]
Household head being male	−0.013 [0.011]	−0.005 [0.029]	−0.025 [0.025]	−0.017 [0.031]	0.030 [0.047]
Household head aged 30–39	0.017 [0.017]	−0.055 [0.049]	0.061 [0.049]	0.113*** [0.042]	−0.075 [0.055]
Household head aged 40–49	−0.002 [0.017]	−0.079 [0.050]	0.057 [0.048]	0.059 [0.045]	−0.051 [0.055]
Household head aged 50–59	−0.018 [0.017]	−0.081 [0.050]	0.042 [0.052]	0.062 [0.051]	−0.129** [0.056]
Household head aged 60 or over	−0.029 [0.020]	−0.134** [0.060]	0.010 [0.065]	−0.024 [0.069]	−0.091 [0.063]
Household size	0.004 [0.003]	0.015** [0.007]	0.016* [0.008]	−0.000 [0.007]	0.006 [0.008]
Dependency ratio	0.010 [0.023]	0.026 [0.064]	−0.070 [0.069]	−0.126 [0.085]	−0.055 [0.077]
Located in rural areas	−0.006 [0.010]	0.068** [0.030]	−0.021 [0.024]	0.028 [0.035]	−0.016 [0.033]
Located in lockdown areas	0.027* [0.014]	0.127 [0.077]	0.042* [0.024]	0.083* [0.043]	−0.056* [0.031]
At least one HH member lost job or reduced work	0.239*** [0.010]	0.221*** [0.026]	0.118*** [0.024]	0.168*** [0.032]	0.246*** [0.032]
Intercept	0.598*** [0.032]	0.610*** [0.082]	0.724*** [0.078]	0.424*** [0.089]	0.488*** [0.109]
Number of observations	7736	950	1,045	889	953

continued on next page

Table 4 *continued*

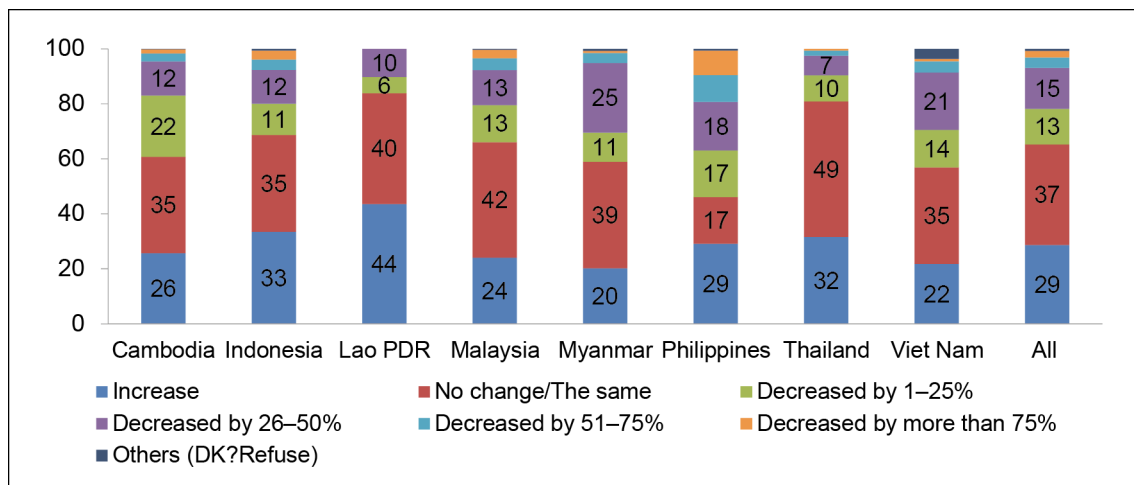
	(6) Myanmar	(7) Philippines	(8) Thailand	(9) Viet Nam
SEC 2	0.072** [0.036]	0.134** [0.064]	−0.018 [0.048]	0.049 [0.051]
SEC 3	0.039 [0.036]	0.152** [0.063]	0.065* [0.039]	0.044 [0.048]
SEC 4	0.016 [0.040]	0.212*** [0.066]	0.065 [0.045]	0.042 [0.046]
Income source: Agriculture related	0.066* [0.036]	0.043 [0.035]	0.147*** [0.034]	0.086** [0.039]
Income source: Household business/ self-employed	0.107*** [0.032]	0.089*** [0.030]	0.258*** [0.033]	0.192*** [0.034]
Income source: Wage	−0.037 [0.030]	0.029 [0.032]	−0.094** [0.037]	−0.027 [0.036]
Income source: Remittance	−0.026 [0.070]	0.055 [0.040]	0.056 [0.063]	−0.184 [0.123]
Income source: Others	−0.117** [0.047]	−0.151*** [0.040]	−0.036 [0.047]	−0.072 [0.047]
HH head with high school degree	0.002 [0.031]	−0.030 [0.028]	−0.040 [0.031]	0.015 [0.037]
HH head with more than high school degree	−0.038 [0.035]	0.009 [0.031]	−0.057** [0.028]	−0.041 [0.041]
Household head being male	0.008 [0.036]	−0.013 [0.026]	0.004 [0.024]	−0.040 [0.031]
Household head aged 30–39	−0.034 [0.044]	0.086** [0.039]	−0.009 [0.047]	−0.014 [0.054]
Household head aged 40–49	−0.047 [0.045]	0.062 [0.041]	−0.021 [0.044]	−0.043 [0.055]
Household head aged 50–59	−0.012 [0.042]	0.063 [0.041]	−0.001 [0.044]	−0.098* [0.059]
Household head aged 60 or over	−0.050 [0.049]	0.067 [0.053]	−0.036 [0.050]	−0.070 [0.063]
Household size	−0.006 [0.007]	0.003 [0.005]	−0.001 [0.007]	0.008 [0.011]
Dependency ratio	0.183** [0.072]	−0.042 [0.060]	0.013 [0.049]	0.045 [0.076]
Located in rural areas	−0.016 [0.028]	−0.035 [0.024]	−0.004 [0.025]	−0.045 [0.032]
Located in lockdown areas	0.036 [0.059]	0.992*** [0.043]	−0.008 [0.029]	0.178*** [0.066]
At least one HH member lost job or reduced work	0.187*** [0.027]	0.188*** [0.031]	0.465*** [0.026]	0.278*** [0.030]
Intercept	0.624*** [0.079]	−0.504*** [0.094]	0.475*** [0.077]	0.294*** [0.108]
Number of observations	999	998	988	914

Notes: Standard errors are in brackets. *, **, and *** denote statistically significant at 10%, 5%, and 1% confidence levels, respectively. We control for country dummies in the pooled sample (column 1).

Source: Authors' estimation using ADBI database.

Only 37% of households in our sample reported that their expenditure declined, which was much lower than the approximately 73% of households that experienced a decline in incomes (Figure 6). Nearly 30% of households actually increased their expenditure.

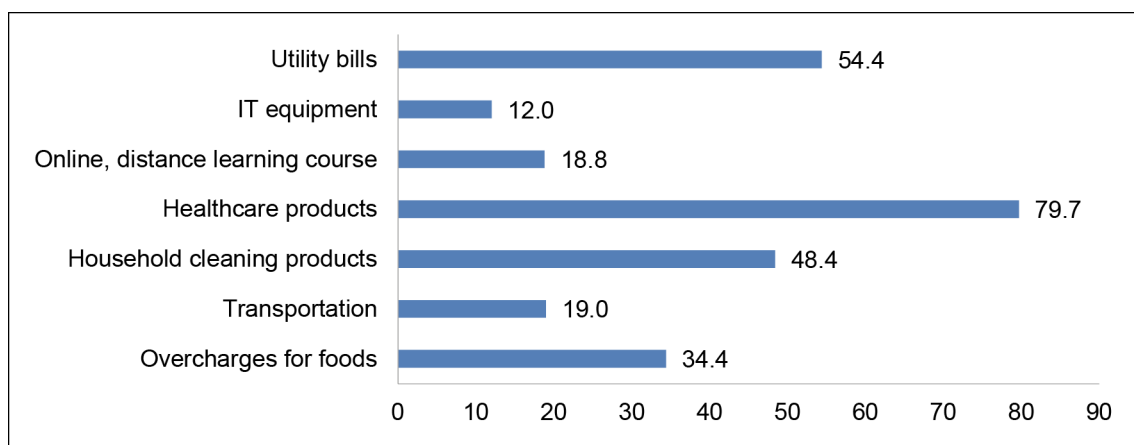
Figure 6: Changes in Household Expenditure, % of Households



Source: Authors' calculation based on ADBI's database.

There are several reasons for the expenditure increases. Figure 7 reports unexpected expenditures by households during the COVID-19 period. Nearly 80% and 50% of households had to spend more for healthcare products and household cleaning products, respectively. Unexpected (higher) utility bills were also a source of increasing expenditure. Nearly 34.4% of households had to pay more for food.

Figure 7: Types of Unexpected Expenditure, % of Households with Unexpected Expenditures

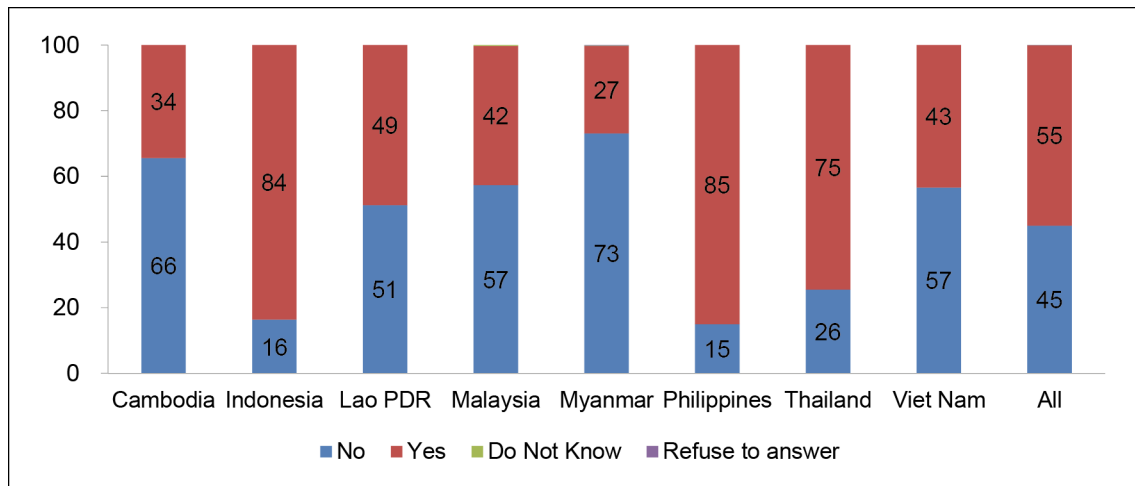


Source: Authors' calculation based on ADBI's database.

Impacts of Pandemic on Household Finance

The pandemic has had profound impacts on household finance. About 55% of households in our sample reported that they had experienced financial difficulties (which is defined as a lack of financial resources for at least a week) (Figure 8). However, there is quite a significant difference across countries. While more than half of households in Cambodia, the Lao PDR, Malaysia, Myanmar, and Viet Nam did not experience financial difficulties, about three quarters of Thai respondents reported that they had experienced financial difficulty, and the figure is even higher in Indonesia (84%) and the Philippines (85%). The lower figures in Cambodia, Myanmar, the Lao PDR, and Viet Nam could be due to the fact that these economies have suffered less from the pandemic than the other countries did, while Malaysia is a richer country and therefore households are more financially secure. Although Thailand has not suffered from the pandemic as much as Indonesia and the Philippines, the pandemic may have severely affected tourism, which is a very important sector in that country.

Figure 8: Households Experiencing Financial Difficulty during the Pandemic, % of Total Households



Source: Authors' calculation based on ADBI's database.

Factors Affecting Financial Vulnerability Due to COVID-19

This section analyzes which households are more likely to be financially vulnerable to the pandemic (or any expected shock) than others. We estimate the following equation:

$$FinDiff_i = \beta_0 + \beta_1 SEC_i + \beta_2 HH_i + \beta_3 COVID_i + \eta_i \quad (2)$$

in which $FinDiff_i$ is a dummy variable that takes the value of 1 if household i experienced financial difficulties (which is defined as a lack of financial resources for daily expenditure if all the income sources have dried up in a week) during the COVID-19 period; SEC_i , HH_i , and $COVID_i$ are similar to Equation (1) and η_i is the error term. As before, we estimate the above equations for pooled data of eight countries (with country dummy being controlled) and separately for eight countries.

Table 5 presents our estimation results. The first column reports the results using pooled data and the subsequent columns are the results for the individual countries. We found that, in contrast to the results presented in Table 1, the income class of household on average is associated with the likelihood of having financial difficulty. Households in the lowest income class are more likely to get into financial difficulty than households in the highest income class by about 20 percentage points. The differences in the likelihood among the richest group and the poorest group ranged from 14.4 percentage points in Viet Nam to about 40 percentage points in the Philippines. This may be due to the fact that some households suffered from income decline, but they also had to increase their expenditure. The likelihood of getting into financial difficulty is also higher for other income classes in our pooled sample and in some countries, except for Cambodia and the Lao PDR, where we only observed differences between the richest and the poorest income groups.

Different sources of income may also have different effects on the likelihood of getting into financial difficulty. In general, households with income from agricultural production, household businesses, or self-employment and remittances are not different from households that do not have such income sources. However, households with income from wages and salaries and with other income sources are less likely to have financial difficulty than those households that do not have such income. This finding, to some extent, is corroborated by the results presented in Table 4. We also find that the effect of income source differs by country. For example, Indonesian households with income from agricultural production, household business/self-employment, and wages/salaries are more likely to be in financial difficulty while this is not the case for Malaysian households.

The education level of the household head in general is negatively associated with the likelihood of getting into financial difficulty. For example, household heads with a high school degree have a lower probability of having financial difficulty by 2.7 percentage points than those who have a lower level of education. The respective figure for those who have a higher education level than high school is 7.8 percentage points. However, the effect of the household head's education level is only significant in Indonesia, Malaysia, and Viet Nam. Households with a household head aged over 50 are less likely to be in financial difficulty than other households in the pooled sample, and those in Cambodia, Malaysia, Myanmar, and Viet Nam. In contrast to our results regarding the likelihood of having an income decline, household size and household dependency ratio are positively associated with the likelihood of getting into financial difficulty. For example, having one more person in the household increases the likelihood of being in financial difficulty by 1 percentage point (2 percentage points in Indonesia and Thailand). The dependency ratio is also positively associated with a higher likelihood of getting into financial difficulty in five out of eight countries.

The estimation results also suggest that having someone in the household who has lost their job or had to reduce working hours is positively associated with the likelihood of being in financial difficulty in all countries, although the size of the effect varies. Being located in a lockdown area also increases the likelihood of having financial difficulty in Cambodia, the Lao PDR, and Myanmar as expected, but the effect is negative in Viet Nam.

Table 5: Determinants of Getting into Financial Difficulty

	(1)	(2)	(3)	(4)	(5)
	All Countries	Cambodia	Indonesia	Lao PDR	Malaysia
SEC 2	0.057*** [0.019]	0.074 [0.049]	0.084* [0.051]	0.103 [0.070]	-0.109* [0.065]
SEC 3	0.130*** [0.017]	0.053 [0.048]	0.197*** [0.047]	0.104 [0.073]	0.067 [0.060]
SEC 4	0.196*** [0.018]	0.173*** [0.055]	0.207*** [0.046]	0.179*** [0.064]	0.229*** [0.064]
Income source: Agriculture related	0.023 [0.014]	0.048 [0.041]	0.072** [0.034]	0.046 [0.039]	0.105 [0.078]
Income source: Household business	0.014 [0.012]	-0.050 [0.037]	0.060** [0.026]	-0.093** [0.038]	0.067 [0.052]
Income source: Wage	-0.032** [0.013]	-0.067* [0.037]	0.060** [0.029]	0.014 [0.040]	-0.062 [0.058]
Income source: Remittance	-0.002 [0.025]	-0.027 [0.111]	-0.036 [0.060]	0.035 [0.051]	0.040 [0.162]
Income source: Others	-0.057*** [0.017]	-0.111 [0.088]	-0.027 [0.046]	-0.015 [0.041]	-0.049 [0.070]
HH head with high school degree	-0.027** [0.012]	-0.021 [0.036]	-0.024 [0.027]	0.026 [0.044]	-0.101** [0.043]
HH head with more than high school degree	-0.078*** [0.013]	-0.053 [0.046]	-0.102*** [0.033]	-0.053 [0.045]	-0.095*** [0.036]
Household head being male	-0.037*** [0.011]	-0.028 [0.036]	-0.013 [0.023]	-0.027 [0.035]	0.026 [0.043]
Household head aged 30–39	-0.015 [0.018]	-0.042 [0.055]	0.011 [0.046]	0.048 [0.046]	-0.131** [0.051]
Household head aged 40–49	-0.026 [0.018]	-0.123** [0.055]	0.035 [0.045]	0.015 [0.051]	-0.097* [0.052]
Household head aged 50–59	-0.044** [0.018]	-0.095* [0.056]	0.066 [0.049]	0.067 [0.057]	-0.148*** [0.054]
Household head aged 60 or over	-0.104*** [0.021]	-0.056 [0.070]	-0.032 [0.064]	-0.134* [0.072]	-0.096 [0.059]
Household size	0.011*** [0.003]	0.002 [0.008]	0.021*** [0.007]	0.006 [0.008]	0.015* [0.008]
Dependency ratio	0.089*** [0.024]	0.184*** [0.071]	0.125** [0.061]	-0.016 [0.090]	0.131* [0.071]
Located in rural areas	0.004 [0.011]	0.036 [0.033]	-0.032 [0.023]	-0.015 [0.039]	-0.026 [0.031]
Located in lockdown areas	0.033** [0.015]	0.335*** [0.099]	0.068*** [0.022]	-0.047 [0.044]	-0.015 [0.030]
At least one HH member lost job or reduced work	0.174*** [0.011]	0.259*** [0.037]	0.044* [0.023]	0.127*** [0.037]	0.308*** [0.030]
Intercept	0.184*** [0.033]	0.248*** [0.087]	0.485*** [0.073]	0.402*** [0.100]	0.250** [0.105]
Number of observations	7,731	950	1,045	889	950

continued on next page

Table 5 *continued*

	(6) Myanmar	(7) Philippines	(8) Thailand	(9) Viet Nam
SEC 2	0.012 [0.033]	0.211*** [0.073]	−0.022 [0.057]	0.101* [0.052]
SEC 3	0.133*** [0.037]	0.339*** [0.069]	0.133*** [0.046]	0.092* [0.050]
SEC 4	0.222*** [0.043]	0.398*** [0.070]	0.204*** [0.052]	0.144*** [0.052]
Income source: Agriculture related	−0.096*** [0.034]	−0.062* [0.036]	0.089** [0.037]	0.005 [0.041]
Income source: Household business	−0.024 [0.033]	−0.025 [0.034]	0.142*** [0.035]	0.046 [0.036]
Income source: Wage	0.032 [0.031]	−0.083** [0.035]	−0.052 [0.036]	−0.050 [0.039]
Income source: Remittance	−0.130*** [0.046]	−0.046 [0.044]	0.065 [0.070]	0.057 [0.144]
Income source: Others	0.022 [0.042]	−0.039 [0.033]	−0.097* [0.056]	−0.145*** [0.046]
HH head with high school degree	−0.012 [0.034]	−0.016 [0.024]	−0.037 [0.035]	−0.034 [0.040]
HH head with more than high school degree	−0.041 [0.036]	−0.016 [0.028]	−0.042 [0.033]	−0.161*** [0.042]
Household head being male	−0.083** [0.041]	−0.022 [0.024]	−0.002 [0.028]	−0.146*** [0.033]
Household head aged 30–39	−0.031 [0.051]	0.012 [0.036]	−0.018 [0.052]	0.037 [0.058]
Household head aged 40–49	−0.011 [0.051]	0.009 [0.037]	−0.001 [0.050]	−0.063 [0.059]
Household head aged 50–59	−0.083* [0.049]	0.019 [0.040]	−0.041 [0.050]	−0.108* [0.061]
Household head aged 60 or over	−0.125** [0.053]	−0.093* [0.051]	−0.103* [0.060]	−0.151** [0.067]
Household size	0.011 [0.008]	0.001 [0.005]	0.018** [0.008]	0.002 [0.010]
Dependency ratio	0.146* [0.076]	0.134** [0.054]	0.034 [0.056]	0.079 [0.079]
Located in rural areas	0.065** [0.031]	−0.039* [0.023]	0.108*** [0.029]	−0.097*** [0.035]
Located in lockdown areas	0.287*** [0.083]	−0.020 [0.038]	0.040 [0.030]	−0.104* [0.061]
At least one HH member lost job or reduced work	0.077*** [0.029]	0.143*** [0.029]	0.243*** [0.028]	0.172*** [0.032]
Intercept	0.173** [0.081]	0.519*** [0.093]	0.393*** [0.087]	0.560*** [0.110]
Number of observations	997	998	988	914

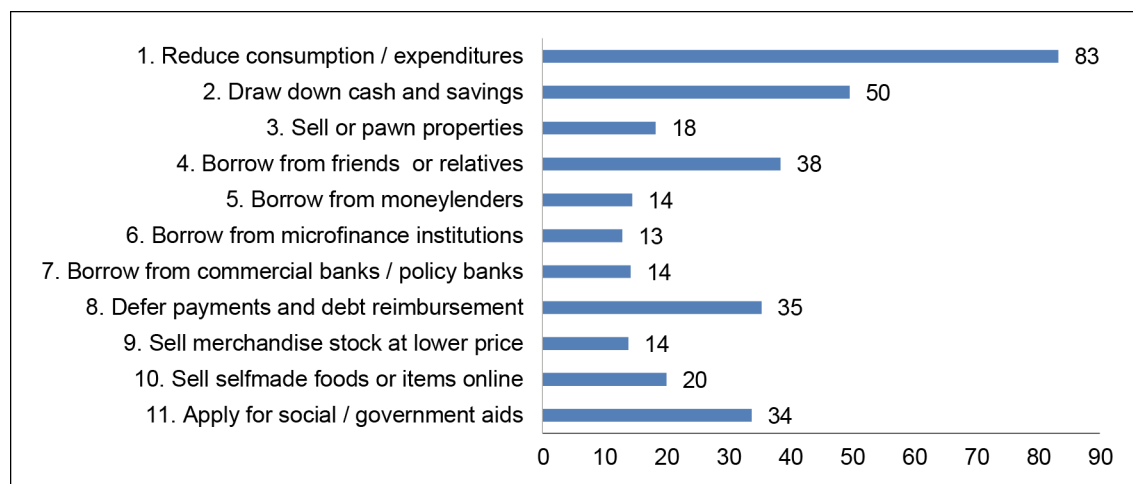
Notes: Standard errors are in brackets. *, **, and *** denote statistically significant at 10%, 5%, and 1%, respectively. We control for country dummies in the pooled sample.

Source: Authors' estimation using ADBI database.

Strategies for Coping with Financial Difficulty

In order to cope with financial difficulty, households in our sample adopted various coping strategies (Figure 9). Among those households, the three coping strategies that were most widely adopted were reducing consumption and expenditure, drawing down cash and savings, and borrowing from friends and relatives. Households deferred payments and debt reimbursement and applied for social and government aid. Some households coped by making homemade foods and selling them online.

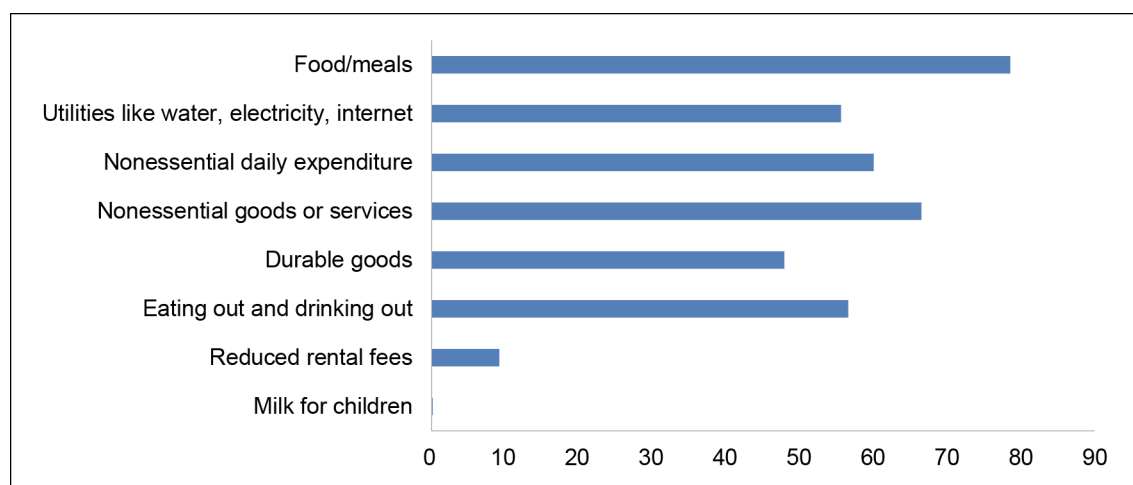
Figure 9: Strategies for Coping with Financial Difficulty, % of Households Experiencing Difficulty



Source: Authors' calculation based on ADBI's database.

Nearly 80% of respondents who suffered from financial difficulty reduced their food consumption. This may have some implications for food security. Other items that people reduced include utilities and nonessential daily expenditures (Figure 10).

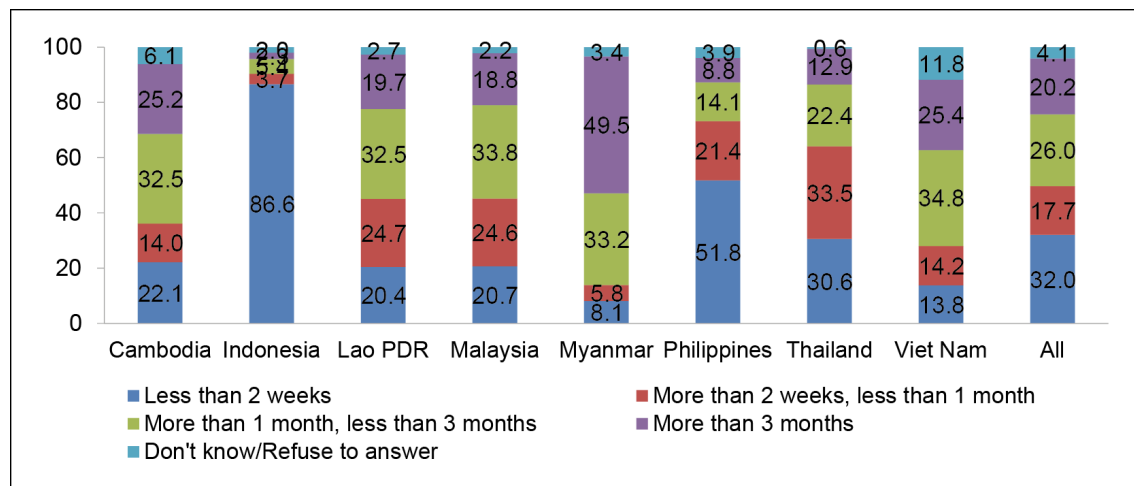
Figure 10: Types of Consumption Reduced, % of Households Reducing Consumption



Source: Authors' calculation based on ADBI's database.

Figure 11 shows the time period for which households have enough resources to cover daily necessities if they lose all of their income sources. On average, nearly 50% of households in our sample could only survive less than a month. About 86.6% of Indonesian households reported that they could only afford about two weeks if they did not have any income. The situation is also serious in the Philippines, with less than 30% having enough resources to cover necessary expenditures for more than a month. This suggests that if the COVID-19 pandemic is prolonged, many households in these countries may suffer from hunger and potentially increased poverty.

Figure 11: Duration over which Resources Could Cover Basic Necessities, % of Households



Source: Authors' calculation based on ADBI's database.

Factors Affecting the Duration of Financial Viability

Various health and international agencies such as the WHO and the US's CDC have warned that the COVID-19 pandemic may last a long time, which could severely strain the sustainability of household resources. This section examines which factors are related to the duration of financial viability among households in our sample. To do so, we estimate the following equation:

$$Via_i = \gamma_0 + \gamma_1 SEC_i + \gamma_2 HH_i + \gamma_3 COVID_i + \xi_i \quad (3)$$

in which Via_i is the duration of financial viability of household i ; SEC_i , HH_i , and $COVID_i$ are as in Equation (1), and ξ_i is the error term. We also controlled country dummies in our estimation using pooled data. Based on Likert-type measures, we constructed three dummy variables indicating the duration of financial viability: (1) being able to survive up to a month; (2) being able to survive from one month up to three months; and (iii) being able to survive more than three months. Due to the nature of our dependent variable (Likert-type variables), the ordered probit estimation method is used.

Table 6 presents our estimation results using pooled sample data. The marginal effects are calculated for each of three possible outcomes. We find that household income class has a statistically significant correlation with the duration of financial viability. Households in lower income classes have a higher likelihood of being financially viable for less than one month than those in the highest income class by 10, 15, and 21 percentage points, respectively. Similarly, those in the highest income class have a

higher chance of being financially viable for more than three months by about 10, 13, and 17 percentage points compared with the low-income groups. This result suggests that if the COVID-19 pandemic is prolonged, poorer households will suffer much more than richer households.

Table 6: Determinants of Duration of Financial Viability

	(1) Less than 1 Month	(2) 1–3 Months	(3) More than 3 Months
SEC 2	0.103*** [0.016]	–0.009*** [0.002]	–0.094*** [0.015]
SEC 3	0.156*** [0.015]	–0.021*** [0.002]	–0.135*** [0.014]
SEC 4	0.213*** [0.016]	–0.039*** [0.004]	–0.174*** [0.014]
Income source: Agriculture related	–0.059*** [0.012]	0.015*** [0.003]	0.044*** [0.009]
Income source: Household business	–0.033*** [0.011]	0.009*** [0.003]	0.025*** [0.008]
Income source: Wage	–0.001 [0.011]	0.000 [0.003]	0.000 [0.008]
Income source: Remittance	0.002 [0.022]	–0.000 [0.006]	–0.001 [0.016]
Income source: Others	–0.075*** [0.015]	0.020*** [0.004]	0.055*** [0.011]
HH head with high school degree	–0.048*** [0.011]	0.013*** [0.003]	0.035*** [0.008]
HH head with more than high school degree	–0.097*** [0.012]	0.024*** [0.003]	0.073*** [0.009]
Household head being male	–0.072*** [0.011]	0.021*** [0.003]	0.052*** [0.007]
Household head aged 30–39	–0.008 [0.015]	0.002 [0.004]	0.005 [0.011]
Household head aged 40–49	–0.027* [0.016]	0.007* [0.004]	0.020* [0.011]
Household head aged 50–59	–0.022 [0.016]	0.006 [0.004]	0.016 [0.012]
Household head aged 60 or over	–0.054*** [0.018]	0.014*** [0.005]	0.041*** [0.014]
Household size	0.008*** [0.002]	–0.002*** [0.001]	–0.006*** [0.002]
Dependency ratio	0.113*** [0.022]	–0.030*** [0.006]	–0.084*** [0.016]
Located in rural areas	0.010 [0.010]	–0.003 [0.003]	–0.008 [0.007]
Located in lockdown areas	0.044*** [0.014]	–0.012*** [0.004]	–0.033*** [0.010]
At least one HH member lost job or reduced work	0.049*** [0.010]	–0.013*** [0.003]	–0.036*** [0.007]
Number of observations	7,439	7,439	7,439

Notes: Standard errors are in brackets. *, **, and *** denote statistically significant at 10%, 5%, and 1%, respectively. We control for country dummies.

Source: Authors' estimation using ADBI database.

The source of income also matters for the duration of financial viability. Households with income from agricultural production, household business, and other sources tend to have a longer duration of financial viability. Therefore, despite the fact that households with income from agricultural production and from household business/self-employment are more likely to experience a decline in income (as shown in Table 1), these households have a higher probability of financial viability than other households.

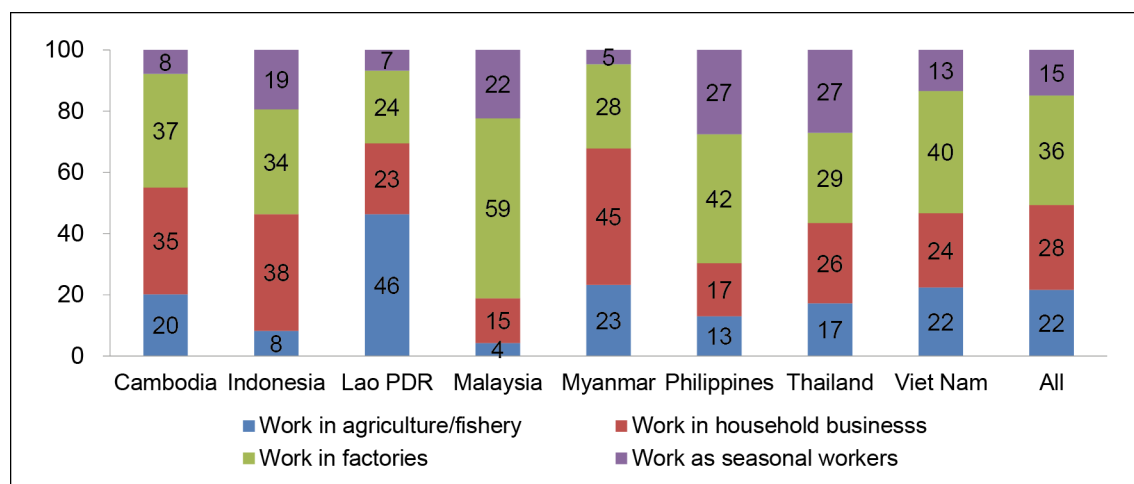
Household characteristics also matter for the duration of financial viability. Households whose head has an education level of at least a high school degree are more likely to be financially viable for a longer time than those whose education level is lower. For example, the former group is more likely to be financially viable for more than three months than the latter by 3.5 and 7.3 percentage points. Households headed by a man are also more (less) likely to be able to survive financially for more than three months (less than a month) than households headed by a woman. Household size and the dependency ratio are also associated with the duration of financial viability.

With regard to COVID-19-induced variables, both living in a lockdown area and having at least one person who lost their job or had working time reduced are associated with the duration of financial viability. Households in the latter group are more likely to survive less than a month and less likely to survive from one to three months and for more than three months by 4.9, 1.3, and 3.6 percentage points, respectively, than other households.

6. IMPACT OF THE COVID-19 PANDEMIC ON EMPLOYMENT

Figure 12 presents the employment distribution of household members in our sample before the pandemic. More than 22% are full-time agricultural workers, and 28% are full-time household business owners and self-employed. About 36% are full-time salaried workers and 15% are seasonal salaried workers (or informal workers). The distribution of employment differs by country. For example, the share of salaried workers is nearly 60% in Malaysia but only 20%–25% in the Lao PDR and Myanmar. The shares of seasonal and informal workers in Thailand, the Philippines, and Malaysia are higher than in other countries.

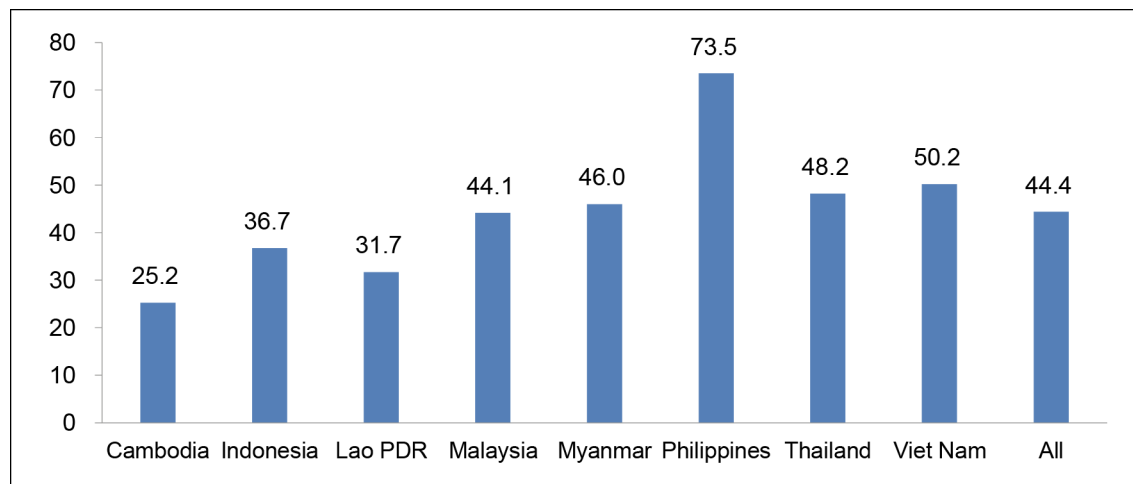
Figure 12: Employment Distribution (before the Pandemic), % of Households



Source: Authors' calculation based on ADBI's database.

On average, 44.4% of employees in our samples had either lost their jobs (temporarily or permanently) or had experienced a workload cut. Notably, 73.5% of Filipino employees in our samples had either lost their jobs or had to reduce their working time. In Viet Nam, Thailand, Myanmar, and Malaysia, the figures were high, in the range of 45%–50%, while the share in Indonesia was relatively low.

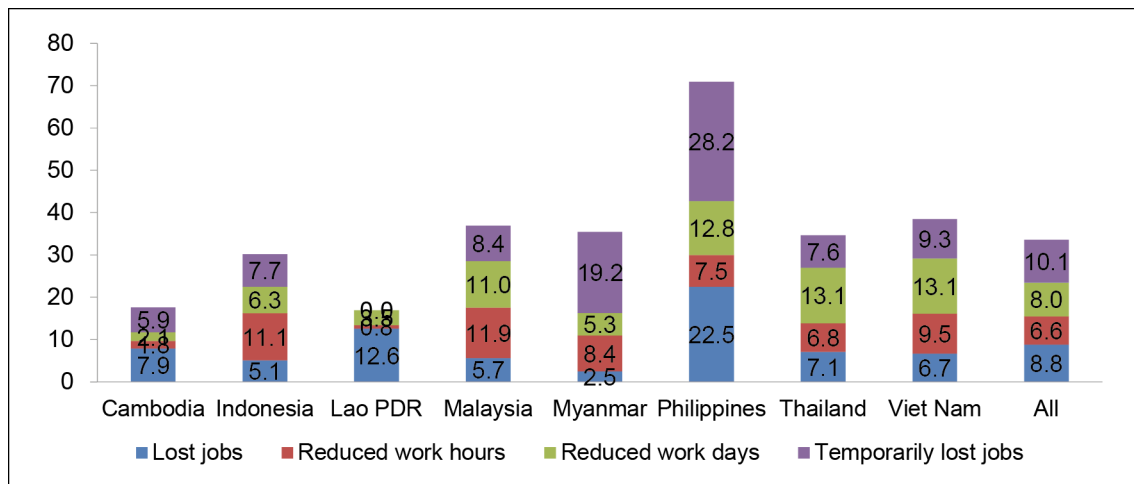
Figure 13: Households with Job Loss or Workload Reduced, % of Households



Source: Authors' calculation based on ADBI's database.

We further looked at types of job loss or workload reduction. Figure 14 shows types of job loss. It should be noted that, in contrast to Figure 13, which looks at total employment (by summing up the total number of people who lost jobs or had reduced working time), Figure 14 shows types of jobs lost at the household level. This is because we cannot distinguish between types of job lost and working time reduced among household members (i.e., we cannot identify how many people in a certain household lost jobs and how many of them are forced to reduce their working time). Among all households, 8.8% had at least one person who lost their job permanently, 10.1% had at least one person who lost their job temporarily, 6.6% had at least one person who was forced to reduce their working hours, and 8% had at least one person who was forced to reduce their working days.

The pattern of job losses is quite similar in Indonesia, Malaysia, Myanmar, Thailand, and Viet Nam. The proportion who lost jobs permanently accounted for about a quarter of all households that have at least one person who lost their job or were forced to reduce working time (i.e., accounting for about one tenth of the total sample). The proportion of households with at least one person who lost their job or had work time reduced is lowest in Cambodia and the Lao PDR. More than 70% of households in the Philippines had at least one person who lost their job or had to reduce working time. More strikingly, the proportion of those in the Philippines who lost their job permanently or temporarily is very high (22.5% and 28.5%, respectively). While the proportion of households with at least one person who lost their job in the Lao PDR is low, the proportion of those who lost their jobs permanently is quite high (12.5%), second only to the Philippines.

Figure 14: Breakdown of Job Losses or Workload Reductions, % of Households

Source: Authors' calculation based on ADBI's database.

7. EDUCATION IMPACTS OF THE COVID-19 PANDEMIC

Table 7 shows the shares of households with children going to schools. On average, 54% of households in our sample had children going to school before the pandemic (the proportion of households with children going to school is quite low in Thailand and Myanmar). In general, during the pandemic currently, most children in the Lao PDR, Cambodia, Indonesia, and Viet Nam are still going to school. On the other hand, nearly 46% and 52% of children in Myanmar and the Philippines, respectively, who used to go to school before the pandemic stopped going to school during the pandemic.

Table 7: Households with Children and Going to School Before and During the Pandemic

	Cambodia	Indonesia	Lao PDR	Malaysia	Myanmar
Households with children going to school before pandemic, % of total	61%	60%	56%	53%	44%
% of households with children going to school before pandemic but not attending school during pandemic	3%	3%	0%	9%	52%
	Philippines	Thailand	Viet Nam	All	
Households with children going to school before pandemic, % of total	67%	41%	53%	54%	
% of households with children going to school before pandemic but not attending school during pandemic	46%	13%	0%	15%	

Source: Authors' calculation based on ADBI's database.

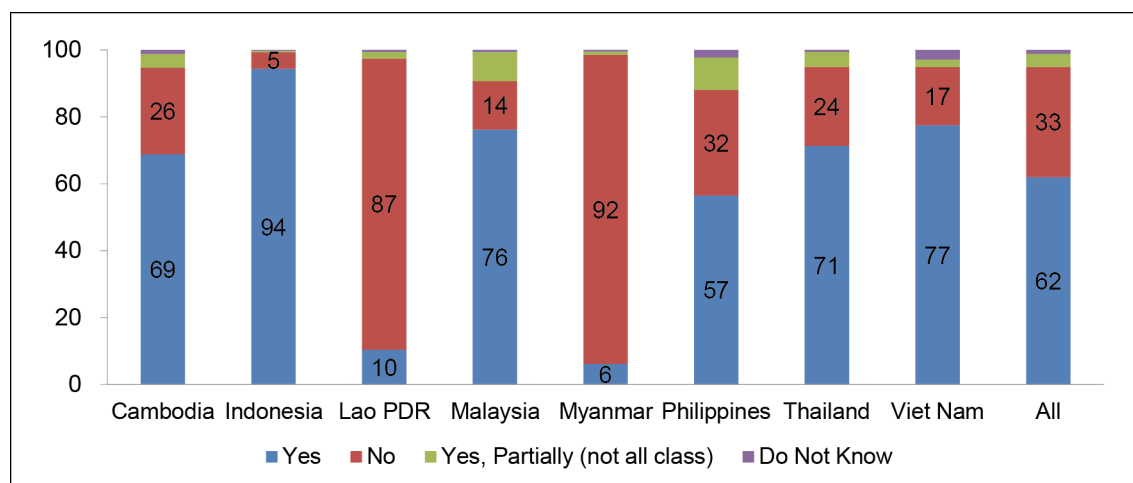
Table 8 shows the breakdown in school attendance by country and type of household. There are no significant differences in school attendance between children in richer and poorer households or between rural and urban households. Even in Thailand, the children in rural areas were more likely to attend school than children in urban areas. This may be due to the fact that most of the COVID-19 cases identified in Thailand were in urban areas.

Table 8: Going to School after the Pandemic, % of Subgroup

	Richer Households	Poorer Households	Urban Households	Rural Households
Cambodia	96%	97%	97%	97%
Indonesia	99%	97%	98%	97%
Lao PDR	100%	100%	100%	100%
Malaysia	92%	91%	91%	92%
Myanmar	48%	50%	50%	48%
Philippines	56%	55%	53%	58%
Thailand	89%	89%	83%	92%
Viet Nam	101%	100%	100%	100%

Source: Authors' calculation based on ADBI's database.

During the pandemic, many schools closed physically and offered online classes (Figure 15). For example, 94% of Indonesian children studied in schools that offered online classes. In other countries, including Thailand, Viet Nam, Malaysia, and Cambodia, around 70%–77% of children studied in schools with online classes. The figure is slightly lower in the Philippines at only 57% of children. Conversely, most children in the Lao PDR and Myanmar who were still going to school still went to school rather than taking online classes. The figures presented in Table 8 and Figure 15 indicate that all Lao PDR pupils are still going to school and only 10% of children are studying in online classes. This suggests that most Lao PDR pupils continued going to school during the pandemic. Meanwhile, only 48% of Myanmar pupils continued their education during the pandemic. This may be because only a small number of schools in Myanmar can offer online courses. Our data indicate that only 6% of children studied in schools with online classes there.

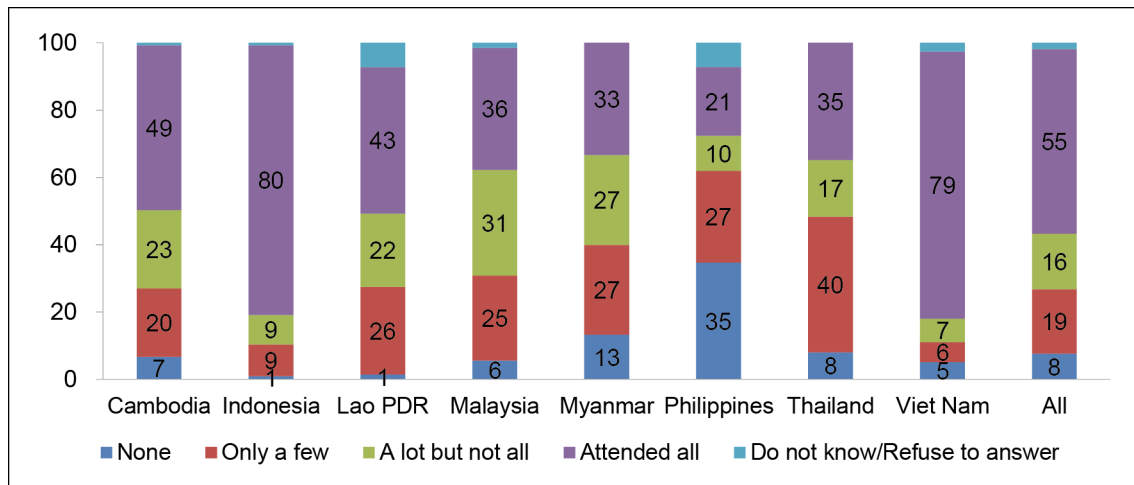
Figure 15: Whether Attending Online Classes during the Pandemic, % of Households with Schoolchildren

Source: Authors' calculation based on ADBI's database.

Even when schools offered online classes, not all children attended them. About 8% did not attend any online classes, 19% attended only a few, and 16% attended some but not all (Figure 16). A high proportion of children in Indonesia and Viet Nam attended all online classes if offered (79%–80%), while the figure was very low in the Philippines (only 21%) and only moderate in Thailand, Myanmar, and Malaysia. Fully

35% of Filipino children did not attend any online classes. In Myanmar, nearly 70% did not fully attend online classes.

Figure 16: Attendance of Online Classes, When They were Offered, % of Households for which Online Courses Were Available



Source: Authors' calculation based on ADBI's database.

Table 9 shows the share of children from different household types attending all online classes if offered. Children from richer households tended to attend all online class more than those from poorer households in all countries except Cambodia and the Lao PDR. It should be noted that the differences between richer and poorer households are larger for the subgroup of those who did not attend (or attended only a few) online classes (data available upon request). There were no significant differences in attendance of online classes between rural and urban households except in the Lao PDR and Myanmar.

Table 9: Attending All Online Classes if Offered by Type of Household, % of Households in Subgroup

	Richer Households	Poorer Households	Urban Households	Rural Households
Cambodia	48%	50%	54%	47%
Indonesia	85%	79%	80%	81%
Lao PDR	43%	47%	42%	50%
Malaysia	40%	36%	38%	35%
Myanmar	40%	20%	22%	50%
Philippines	26%	21%	23%	22%
Thailand	42%	32%	35%	35%
Viet Nam	84%	81%	82%	81%

Source: Authors' calculation based on ADBI's database.

Intensity of Taking Online Courses when Offered

We examine factors that determine the intensity of online class taking during the period of the COVID-19 pandemic in ASEAN countries. We estimate the following equation:

$$Intensity_i = \theta_0 + \theta_1 SEC_i + \theta_2 HH_i + \theta_3 COVID_i + e_i \quad (4)$$

in which intensity takes the value of either (1) not taking any online class; (2) taking a few online classes; (3) taking some, but not all online classes; and (4) taking all online classes; SEC_i , HH_i , and $COVID_i$ are as in Equation (1) and e_i is the error term. Since our dependent variable is a Likert-type variable, the ordered probit estimation method is used. However, the results of this regression analysis should be interpreted cautiously since the sample used is limited to those children who study in schools that offer online classes.

Table 10 presents the results for the determinants of the intensity of online course attendance. The marginal effects are calculated for each of the four possible outcomes. Household income class has a statistically significant correlation with the intensity of online course attendance. For example, those in lower-income classes are more likely not to take any online classes and less likely to take all classes than those in the highest income class (SEC 1 as the reference group). However, we did not see any significant difference between households in the lowest SEC classes and the highest SEC classes.

Household characteristics also matter for the intensity of online class taking. Children from households whose head has an education level higher than high school education were less likely not to take any online classes and more likely to take all online classes than children in households with lower education levels (our reference group), although this was only significant at the 10% level. We do not find any difference between children living in households whose head has only a high school education and children in the reference group. The education level of the household head is also not significantly associated with whether children take few or some online classes. The gender of the household head is also not correlated with the intensity of the online class attendance of children. However, the age of the household head is related to the level of online course attendance. Children in households whose heads are older than 39 are less likely not to take any online course and more likely to take all online courses offered. This may be because the older the household head is, the more resilient the household is to external shocks and therefore children are given more resources for their education.

With regard to COVID-19-induced variables, living in a lockdown area is positively associated with taking all online courses, but the relationship is only significant at the 10% level. A change in income is not significantly correlated with the level of online courses taken, but living in households with at least one person who has lost their job or experienced a working time reduction is positively associated with a lower intensity of online course attendance. A similar and statistically stronger pattern is observed for children living in households experiencing financial difficulty.

Table 10: Factors Determining the Intensity of Online Course Taking

	(1) Not Take	(2) Take Few	(3) Take Some	(4) Take All
SEC 2	0.013 [0.011]	0.017 [0.015]	0.007 [0.006]	−0.037 [0.032]
SEC 3	0.021** [0.010]	0.028** [0.014]	0.010* [0.006]	−0.059** [0.029]
SEC 4	0.026** [0.011]	0.034** [0.015]	0.012** [0.006]	−0.072** [0.031]
SEC 5	0.007 [0.014]	0.010 [0.019]	0.004 [0.008]	−0.021 [0.040]
Household head with high school education	−0.013 [0.008]	−0.015 [0.010]	−0.005 [0.003]	0.033 [0.022]
Household head with higher education	−0.014* [0.008]	−0.017 [0.010]	−0.006 [0.004]	0.037* [0.022]
Household head being male	−0.003 [0.007]	−0.004 [0.009]	−0.001 [0.003]	0.009 [0.019]
Household head aged 30–39	−0.019 [0.018]	−0.020 [0.017]	−0.005 [0.004]	0.044 [0.038]
Household head aged 40–49	−0.030* [0.017]	−0.032* [0.017]	−0.009** [0.004]	0.071* [0.037]
Household head aged 50–59	−0.036** [0.018]	−0.040** [0.018]	−0.011** [0.004]	0.087** [0.039]
Household head aged 60 or over	−0.053*** [0.019]	−0.065*** [0.021]	−0.022*** [0.007]	0.139*** [0.046]
Dependency rate	0.007 [0.022]	0.008 [0.026]	0.003 [0.009]	−0.018 [0.056]
Household size	0.001 [0.002]	0.001 [0.002]	0.000 [0.001]	−0.002 [0.005]
Living in rural areas	0.003 [0.007]	0.003 [0.008]	0.001 [0.003]	−0.007 [0.017]
Located in lockdown areas	−0.015* [0.009]	−0.018* [0.011]	−0.006* [0.004]	0.039* [0.023]
Household income declined	−0.006 [0.009]	−0.007 [0.010]	−0.002 [0.003]	0.015 [0.022]
Household income increased	0.002 [0.023]	0.003 [0.026]	0.001 [0.008]	−0.006 [0.058]
Having at least one person with lost job or reduced work	0.014** [0.007]	0.017** [0.009]	0.006** [0.003]	−0.037** [0.018]
Household experienced financial difficulty	0.025*** [0.008]	0.030*** [0.010]	0.010*** [0.003]	−0.066*** [0.021]
Number of observations	2,298	2,298	2,298	2,298

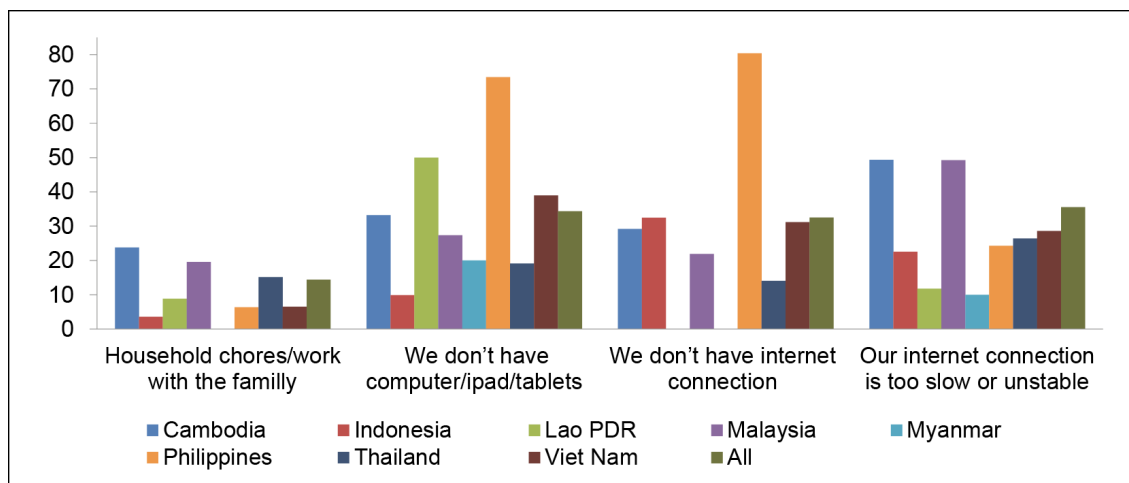
Notes: Standard errors are in brackets. *, **, and *** denote significance level at 10%, 5%, and 1%, respectively. We control for country dummies.

Source: Authors' estimation using ADBI data.

We examined the reasons why some students did not fully attend the online classes, given that the school offered them (Figure 17). There are four major reasons: doing household chores; lack of computer/iPad/tablet; lack of internet connection; and weak/unstable internet connection. On average, about a third of households with children who did not attend online classes fully did not have facilities for online learning (i.e., devices and connections). This situation was most common in the Philippines

where more than 70% of households reported that their children did not attend online classes because they did not have a computer or tablet for their children to use, and nearly 80% said that they did not have internet connection.

Figure 17: Reasons for Not Attending Online Classes Fully (if School Offered), % of Households



Source: Authors' calculation based on ADBI's database.

We further examine underlying factors correlated with why some children could not fully take the online courses. We estimate the following equation:

$$reason_i = \partial_0 + \partial_1 SEC_i + \partial_2 HH_i + \partial_3 COVID_i + u_i \quad (5)$$

in which $reason_i$ is the reason why household i 's children cannot take all online classes (when offered); SEC_i , HH_i , and $COVID_i$ are as in Equation (1) and u_i is the error term. The dependent variable takes one of four alternatives: (i) doing household chores/working with the family; (ii) not having a computer/iPad/tablet; (iii) not having internet connection; and (iv) unstable internet connection.⁴

Table 11 presents the results for factors related to each of the four reasons why children in an average household could not attend all online classes. Household income class is correlated with the likelihood of not taking all classes because of doing household chores, not having a computer/iPad/tablet, or not having an internet connection, among others. Household income is not related to the reason regarding the unstable/weak internet connection. We also find that household characteristics play a role for some reasons why children did not take all classes. For example, those who did not take all online classes due to not having a computer/iPad/tablet or not having an internet connection tend to come from households whose head has a lower education level. Children in households whose head is older were less likely not to attend online classes because of doing household chores than children in households with a younger household head. An unstable internet connection was less likely to be the reason for not attending all classes for children whose parents are aged 30–49. Children in households with a high dependency ratio were more likely not to attend online classes due to not having a computer/iPad/tablet or not having an internet

⁴ The survey also asked for other reasons but, due to a lack of clear information about this type of reason, we did not use other reasons as an alternative reason for not taking online classes.

connection. Living in a rural area was more likely to be the reason for not attending all classes due to not having an internet connection.

Table 11: Reasons for Not Fully Attending Online Classes

	(1) Household Chores/ Working with the Family	(2) Not Having Computer/ iPad/Tablet	(3) Not Having Internet Connection	(4) Unstable Internet Connection
SEC 2	−0.029* [0.017]	0.022 [0.020]	0.049** [0.020]	0.030 [0.025]
SEC 3	0.007 [0.017]	0.052*** [0.019]	0.034* [0.018]	0.031 [0.023]
SEC 4	0.001 [0.016]	0.088*** [0.019]	0.082*** [0.018]	0.030 [0.023]
Household head with high school education	0.020 [0.014]	−0.014 [0.018]	−0.046*** [0.017]	−0.015 [0.019]
Household head with higher education	−0.001 [0.013]	−0.039** [0.018]	−0.062*** [0.016]	−0.017 [0.021]
Household head being male	0.003 [0.011]	−0.001 [0.015]	−0.001 [0.015]	0.006 [0.016]
Household head aged 30–39	−0.077** [0.034]	−0.032 [0.038]	−0.007 [0.034]	−0.081** [0.040]
Household head aged 40–49	−0.073** [0.033]	−0.020 [0.037]	−0.009 [0.033]	−0.071* [0.040]
Household head aged 50–59	−0.093*** [0.034]	−0.020 [0.038]	0.002 [0.035]	−0.057 [0.041]
Household head aged 60 or over	−0.079** [0.038]	−0.071 [0.044]	−0.052 [0.040]	−0.069 [0.049]
Household size	0.003 [0.003]	0.005 [0.005]	−0.007 [0.005]	−0.000 [0.005]
Dependency ratio	−0.032 [0.038]	0.154*** [0.052]	0.085* [0.047]	0.060 [0.053]
Located in rural areas	0.004 [0.010]	0.020 [0.014]	0.021 [0.013]	0.035** [0.015]
Located in lockdown areas	0.026* [0.014]	0.018 [0.017]	−0.021 [0.016]	0.042** [0.020]
Household income declined	0.022* [0.013]	0.046*** [0.017]	0.028* [0.017]	0.025 [0.019]
Household income increased	0.037 [0.036]	0.008 [0.038]	−0.030 [0.034]	0.034 [0.050]
At least one HH member lost job or reduced work	0.003 [0.011]	0.007 [0.015]	0.024* [0.014]	0.019 [0.016]
Household experienced financial difficulty	0.019 [0.012]	0.051*** [0.018]	0.033** [0.015]	0.025 [0.019]
Number of observations	2,298	2,298	2,298	2,298

Notes: Standard errors are in brackets. *, **, and *** denote significance level at 10%, 5%, and 1%, respectively. We control for country dummies.

Source: Authors' estimation using ADBI data.

With regard to COVID-19-induced variables, living in a lockdown area may be the reason for not taking all online classes due to doing household chores, or having no internet connection. A decline in household income is associated with not taking online classes due to doing household chores, not having a computer/iPad/tablet, and not having an internet connection. Children in households experiencing financial

difficulty were more likely not to attend all online classes due to not having a computer/iPad/tablet and not having an internet connection than children in households not experiencing financial difficulty.

8. CONCLUDING REMARKS

The outbreak of the COVID-19 virus and the resulting falls in demand due both to uncertainty and policy interventions such as lockdowns, “social distancing,” and travel restrictions are having a severe impact on Asian economies and hence on Asian households. In this paper, we implemented household surveys in eight ASEAN countries (Cambodia, Indonesia, the Lao PDR, Malaysia, Myanmar, the Philippines, Thailand, and Viet Nam) to understand the effects of the COVID-19 pandemic. The samples were representative of the income classes, and rural and urban population in each country.

The paper presents several interesting results. First, most households in all countries experienced significant declines in income and employment, although there was significant variation by country. Nearly three quarters of households experienced a declining income (mostly in the range of 26%–50% compared with the base period). Income from all sources declined, but that of household enterprise/self-employment fell most. About a third had household members who lost their jobs or had to reduce their workload. Our empirical results suggest that various household characteristics, including household income class (before the COVID-19 pandemic) and household demographic factors, affect the likelihood of a decline in income. COVID-19-induced factors such as having at least one person who lost their job or being located in lockdown areas also affect household income.

Second, nearly half of households experienced financial difficulties. Nearly all households experiencing financial difficulties had to reduce consumption, about half drew down cash and savings, while roughly a third did the following: (i) borrowed from friends or relatives; (ii) delayed payments and debt repayment; and (iii) applied for government aid. Furthermore, the share of households that could only survive without any income for less than a month is quite high, at about 50% of all households in our sample. In addition to household characteristics such as household head’s education, age, and gender, COVID-19-induced factors also play an important role in the likelihood of experiencing financial difficulties and the duration of financial viability. In all countries, having at least one person who lost their job or had reduced working time increases the likelihood of experiencing financial difficulties by 17 percentage points. This factor is statistically significant in all eight countries.

Third, about 27% of children stopped going to school (especially in Myanmar and the Philippines) as a result of the pandemic. Many schools offered online classes, but there was great variation by country. About 27% of children who stopped attending school could not fully participate in online learning programs due to weak/insufficient internet connections and a lack of digital devices. Of all the factors possibly determining the intensity of online class taking, two COVID-19-related factors—having at least one person who lost their job or had working hours reduced and was experiencing financial difficulties—significantly affect the intensity of online classes taken by children in an average household.

REFERENCES

- Ceballos, F., Kannan, S. and Kramer, B., 2020. Impacts of a national lockdown on smallholder farmers' income and food security: Empirical evidence from two states in India. *World Development*, 136, p.105069.
- Cucinotta, D. and Vanelli, M., 2020. WHO declares COVID-19 a pandemic. *Acta Bio Medica: Atenei Parmensis*, 91(1), p.157.
- Demeke, M. and Kariuki, J.F., 2020. Assessing the impact of COVID-19 on food and nutrition security and adequacy of responses in Kenya. *Mimeo*.
- Hale, T., Petherick, A., Phillips, T. and Webster, S., 2020. Variation in government responses to COVID-19. Blavatnik School of Government Working Paper, 31. Available at <https://ourworldindata.org/grapher/covid-stringency-index>.
- Harris, J., Depenbusch, L., Pal, A.A., Nair, R.M. and Ramasamy, S., 2020. Food system disruption: Initial livelihood and dietary effects of COVID-19 on vegetable producers in India. *Food Security*, 12(4), pp.841–851.
- International Monetary Fund, 2020. Policy Responses to COVID-19. Available at <https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19>. Accessed Nov. 15, 2020.
- International Labor Organization, 2020. COVID-19 and the world of work: Impact and policy responses. ILO Monitor (1st Ed.), Geneva (2020).
- Kansiime, M.K., Tambo, J.A., Mugambi, I., Bundi, M., Kara, A. and Owuor, C., 2020. COVID-19 implications on household income and food security in Kenya and Uganda: Findings from a rapid assessment. *World Development*, 137, p.105199.
- McKibbin, W.J., and Fernando, R. (2020). The global macroeconomic impacts of COVID-19: Seven scenarios. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3547729.
- Nicola, M., Alsafi, Z., Sohrabi, C., Kerwan, A., Al-Jabir, A., Iosifidis, C., Agha, M. and Agha, R., 2020. The income implications of the coronavirus and COVID-19 pandemic: A review. *International Journal of Surgery*, Vol. 78, pp. 185–193.
- Siche, R., 2020. What is the impact of COVID-19 disease on agriculture?. *Scientia Agropecuaria*, 11(1), pp.3–6.
- Sumner, A., Hoy, C., and Ortiz-Juarez, E. (2020). Estimates of the impact of COVID-19 on global poverty. UNU-WIDER Working Paper 2020/43.
- Toreno, M., 2020. Prepare food systems for a long-haul fight against COVID-19. Available at <https://www.ifpri.org/blog/prepare-food-systems-long-haul-fight-against-covid-19>. Accessed Oct. 15, 2020.
- UN-Habitat and World Food Program, 2020. Impact of COVID-19 on livelihoods, food security & nutrition in East Africa: Urban focus. Available at https://unhabitat.org/sites/default/files/2020/08/wfp-0000118161_1.pdf.