



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

Household Food Insecurity and COVID-19 Social Safety Nets in Cavite, Philippines

Mildred Ocampo Guirindola^{1,2}, Marisa J. Sobremisana², Enrique P. Pacardo², Corazon V.C. Barba³, Ma. Esmeralda C. Silva⁴, and Ruel B. Guirindola⁵

¹ Department of Science and Technology-Food and Nutrition Research Institute, Taguig City, Philippines; ² School of Environmental Science and Management, University of the Philippines Los Baños (UPLB), Laguna, Philippines; ³ Institute of Human Nutrition and Food, UPLB; ⁴ Department of Health Policy and Administration, UP Manila, Philippines; ⁵ Clinical Trial and Research Division, Philippine Children's Medical Center, Quezon City, Philippines

ABSTRACT

The COVID-19 restrictions have caused economic losses that affected food availability and accessibility, thereby compromising people's lifestyles and putting the already existing poor households into severe food insecurity. As such, national government agencies and local government units in the Philippines provided emergency cash assistance and food aid as safety nets during the pandemic to help vulnerable households cope with the impending economic crisis and to improve food security in the country. This cross-sectional study assesses the association of social safety net programs with household food security (i.e., food secure, consistently food insecure, and newly food insecure) in Cavite province, Philippines. Findings show that being beneficiaries of the *Pantawid Pamilyang Pilipino* Program and the Social Amelioration Program are associated with being consistently and newly food insecure. Furthermore, households that obtained food from the community pantry, a volunteer-led movement during the height of the COVID-19 pandemic are also associated with food insecurity. On the other hand, the households that were provided with food packs, across different socioeconomic conditions, are not significantly associated with food insecurity. The study also affirms that households most vulnerable to food crises in the context of COVID-19 are those who are consistently food insecure and were already exposed to critical food and dietary deprivations before the onset of the pandemic. There is much to be done to improve the safety net programs in the country. The study results can add information and policy recommendations toward strengthening the services for vulnerable population groups to withstand short- and long-term food system disruptions and eventually build food-resilient households and communities.

Keywords: social safety net programs, food security, COVID-19, SAP, food aid, community pantry

JEL codes: I38, R28

Asian Journal of
Agriculture and
Development (AJAD)
Vol. 21 No. 1 June 2024
complete lineup

Drivers of Successful
Adoption of Eco-innovation:
Case Studies of Agricultural
Cooperatives in Vietnam
H.L. Pham, H.T. Nguyen, H.T. Nguyen,
and H.V. Nguyen

Motivation toward Rice
Farming in Margokaton
Village, Sleman District,
Yogyakarta Province,
Indonesia
R. Seleky, W. Ozawa, and A. Chen

Analysis of the Strawberry
Value Chain in the Philippines
M. Cruz, C. Gomez, and J. Sarmiento

Farming Systems and GAP
Adoption in JASS Coffee
in Tlahab, Temanggung
Regency, Indonesia
M. Royan, C. Lesueur, I. Bunyasiri,
and P. Thammachote

Household Food Insecurity
and COVID-19 Social Safety
Nets in Cavite, Philippines
M. Guirindola, M. Sobremisana,
E. Pacardo, C. Barba, M. Silva,
and R. Guirindola

Digitalization in Indonesia's
Agrifood Sector in the Wake
of the COVID-19 Pandemic
S. Mangurai, E. Octaviani, Anidah,
A. Solikhin, R. Darmawan, L. Putri,
M Al-Faritsi, and T. Kurniawan

Book Review | Becoming
a Young Farmer: Young
People's Pathways into
Farming— Canada, China,
India and Indonesia
D.S. Priyarsono

INTRODUCTION

The novel Corona Virus Disease or COVID-19 has been considered one of the most fatal health crises worldwide (WHO 2020a). The World Health Organization (i.e., WHO) classified it as a public health emergency of international concern on 30 January 2020 and a global pandemic on 11 March 2020 (WHO 2020b; Calder 2020; Workie et al. 2020). The Philippine government declared a public health emergency and imposed preventive measures such as community quarantines and transport halts to contain the disease (Limon 2021). The country's mobility restriction is known as one of the world's most stringent and longest quarantine restrictions (Hale et al. 2021; Hapal 2021; Reyes 2022).

Through the Inter-Agency Task Force (IATF) for the Management of Emerging Infectious Diseases, the country coined different terms to describe the varying restriction levels of quarantines based on the number of active cases and health system load in the given locality. The ever-changing quarantine restrictions every two weeks or so, depending on the COVID-19 cases, caused more uncertainty, which made the country more vulnerable to economic crisis. Under the Enhanced Community Quarantine (ECQ), only essential services (e.g., healthcare, agriculture, food distribution, export-oriented business, and business process outsourcing) were allowed to operate while transportation was suspended. Only one member of the household could leave home to buy food and other essentials and was required to obtain a quarantine pass from the local government to be able to move around in their locality. Under the General Community Quarantine (GCQ), which is less stringent than the ECQ, some nonessential industries and modes of public transportation may operate, but public gatherings remain restricted. A transition phase between a stricter quarantine to a less strict one was also implemented by adding the word "modified" or "heightened": modified ECQ, modified GCQ, or GCQ with heightened restrictions with its corresponding changes in mobility implementation (DOH 2020).

The quarantine restrictions caused economic losses that affected food availability and prices as well as changed people's access and capacity to acquire and consume healthy and nutritious food (ADB 2020; Ceballos, Hernandez, and Paz 2021). Subsequently, many workplaces shut down, thereby displacing hundreds to thousands of employees, including informal workers and daily wage earners. Since then, it has forced people to compromise their lifestyles and put indigent households into severe food insecurity due to the loss of jobs and livelihood opportunities.

Responding to the negative effects of the pandemic, the country's national government agencies and local government units (LGUs) provided emergency cash assistance and food aid as safety net programs during the COVID-19 pandemic. Ideally, these safety net programs should help vulnerable households to be protected against livelihood risks and to improve food security. Accordingly, the post-pandemic period is an opportunity to revisit the existing safety net schemes and available resources and to assess the agility level of the Philippine social protection systems to safeguard people's well-being in the event of long-term food shocks such as the COVID-19 pandemic.

This study aims to analyze the effect of different safety nets on the food security of Filipino households with different socioecological characteristics in a province greatly affected by the COVID-19 pandemic. It also aims to identify policy recommendations to improve the delivery of safety net programs to improve food security and access to healthy yet affordable foods during long-term food shocks.

Philippine COVID-19 Safety Net Programs

Social safety nets are designed to prevent indigents and other vulnerable groups from falling into poverty or being caught in a poverty trap when affected by temporary shocks such as a natural disaster or economic downturn. They provide temporary help such that households can cope during periods of shocks. These shocks can be short-term, such as in the event of natural

calamities, or long-term, such as in alleviating chronic poverty (ADB 2010).

Social safety nets can be through cash transfers, food aid, employment, food subsidies, and other means to support the indigent's income and consumption. It helps to lessen the shock to low-income groups in the short term and helps to build resilience in the long term. Providing safety nets is also crucial to the most vulnerable households and population groups to prevent "negative coping" strategies, such as removing children from school to seek some additional income for the household and acquiring high-interest loans or selling productive assets.

Before the COVID-19 pandemic, the *Pantawid Pamilyang Pilipino* Program (4Ps) was the Philippines' national flagship in poverty reduction strategy, providing conditional cash subsidies to indigent households. The eligibility of the program's households is determined by the poverty score based on a proxy means test method applied to the country's National Household Targeting System, called *Listahanan*. Among the households that have lower poverty scores than the predetermined cut-off level, those with a pregnant woman or at least one child at the time of selection become eligible (Cho et al. 2021). In return, beneficiaries are required to keep their children in school and have regular health checkups.

The third impact evaluation of 4Ps conducted from November 2017 to January 2018 confirmed that 4Ps has encouraged beneficiaries to avail of prenatal care services and skilled birth attendance, enhanced children's access to healthcare services, and improved education outcomes, especially for older children. The program has the potential to have an even greater impact through increased coverage and benefit size. Although global social safety net transfers account for 19 percent of the welfare of the poorest quintile, the 4Ps was way below at only nine percent (World Bank 2018).

When the COVID-19 pandemic struck in 2020, the Philippines implemented an emergency social amelioration program (SAP) to cover the 4Ps beneficiaries as well as the other poor and vulnerable groups not targeted by the 4Ps. On 24

March 2020, the Philippine government passed the *Bayanihan* to Heal as One Act (Republic Act [RA] 11469) to implement a PHP¹ 205 billion (USD 4 billion) SAP. This aimed to provide financial subsidies to more than 18 million Filipino families belonging to the low-income and poorest and vulnerable households, including the 4.4 million households enrolled in the 4Ps. The SAP ranged from PHP 5,000 (USD 98) to PHP 8,000 (USD 157) per month for two months based on prevailing regional wages; in Cavite province, this was computed at PHP 6,500 (USD 127) per tranche. The SAP was distributed from March to April 2020 and extended until November 2020 for the second tranche (Watson 2020).

On 11 September 2020, the *Bayanihan* to Recover as One Act (RA 11494) or *Bayanihan 2* was passed. This extended the president's power to reallocate and realign regular appropriations and savings in the national budget and allocated PHP 165.5 billion (USD 3.2 billion) for *Bayanihan 2* (Gudmalin et al. 2021). The emergency subsidy under *Bayanihan 2* was a one-time cash grant of PHP 5,000–8,000. This was distributed to low-income family beneficiaries residing in areas placed under granular lockdown from the date of effectivity of the *Bayanihan 2* on 14 September 2020, as certified by the regional IATF. This also included families of Overseas Filipino Workers who were deported or arrived in the country from 14 September to 19 December 2020, if they were undocumented or were displaced from their jobs abroad.

Furthermore, from 29 March to 4 April 2021, Metro Manila and the nearby provinces of Bulacan, Rizal, Laguna, and Cavite—also termed as the "NCR plus bubble"—were again placed under ECQ. Through the Department of Budget and Management, PHP 22.9 billion (USD 0.45 billion) was allocated from the leftovers of the *Bayanihan 2* to cover 80 percent of the low-income population in the bubble. Households received a maximum of PHP 4,000 (USD 98) or up to four individuals per household receiving PHP 1,000 (USD 19.6).

1 Philippine Peso

During the distribution of the SAP assistance from the national government, LGUs also provided cash assistance to needy families that were not included in the official list. Individuals who did not receive any cash aid from SAP 1 and/or 2 but were affected by the ECQ could appeal to their respective LGU's Grievance and Appeals Committee. Nonetheless, the Department of Interior and Local Government has committed to distribute the remaining funds from the supplemental budget, which was requested by the national government from the Congress, among LGUs (Jazul 2021).

The country faced several challenges in identifying new SAP beneficiaries beyond the 4Ps and in transferring funds to them. Given that there was no ready-made list of indigent and vulnerable populations available, beneficiaries had to be identified using the new paper-based registration process, where LGUs prioritized indigent and vulnerable populations based on their local knowledge. This process led to delays, misunderstandings, and duplications among non-4Ps beneficiaries receiving SAP. Although most 4Ps households had already received their SAP benefits funds digitally, the majority of non-4Ps households targeted under SAP had not (Cho et al. 2021).

During the first wave of the quarantine restriction in 2020, only 3.6 million were able to receive their first tranche of benefits out of approximately 14 million non-4Ps families targeted under SAP. The LGUs were not able to complete encoding the beneficiaries and filter duplicate entries. Moreover, some listed as eligible turned out to be ineligible later (Mednet 2020).

Another challenge encountered at that time was reaching households in geographically isolated and disadvantaged areas, particularly in island barangays and municipalities. This was compounded by the SAP implementers needing isolation due to being exposed to or infected with COVID-19 (Cervantes 2020). Also, unlike 4Ps beneficiaries who already have a digital channel (i.e., Land Bank of the Philippines cash card) to receive funds from the government, new beneficiaries had to rely on LGUs to

physically deliver the cash assistance. The stringent validation process of the LGUs among household beneficiaries in the waitlist category took time to be approved; eventually, the release of cash transfers was delayed (Sandigan News 2020). The key factor that caused these delays was the lack of reliable databases for SAP validation in the communities.

In addition to cash transfers, the Technical Assistance and Resource Augmentation of the Department of Social Welfare and Development (DSWD) assisted the LGUs in distributing food packs and relief goods to the most vulnerable constituents to help alleviate food insecurity (DSWD 2020). It also served as an intervention to encourage people to adhere to the stay-at-home orders and to prevent the virus from further spreading. However, the distribution schedule and the quality and quantity of food packs varied per LGU. Some LGU relief goods contained rice, instant noodles, and canned food; other LGUs promoted good nutrition by including fresh vegetables and fish in their rations; some even distributed vegetable seedlings to promote backyard gardening.

In some regions, the government launched KADIWA on Wheels, where low-cost farm produce was made accessible to the constituents (DA-RFO 4 2020). Households were also asked whether they were recipients of the community-initiated food banks known as community pantries, which became popular following the first one in Maginhawa Street, a middle-class residential area in Quezon City, in April 2021 (Gonzales 2021). Community pantries were not government-initiated. The first one was just a small bamboo cart containing groceries with a cardboard sign that said, "*Magbigay ayon sa kakayahan, kumuha batay sa pangangailangan*" (give what you can, take what you need). The main goal was to serve the hungry amid the pandemic. Moreover, these community pantries created their microeconomy by buying from local farmers, fishermen, and small and medium-sized enterprises (Kusuma 2021). This movement was associated with modern *bayanihan*, a spirit of communal unity to help others without expecting something in return.

REVIEW OF LITERATURE

Because the COVID-19 pandemic threatened the lives and livelihoods of millions of people, especially vulnerable communities, governments across the world responded in different ways to address extreme poverty. One was through implementing targeted social safety net systems in the fight against poverty, food insecurity, and malnutrition. According to [Gentilini \(2020\)](#), 190 countries have implemented 900 social protection programs, often in the form of cash transfers. Beneficiaries have expanded by 15 percent in South Asia, East Asia, and the Pacific, but only by two percent in the African region. Some countries have also increased the cash transfer amount for current beneficiaries. Aside from the expanded coverage and increased benefits, safety net programs have made cash transfers simpler and more user-friendly. Some examples include flexibility in the time of cash aid collection as seen in Algeria and home delivery of cash aid for seniors in Armenia. As of 2020, these adaptations in social safety net systems worldwide have benefited over 1.7 billion individuals.

In high-income countries like the US, findings showed a significant positive association between social safety net programs and food sufficiency levels. Households being food sufficient is significantly higher among recipients of the supplementary nutritional assistance programs (SNAP), unemployment insurance, and charitable food assistance compared to nonrecipients ([Ogundari et.al 2022](#)). This can be attributed to the country's ability to increase benefit amounts, extend the duration, and expand the eligibility of social safety nets to some previously ineligible workers. Under SNAP, all recipients were allowed to receive the maximum benefit amount for their household size. On the other hand, the American Rescue Plan Act, a federal benefit for families with children, temporarily expanded the Child Tax Credit to include lower-income and unemployed parents with the benefit size also increased. Those who became ineligible for the earned income tax credit because they were unable to work in 2020 were allowed to claim the benefit using their 2019

income, and workers without custodial children became eligible for a larger credit ([Hamad et.al 2022](#)).

[Dasgupta and Robinson \(2021\)](#) conducted a multicountry study on the social dimensions of food insecurity during the COVID-19 pandemic across nine African countries (i.e., Chad, Djibouti, Ethiopia, Kenya, Malawi, Mali, Nigeria, South Africa, and Uganda). Results revealed that neither cash nor food safety net programs were consistently effective in reducing the probability of food insecurity in the African countries studied. However, the findings also suggested that cash transfers have helped to lessen the probability of households skipping a meal and going hungry in Djibouti, going without food for a whole day, and running out of food in Nigeria. Considerably, the rollout of cash aid in these two countries appeared to be fast, where at least 20 percent of households in each country had been recipients of at least one government social safety net program during the survey. The same findings are noted in the study on social safety nets' function to alleviate food insecurity and poverty in African countries. In the same context, the study by [Bahru et al. \(2020\)](#) revealed that Ethiopia's Productive Safety Net Program, which is one of the largest social protection schemes in Sub-Saharan Africa, has not improved household food insecurity and child undernutrition. This shows that safety net programs alone are ineffective and that it is necessary to invest in sustainable and inclusive food systems interventions that will withstand shocks, such as the COVID-19 pandemic, to holistically achieve food security ([Picchioni, Goulao, and Roberfroid 2022](#)).

In Bangladesh, however, cash assistance had more impact. The World Bank review showed that social safety nets, regardless of whether the transfer was in cash or in kind, are seen to be effective in improving food security ([Gentilini 2015](#)).

In India, the existing Public Distribution System, which legally entitles up to 75 percent of the rural population and 50 percent of the urban population to receive subsidized food grains, was found effective in providing a safety net for the poor during the COVID-19 pandemic.

Another safety net that played a vital role in rural areas during the pandemic was the Mahatma Gandhi National Rural Employment Guarantee Programme (i.e., MGNREGA). It provides at least 100 days of wage employment in a financial year to every rural household whose adult member volunteers to do unskilled manual work. India's priority of implementing safety nets in the rural areas confirmed better social protection system functions during the pandemic in rural than in urban areas (Kapoor 2022).

The effect of the COVID-19 pandemic being widely different within countries requires implementing safety net programs that are context-specific and tailored to the needs of the country's most vulnerable population.

Food insecurity persists even without the pandemic, and it is particularly important to investigate how a crisis such as COVID-19 can further exacerbate food insecurity, especially among the vulnerable segments of the population. This paper gives an important opportunity to assess the role of timely delivery of SAP benefits by investigating the welfare of 4Ps and non4Ps households in the Philippines.

METHODOLOGY

This cross-sectional study was conducted jointly with the Expanded National Nutrition Survey (ENNS) of the Food and Nutrition Research Institute of the Department of Science and Technology (DOST-FNRI). It adopted the ENNS two-stage cluster sampling from the Philippine Statistical Authority (PSA) using the 2013 master sample.

The first stage of the sampling was identifying the primary sampling units (PSU), which is an exhaustive and nonoverlapping area segment with about 100–400 households. The PSU can be a barangay or enumeration area (EA), a portion of a large barangay, or two or more adjacent small barangays or EAs. The second stage was selecting the households as the final sampling unit from the 16 replicates of the new PSA master sample (DOST-FNRI 2020).

The study was conducted in Cavite due to its inherent characteristics suited for identifying the effect of COVID-19 mobility restrictions on households living in a mix of ecological and sociodemographic characteristics and their food environment. Cavite is a peri-urban province next to Metro Manila, which gives the province a significant edge in terms of economic development. However, being adjacent to Metro Manila, which is the country's epicenter of the pandemic, also made Cavite highly vulnerable to COVID-19 cases and its corresponding negative impact on the economy.

Data for this study was gathered on 3–31 August 2021, which was still during the pandemic. This then necessitated the enumerators to observe pandemic protocols, particularly on physical distancing.² A total of 52 field researchers, mostly nutritionist-dietitians and nurses, were virtually oriented on the study and the details of the administration of the household questionnaire. The FNRI Institutional Review Committee (FIERC) granted the study team ethical clearance on 27 April 2021 as part of the ENNS (FIERC-2017-007) and as a separate study from the ENNS (FIERC-2021-009) on 17 August 2021.³

2 DOST-FNRI sought permission and endorsement from the DOST secretary to collect data from Cavite; it also sought clearance from the Interagency Task Force for the Management of Emerging Infectious Diseases before field researchers were deployed for data collection.

3 The risk and potential benefits of the intervention, confidentiality of data, withdrawal at any time of the study, and persons and contact details for additional information and concerns were all indicated in the informed consent form (ICF). The study was explained to all the respondents while emphasizing that their participation was purely voluntary; they may refuse to participate at any time they wish. Each respondent was given enough time to review the ICF before they were requested to sign and proceed with the interview. In all the interviews with the different respondents, the enumerators explained the study and its objectives, followed by written and verbal consent before the data collection. Through the ENNS, each household survey respondent received a monetary incentive through online modes of money transfer, which ranged from PHP 500 to PHP 2,000 (USD 10–40) depending on the number of household participants.

The household meal planner was chosen as a respondent and was asked about the household's sociodemographic and economic situation, participation in government safety net programs, and how they were economically affected by the pandemic. Food security during the pandemic in 2021 and before the onset of the pandemic in 2019 was determined using the experience-based food security tool developed by the Voice of the Hungry Project of the Food and Agriculture Organization (FAO 2024). This was adopted as the Food Insecurity Experience Scale (FIES). The instrument consists of a set of eight short yes/no questions that were asked directly to household respondents. The questions focus on self-reported food-related behaviors and on experiences associated with increasing difficulties in accessing food due to resource constraints. The instrument is based on a well-grounded construct of the experience of food insecurity by the three domains: uncertainty/anxiety, changes in food quality, and changes in food quantity.

Using FIES can make the data comparable with the global studies on food and nutrition-security-related programs and monitoring Sustainable Development Goal no. 2 and the Zero Hunger Initiative implementation in the province (FAO 2024).

The same households were asked about their food security situation during the two-time periods using the same set of questionnaires, i.e., before the pandemic, representing the year 2019, and at the time of the survey represented by year 2021 using FIES tool, with a reference recall period of 12 months before the survey reference year. On the other hand, the safety net programs received included the following:

1. *4Ps*. Whether respondents are current 4Ps beneficiaries and if they received additional SAP assistance during the pandemic;
2. *SAP*. Whether respondents received SAP from the national government and from their LGUs, the number of times SAP was received, and the total amount received;
3. *Food aid*. Whether households received food packs at the time of the survey and the food items in the food packs received; and
4. *Community pantry*. Although provided by community organizations on a volunteer basis, household respondents were asked whether they obtained food from the community pantries and the number of times pantries were availed.

In addition to food security and safety nets received, the sociodemographic characteristics of the household, household head, and meal planner were also determined to provide a contextual background of the household profile of beneficiaries of safety net programs during the COVID-19 pandemic.

Out of the 1,495 eligible households, 1,050 households were interviewed. The data encoding frame was prepared and encoded using Microsoft Excel and then converted to a Stata file. Data cleaning and validation were also done to check for completeness and data consistency. Entries with inconsistent or incomplete information were verified with the paper questionnaires before data analysis. Descriptive analysis using frequencies and means was used to describe the household sociodemographics, economic, and environmental characteristics, and the chi-square test to determine the significance of the association between the dependent and independent variables, respectively. Analyses were done using Stata version 15.

The effect of the COVID-19 pandemic includes the food security status, which was done by creating food security categories that combined their food security status before and during the pandemic. Based on their food security in the two reference periods, the households were classified as follows:

1. *Food secure*, i.e., households were food secure before the pandemic in 2019 and at the time of the survey in 2021;
2. *Consistently food insecure* when households were identified as having a probability to be moderately or severely food insecure both in 2019 and 2021; and

3. *Newly food insecure* when households were identified as food secure in 2019 and became food insecure in 2021.

The household food security status was computed using the methodology employed by Angeles-Agdeppa et al. (2022), which used the estimated probabilities of each household to be moderately and severely food insecure from the Rasch model. The raw score of each household, which was a continuous variable, was converted into a discrete variable. This was done by assigning 1 if the probability is 0.5 or higher that the household is moderately and severely food insecure; otherwise, it is 0. The resulting dichotomous variable was used as the basis for identifying the food security status of the household in 2019 and 2021.

The analysis between household characteristics and food security status were compared using chi-square tests. The significance level for all analyses was set at $p < 0.05$. The participants with missing values for a sociodemographic and/or scale variable were excluded from the analysis that included that variable.

Sampling weights were employed to ensure that the study results were representative of the provincial population. The sampling weights were generated by the DOST-FNRI for the ENNS in Cavite, adjusted for nonresponse and the post-stratified was based on the population obtained from the PSA. The final survey weight is defined as the product of (1) base weights, (2) (unit) nonresponse adjustment, and (3) post-stratification adjustment. As a general principle, the survey weights were generated independently for each replicate. For replicate r , the base weights were defined as

$$w_{tijk} = \frac{M_{it}}{16} \times \frac{H_{tij}}{h_{tij}}$$

The nonresponse weight is the reciprocal of the weighted nonresponse rate for each adjustment cell (NR Adjustment Cell) in each replicate. In this case, the PSUs in a replicate belong to some

implicit stratum. Thus, it is necessary to combine PSUs with similar implicit strata characteristics for this purpose and to have a total sample size of about 30 to ensure rate stability. In provinces/domains with few numbers of sample PSU/replicate, the entire replicate can be considered as a single NR adjustment cell. Post-stratification adjustments were made such that the survey estimates would conform to well-known population age-sex distribution by province. The age groups that would be used depend on the number of details in provincial projections given and indicators to be measured (below 1, 1–4, 5–9, etc.).

RESULTS AND DISCUSSION

Profile of Study Participants: Household Head

By sex, there are more male household heads (67.8%) than female heads. About 48.4 percent of the household heads belong to the 41–59 age group; more than half are married (53.3%), about 20 percent have common-law relationships (living together unmarried) while the rest are either single, separated, or widowed. By education obtained, the majority is at least a high school graduate (44.8%). Most household heads have jobs or businesses (70.4%), and their occupations are a mix of skilled and unskilled; a larger proportion work as service workers and sales workers (23.7%); plant and machine operators, and assemblers (19.2%); and laborers and unskilled workers (16.8%). Only 3.5 percent of the respondents are composed of farmers, forestry workers, and fishers. More than half work away from home (57.5%) while about four percent work abroad at the time of the survey (Table 1).

Profile of Study Participants: Household Meal Planner

More females than males are regarded as meal planners (79.4%). Similar to the profile of the

Table 1. Sociodemographic characteristics of household head and meal planner: Cavite, Philippines, 2021

Characteristics	Household Head			Meal Planner		
	n	%	SE	n	%	SE
Sex						
Male	711	67.8	1.5	217	20.6	1.3
Female	339	32.2	1.5	833	79.4	1.3
Age						
<20–40	282	26.8	1.4	358	34.3	1.5
41–59	502	48.4	1.6	465	44.5	1.6
>60	266	24.8	1.4	227	21.2	1.3
Civil status						
Single	78	7.4	0.8	102	9.9	0.9
Married	553	53.3	1.6	537	51.7	1.6
Common-law/live-in	213	19.8	1.2	124	11.7	1.0
Widowed	143	13.6	1.1	58	5.5	0.7
Separated/divorced/annulled	63	6.0	0.7	229	21.2	1.3
Education completed						
At least elementary	208	19.3	1.2	181	17.0	1.2
At least in high school	474	44.8	1.6	514	48.5	1.6
At least vocational	99	9.7	0.9	78	7.4	0.8
At least college level	269	26.2	1.4	277	27.1	1.4
Work code						
Unemployed	233	22.0	1.3	494	47.5	1.6
Pensioner	79	7.6	0.8	54	5.1	0.7
With a job or business	738	70.4	1.4	502	47.4	1.6
Occupation						
Officials of government and special interest organizations, corporate executives, managers, managing proprietors, and supervisors	49	6.5	0.9	65	12.8	1.5
Professionals	41	5.7	0.9	35	7.4	1.2
Technicians and associate professionals	63	8.6	1.1	56	10.6	1.4
Clerical support workers	18	2.7	0.6	28	6.3	1.2
Service workers and shop and market sales workers	175	23.7	1.6	154	30.6	2.1
Farmers, forestry workers, and fisherman	29	3.5	0.6	8	1.5	0.5
Craft and related trades workers	99	13.3	1.3	48	9.6	1.3
Plant and machine operators and assemblers	137	19.2	1.5	32	6.4	1.1
Laborers and unskilled workers	127	16.8	1.4	76	14.9	1.6
Workplace						
At home	100	9.3	0.9	148	14.0	1.1
Work away from home	603	57.5	1.6	352	33.1	1.5
Abroad	35	3.6	0.6	2	0.2	0.2
NA (without work)	312	29.6	1.4	548	52.6	1.6

Note: SE = standard error

household head, a higher percentage of the meal planners belong to the 41–59 age group (44.5%); more than half are married; and about 21 percent are either separated, divorced, or annulled and 12 percent are living with a common-law partner. By education obtained, about half have at least

a high school education (48.5%) while in terms of employment, about half work as housekeepers, stay-at-home, and have no gainful occupation (47.5%). Among those employed, majority are service workers and sales workers (30.6%); followed by laborers and unskilled workers (14.9%);

while about one-third work as officials, executives, and supervisors; professionals; and technicians and assistant professionals. About one-third of them work away from home (Table 1).

Household Characteristics

By household membership, a slightly higher proportion of household respondents have less than five members compared with households with five or more members. About a quarter of households have children five years old and younger while those with children 6–12 years old are of higher proportion at 41.8 percent. Households with elderly members are at 32.4 percent. Most households owned their house and lot, and only about 15 percent are renting. Almost all households have access to electricity and have developed sources of water for drinking and cooking, including community water systems, piped deep wells, and bottled or mineral water. Liquefied petroleum gas (i.e., LPG) is the most common fuel source for cooking, but about 10 percent still use firewood and other fuel materials.

Internet access was vital during the COVID-19 pandemic, owing to the shift to online transactions and e-commerce. Findings show that over half of the households have internet access; among these households, about 65 percent have a more stable digital subscriber line (DSL) or broadband connection, 32 percent use mobile data connection, and about three percent rely on free internet or an internet café. Among the electronic gadgets used to connect to the internet, 94 percent of the households own smartphones while 37 percent own computers and/or laptops. Other communication appliances and gadgets owned are TV (87%), basic call and text mobile phones (29.3%), and landline phones (17.5%).

Ownership of vehicles during the pandemic was especially important because public transportation was limited at the time, especially during the enhanced quarantine periods. Data show that about one-third of the household respondents do not own any vehicle. Among those who own at least one vehicle, motorcycles, and tricycles are the most frequently owned, followed

Table 2. Sociodemographic characteristics of household: Cavite, Philippines, 2021

Characteristics	n	Proportion (%)	SE
No. of household members			
<5	579	55.6	1.6
≥5	471	44.4	1.6
Household member			
With children ≤5	270	25.7	1.4
With children 6–12	439	41.8	1.5
With older persons ≥60	340	32.4	1.5
Ownership of dwelling unit and dwelling lot			
Own	774	73.0	1.4
Rent	159	15.2	1.1
Free (with/without consent)	117	11.8	1.0
Electricity, water, fuel for cooking, and internet			
With electricity	1,043	99.3	0.3
With an improved source of drinking water	1,050	100.0	-
With an improved source of water for cooking	1,049	99.9	0.1
Fuel used for cooking			
LPG (liquefied petroleum gas)	942	90.1	0.9
Agricultural materials (wood, charcoal)	93	8.5	0.9

Continued on next page

Table 2 continued

Characteristics	n	Proportion (%)	SE
Gas/kerosene	9	0.8	0.3
Electricity	6	0.6	0.2
With internet connection	590	56.2	1.5
Type of internet connection			
DSL	381	64.9	2.0
Data	189	31.7	1.9
Internet cafe/free wifi	20	3.4	0.7
Ownership of gadgets and appliances			
Smartphone	1,050	94.1	0.7
Television	1,050	87.0	1.1
Computer/laptop	1,050	37.2	1.5
Basic cell phone (call and text)	1,050	29.3	1.4
Telephone (landline)	1,050	17.5	1.2
Ownership of vehicles			
No vehicle	339	32.0	1.5
With at least 1 vehicle	711	68.0	1.5
Type of vehicle owned			
Motorcycle/tricycle	1,050	45.4	1.6
Bicycle/ <i>tristikad</i> (bicycle with sidecar)	1,050	34.1	1.5
Car/van	1,050	12.0	1.0
Kitchen appliances			
Electric/gas stove	1,046	86.8	1.1
Refrigerator/freezer	1,046	60.4	1.5
Electric kettle	1,046	15.9	1.2
Household income before the pandemic (in PHP)			
< 9,999 (USD 183)	508	47.6	1.6
10,000–24,999 (USD 184–459)	309	30.3	1.5
25,000–49,999 (USD 460–919)	184	17.7	1.2
50,000–74,999 (USD 920–1,378)	28	2.5	0.5
75,000–99,000 (USD 1,379–1,819)	13	1.2	0.4
≥100,000 (USD 1,820)	6	0.7	0.3
HH income during ECQ (in PHP)			
< 9,999 (USD 183)	746	70.6	1.4
10,000–24,999 (USD 184–459)	182	18.1	1.2
25,000–49,999 (USD 460–919)	97	9.2	0.9
50,000–74,999 (USD 920–1,378)	12	1.1	0.3
75,000–99,000 (USD 1,379–1,819)	7	0.7	0.3
≥100,000 (USD 1820)	3	0.3	0.2
HH income during GCQ (in PHP)			
<PHP 9,999 (USD 183)	688	65.2	1.5
10,000–24,999 (USD 184–459)	223	21.8	1.3
25,000–49,999 (USD 460–919)	110	10.6	1.0
50,000 – 74,999 (USD 920–1,378)	15	1.3	0.4

Continued on next page

Table 2 continued

Characteristics	n	Proportion (%)	SE
75,000–99,000 (USD 1379–1819)	8	0.8	0.3
≥100,000 (USD 1820)	3	0.3	0.2
Perceived effect on income during ECQ			
Same or more income	168	16.4	1.2
Less income	877	83.6	1.2
Perceived effect on income GCQ			
Same or more income	267	25.6	1.4
Less income	778	74.4	1.4
Urbanity, district, income class, and landscape location of HH residence (urban vs rural)			
Rural	336	29.9	1.4
Urban	714	70.1	1.4
Lone vs not lone district			
Not lone district	573	52.4	1.6
Lone district	477	47.6	1.6
District number			
District 1 (Cavite City, Kawit, Noveleta, Rosario)	184	16.3	1.1
District 2 (Bacoor City)	97	8.7	0.9
District 3 (Imus City)	116	11.5	1.0
District 4 (Dasmariñas City)	153	15.6	1.2
District 5 (Carmona, GMA, Silang)	114	10.0	0.9
District 6 (General Trias)	111	11.8	1.1
District 7 (Indang, Tanza, Trece Martires)	175	16.9	1.2
District 8 (Alfonso, Mendez, Maragondon, Naic, Tagaytay City)	100	9.1	0.9
District 6 (General Trias)	111	11.8	1.1
District 7 (Indang, Tanza, Trece Martires)	175	16.9	1.2
District 8 (Alfonso, Mendez, Maragondon, Naic, Tagaytay City)	100	9.1	0.9
Income classification			
1st class	694	66.5	1.5
2nd class	7	0.6	0.2
3rd class	174	16.0	1.1
4th class	175	16.9	1.2
Landscape			
Mountainous	89	7.9	0.8
Plain/lowland	848	82.4	1.2
Coastal	113	9.6	0.9

Notes:

DSL = digital subscriber line

ECQ = enhanced community quarantine

GCQ = general community quarantine

GMA = greater Manila area

HH = household

Table 3. Social safety net programs availed by the household during the pandemic: Cavite, Philippines, 2021

Characteristics	n	Proportion (%)	SE
Availed/beneficiary of safety net programs			
Current beneficiary of 4Ps	1,047	7.7	0.8
No. of years as a member of 4Ps			
1–3 years	4	5.9	2.9
4–6 years	8	12.1	4.1
≥7 years	50	82.1	4.8
Received monthly 4Ps assistance			
Amount of monthly assistance received from 4Ps			
<3,000 (<USD 59)	47	76.3	5.5
≥3,000 (≥USD 59)	15	23.7	5.5
Received additional cash benefits during the pandemic	64	32.8	6.0
Recipient of SAP	1,048	64.1	1.5
Source of SAP			
National government/DSWD	673	72.2	1.8
LGU	673	29.7	1.8
No. of times SAP was received			
Once	232	35.1	1.9
Twice	336	49.3	2.0
Thrice	105	15.6	1.4
Dates when SAP was received			
March to June 2020 (1st wave ECQ)	673	57.5	1.9
August 2020 (2nd wave ECQ)	673	13.0	1.3
March to April 2021 (3rd wave ECQ)	673	23.0	1.7
August to October 2021 (4th wave MECQ)	673	0.8	0.4
Total amount of SAP received			
1,000–4,000 (<USD 20–78)	111	17.4	1.5
4,001–10,000 (USD 78–184)	155	23.0	1.7
10,001–15,000 (USD 184–276)	297	44.2	2.0
>15,000 (>USD 276)	103	15.4	1.4
Usage of the SAP			
Food	673	89.8	1.2
Nonfood needs	673	22.0	1.6
Pay bills/credit	673	0.6	0.3
Others (e.g. for business, to help family, etc.)	673	4.0	0.8
HH who received food packs			
No. of times food packs were received			
Once	120	12.5	1.1
2–5 times	763	77.8	1.4
6–10 times	99	9.6	0.9
Dates when food packs were received			
March to June 2020 (1st wave ECQ)	982	87.2	1.1
August 2020 (2nd wave ECQ)	982	18.3	1.2
March to April 2021 (3rd wave ECQ)	982	10.5	1.0
August to October 2021 (4th wave MECQ)	982	3.3	0.6
Usual food items received from food packs			
Rice	982	99.1	0.3
Instant noodles	982	91.4	0.9
Canned goods	982	91.7	0.9

Continued on next page

Table 3 continued

Characteristics	n	Proportion (%)	SE
Coffee and the like	982	51.9	1.6
Milk and dairy	982	30.9	1.5
Sugar	982	27.0	1.4
Fresh poultry, fish	982	6.1	0.8
Beans and legumes	982	1.6	0.4
Eggs	982	20.1	1.3
Fresh vegetables	982	11.2	1.0
Cooking oil	982	8.4	0.9
Frozen meat and cold cuts	982	18.3	1.3
Fresh fruits	982	2.5	0.5
HH who obtained food from CP	1,048	18.5	1.2
No. of times food was obtained from CP			
Once	134	66.3	3.4
Twice	51	24.9	3.1
≥Thrice	18	8.8	2.0
Foods obtained from CP			
Rice	203	65.7	3.4
Fresh vegetables	203	63.2	3.5
Canned goods	203	41.2	3.5
Instant noodles	203	40.7	3.5
Fresh fruits	203	19.9	2.9
HH who obtained food from CP	1,048	18.5	1.2

Notes: 4Ps = Pantawid Pamilyang Pilipino Program

CP = community pantry

DSWD = Department of Social Welfare and Development

LGU = local government unit

MECQ = Modified Enhanced Community Quarantine

SAP = Social Amelioration Program

by bicycles. Households with a car or van are 12 percent of the total household respondents. Note that about 60 percent of the households own a refrigerator, which is necessary for storing highly perishable foods to minimize frequent trips to the market. Electric kettles, blenders, microwave ovens, and ovens are some of the kitchen appliances owned by the households.

Households were asked about their income before and during the pandemic. Survey results show that in 2019, 47.6 percent of the households belonged to the lowest income group with less than PHP 10,000 (USD 184) monthly income; this proportion increased to 70.6 percent during the ECQ. Households with incomes between

PHP 10,000 and 24,999 (USD 184–456), which was about 30 percent before the pandemic, also declined to 18.1 percent during ECQ. This gradually increased as the quarantine restrictions loosened but remained lower than the prepandemic level. When asked to describe the effect of the quarantine restrictions on their income before the pandemic and during the enhanced and general quarantine, about 84 percent of the households cited a decline in income during the enhanced quarantine and 74.4 percent during the general quarantine than the prepandemic level.

A slightly higher percentage of households are not from lone districts (52.4% vs. 47.6%). By income classification, about two-thirds of the

households live in a city or municipality with the 1st income classification, while a nearly equal percentage at 16 percent and 17 percent belong to the 3rd and 4th income classifications, respectively. Only a small percentage belong to the 2nd class, whereas none of the households belong to the lowest classification of 5th and 6th classes. By ecological landscape, most households live in plain or lowland areas (82.4%); a smaller percentage live in mountainous and coastal areas (7.9% and 9.6%, respectively) (Table 2).

Social Safety Net Programs Received

At the time of the survey, less than 10 percent of households were 4Ps beneficiaries. Out of these households, the majority were members of the 4Ps for seven years or longer (Table 3). Households cited that they received their regular assistance even during the pandemic. Most (76.3%) of them received less than PHP 3,000 (USD 59) per month. About one-third of the beneficiaries said that they also received additional cash during the pandemic on top of their regular cash benefit as 4Ps beneficiaries.

During the enhanced quarantine restrictions, 64.1 percent of households received SAP. Further, most households said that they received their SAP (72%) from the national government through the DSWD, and about 30 percent had been from their LGUs. Among those who received SAP during the pandemic, more households received their SAP once (35%) and twice (49.3%), while 15.6 percent received it thrice. Most households (57.5%) received SAP during the first wave of ECQ in the province between March and June 2020, then on the third wave of ECQ in March–April 2021 (23%) while some (13%) also received SAP in August 2020 as an extension of the first SAP among waitlisted beneficiaries. The amount received ranged from PHP 10,001 to PHP 15,000 (USD 184–276) (44.2%) and more than PHP 15,000 (USD 276) (15.4%). Most households used SAP to buy food (89.8%) and other nonfood needs (22.0%). Others used SAP as start-up capital for their business, to help their families in the province (4%), and to pay their bills or debt (0.6%).

Another safety net program to help alleviate food insecurity among households was the provision of food assistance. Most of the food assistance was received during the first wave of ECQ between March and June 2020 (87.2%); this proportion decreased in the succeeding ECQ restrictions. Most households received two to five food packs (77.8%), whereas about an equal proportion received it only once (12.5%), and from six to 10 times (9.6%). The top three food items in the food packs were rice (99.1%), canned goods (91.7%), and instant noodles (91.4%). The content of food packs was mainly decided based on the meetings held with the mayors and department heads and based on the available budget of the LGUs. Interviews with barangay heads noted rice and canned foods as the preferred food because these were easier to cook and distribute. Only about 11 percent received fresh vegetables and a much lower proportion received fresh fruits (2.5%).

Barangay representatives reasoned the following for the nonprovision of fresh fruits and vegetables:

1. “*Madaling mabulok ang gulay at prutas at kulang sa budget*” (vegetables and fruits rot easily and funding is sparse);
2. “*Hindi kayang i-maintain ang freshness ng gulay at prutas*” (it is hard to keep vegetables and fruits fresh); and
3. “*Kulang sa budget at walang paglalagyan*” (it is beyond the budget and there’s no storage space).

Thus, the main reasons were limited budget and concerns regarding spoilage, logistics, and distribution. However, fresh sources of protein-rich foods, such as eggs (20.1%), fish and poultry (6.1%), and beans and legumes (1.6%) were also included in the food packs.

Table 4. Proportion of households by food security and social safety net programs received, Cavite, Philippines, 2021

Characteristics	Food Security Status									<i>p-value</i>
	Food Secure			Consistently Food Insecure			Newly Food Insecure			
	n	%	SE	n	%	SE	n	%	SE	
Beneficiary of 4Ps										
Not a beneficiary	701	73.1	1.5	176	18.0	1.3	85	8.9	0.9	0.0000
Beneficiary	41	48.1	5.5	32	38.9	5.4	12	13.0	3.6	
Beneficiary of SAP										
Not a beneficiary	286	76.3	2.2	59	15.9	1.9	30	7.8	1.4	0.0183
Beneficiary	454	67.9	1.8	151	21.9	1.6	68	10.2	1.2	
No. of times SAP was received										
Once	167	72.6	3.0	42	17.3	2.2	68	11.3	2.0	0.256
Twice	221	66.4	2.6	80	23.5	4.7	68	7.9	1.7	
Thrice	66	62.4	4.9	29	27.5	3.6	68	7.0	3.1	
Dates when SAP was received										
March to June 2020 (1st wave ECQ)	454	65.1	2.4	151	23.7	2.4	68	11.3	1.6	0.1881
August 2020 (2nd wave ECQ)	454	67.0	5.1	151	25.0	2.5	68	7.9	2.9	0.6315
March to April 2021 (3rd wave ECQ)	454	68.2	3.8	151	24.8	4.6	68	7.0	2.1	0.2726
Total amount of SAP received										
1,000–10,000	192	72.6	2.8	49	17.8	2.4	25	9.6	1.9	0.0468
10,001–15,000	189	64.1	2.8	72	23.7	2.5	36	12.2	1.9	
>15,000	67	65.4	4.8	30	29.1	4.6	6	5.5	2.2	
HH who received food packs										
Not a beneficiary	55	84.1	4.7	8	12.7	4.3	2	3.2	2.2	0.0527
Beneficiary	684	70.0	1.5	202	20.31	1.3	96	9.7	1.0	
HH who obtained food from CP										
Not a beneficiary	628	74.5	1.5	145	17.0	1.3	72	8.4	1.0	0.0000
Beneficiary	112	55.0	3.6	65	31.8	3.3	26	13.2	2.5	
No. of times food was obtained from CP										
Once	76	56.0	4.4	46	33.9	4.2	12	10.0	2.8	0.2241
Twice	25	49.6	7.1	14	27.5	6.4	12	22.9	5.9	
≥Thrice	11	62.5	11.6	5	27.3	10.8	2	10.1	6.9	

Association of Safety Net Programs and Food Security

The effect of social safety net programs received by the households, particularly during the pandemic, and their association with household food security status was also determined (Table 4). Findings show that 4Ps ($p < 0.001$) and SAP ($p < 0.05$) beneficiaries, as well as the amount of SAP received ($p < 0.05$), are significantly associated with food security status. However, the variables on the number of times SAP was received and the date received were not significant. Similarly, households who obtained food in the community pantry ($p < 0.001$) voluntarily are associated with

food security status, but not the number of times food was obtained in the community pantry.

The profile of households, including the household heads and meal planners, reveals that they are at risk of food insecurity even before the pandemic, and this was further aggravated during the pandemic due to the implementation of community quarantines. Although the majority of households were gainfully employed during the pandemic, their low monthly aggregate income confirms that their sources of income are mostly from daily wages and unskilled work. Nearly half of the respondents had an income below PHP 9,999 (USD 184) before the pandemic. This amount was below the amount needed to meet

both the basic food and nonfood needs of a family of five in a month which is PHP 12,156 (USD 220) (Provincial Government of Cavite 2021). This means that about half of the population had living conditions that were not able to meet their basic food and nonfood needs before the pandemic. This proportion further increased during the two levels of quarantine where households cited that they had experienced less income during enhanced (83.6%) and general quarantine (74.4%).

Households who were recipients of 4Ps and SAP have a higher proportion of being consistently food insecure and newly food insecure. This implies that SAP has helped the households temporarily during the pandemic, but this was not enough to improve their food security status as they remained food insecure despite the safety nets received. The results are consistent with the findings of the Philippine Institute for Development Studies (Reyes 2022) that SAP helped families to cope with the effects of COVID-19 and smoothen their consumption but only as a temporary measure, especially during the initial stages of the national lockdown. In addition, SAP was given about only three times, whereas the pandemic happened almost two years at the time of the data collection. The recipients have a narrow age group, and the amount given was low and later fixed to PHP 1,000 (USD 20) per household member, but a maximum of only four members can avail regardless of the number of household members.

This amount is well below the cash aid given in neighboring countries. In Singapore, the government introduced a one-time cash transfer payout of USD 600 among residents aged 21 and above in 2020. Thailand allotted USD 4 billion as a safety net in 2020 to include cash aid for workers not covered by the Social Security Fund at USD 153 for each worker for three to six months (Gentilini et al. 2020). Also, the Thai social security agency has covered all the medical costs of those infected with COVID-19. In March 2020, Vietnam implemented an income support program worth USD 2.6 billion. Poor and near-poor household members received a monthly allowance of USD 10.5, while social protection beneficiaries and

national devotees received USD 21 per person monthly. Moreover, contractual employees who lost their jobs or who were on unpaid temporary leave were provided with VND 1.8 million (USD 78) per month; while uncontracted workers from the informal sector who lost their jobs received the full support of VND 1 million (USD 43) per month for a maximum of three months.

Likewise, the study shows that the households who availed of food in the community pantry are consistently and newly food insecure ($p < 0.001$). Those who fell in line were workers severely affected by the pandemic such as public utility drivers. In contrast, households who received food packs are not significantly associated with food security status ($p = 0.0527$). This may be because food pack beneficiaries were not targeted and were given to households regardless of economic status, but only during the first wave of enhanced quarantine.

The frequency and diversity of food aid needs to be improved and must be targeted only to households without economic access. Instead of food packs, another mode of food assistance delivery that LGUs could adopt is the distribution of vouchers or stamps to the targeted beneficiaries. Vouchers empower people to make food choices according to their needs and preferences. The LGU can pre-identify affordable yet healthy food options that can be claimed at partner local food outlets in the area. The date of validity of vouchers by area of location and the intended vulnerable groups could be pre-identified to ease distribution and prevent overcrowding. This will ease the logistics needed by the LGUs for the distribution and storage of food packs while households have the liberty to choose from the listed healthy food items based on their preferences and needs. In Singapore, supermarket vouchers worth USD 100 were distributed among lower-income households in 2020 (Gentilini et al. 2020) to complement the cash transfer.

The ongoing implementation of the DSWD flagship Food Stamp Program is a welcome development that answers some recommendations of this study. This program aims to provide food to the bottom one million food-poor households

through the electronic benefit transfer card that is loaded with a cash amount for purchasing a select list of commodities from registered food retailers.

CONCLUSION

The study assessed the impact of social safety net programs on the household food security beneficiaries in Cavite, Philippines. Findings show that 4Ps and SAP beneficiaries are associated with being consistently and newly food insecure. Although the community pantry is founded on volunteerism and not from the LGUs, households who obtained food from these pantries are also associated with food insecurity. On the other hand, households provided with food packs, which were given among households regardless of economic status, are not significantly associated with food insecurity.

The study affirms that households most vulnerable to food crises in the context of COVID-19 are those who are consistently food insecure and are already exposed to critical food and dietary deprivations before the onset of the pandemic. There is much to be done to improve the safety net programs in the county; one of which is to update the database of vulnerable and poor households that could be used whenever food shocks occur. Food aid needs to be improved in terms of the target beneficiaries, the diversity of food items provided, and the frequency and mode of delivery. In addition, safety net programs need to be combined with other nutrition-specific and nutrition-sensitive programs to gain the most benefits.

Policy Recommendations

The policy recommendations from this study are geared toward strengthening the services for vulnerable population groups, especially the indigents, to withstand short- and long-term food system disruptions and eventually build food-resilient households and communities. This is in line with the Philippines being highly vulnerable to natural hazards and the impact of altered climate

patterns. The Philippines has been ranked 17th among the countries in the world most affected by extreme weather events and consistently ranked 4th from 2000 to 2019 among the countries most affected by climate change in terms of damages and loss of lives (Eckstein, Künzel, and Schäfer 2021).

These recommendations identified for the national and local levels as food and nutrition security programs are intricately linked. The national level recommendations are at broader strokes whereas the local level is generally geared toward enacting local legislation that adopts the national policies tailored to the local context. The policy recommendations are also identified as either short-term food crises, such as floods, typhoons, and earthquakes, or as long-standing crises like the COVID-19 pandemic.

Update, expand, and link existing local and national databases/registries of individual beneficiaries and clients of the various safety net programs for efficiency of service delivery.

Databases and registries for various social safety net programs have already been established at the national and local levels, which could be tapped to reach vulnerable individuals and households. These should be updated and expanded to include listings of senior citizens, indigents in the locality, 4Ps beneficiaries, and even residents who are included in the LGU's ID system. Clients of medical assistance programs and other similar programs could also be included in a master database. This will help to eliminate the complex and tedious validation process of qualified beneficiaries during emergency, and for a swift, integrated, sustained, and location-specific delivery of interventions.

At the national level, LGUs should be allowed access to the database of the government's Philippine National ID System to build an updated and comprehensive registry of beneficiaries' different programs and vulnerable population groups. At the local level, LGUs should regularly update these registries across time and location such that LGUs can easily access them during emergencies and shocks in the food system.

Improve the diversity and frequency of delivery and beneficiary targeting of food assistance during short- and long-term food shocks.

This study likewise recommends improving the diversity of foods and increasing the frequency of giving food assistance during food disturbances. Toward this purpose, DSWD food packs—mostly composed of rice and canned goods—should be complemented with fresh and affordable food ingredients at the LGU level, depending on the severity and duration of the food disturbance or crisis.

LGUs could also partner with local farmers, fishers, and small food businesses to supply the needed food assistance during short- and long-term food shocks. This will help local food producers with their livelihood while providing households with the needed supply of healthy foods. Some food types that are not perishable and may last for one to two weeks may include root crops, legumes, squash, eggplant, string beans, and fruits such as bananas. Households can prepare these together with canned protein sources from the DSWD food packs.

During long-term food disturbance, such as that experienced during the COVID-19 pandemic, food assistance should be more targeted to the poorest households, those negatively affected by the loss of jobs and livelihood, and vulnerable individuals (i.e., children, pregnant and lactating women, senior citizens). They may be provided with weekly food assistance until their socioeconomic and food disturbance condition improves.

Establish community pantries or soup kitchen volunteers/groups in every village or barangay.

Soup kitchen volunteers or groups could also be organized in every village as they can be easily mobilized during short- or long-term food crises. In close coordination with the LGUs, volunteer groups could organize food drives in the spirit of volunteerism to spearhead the establishment of food pantries and soup kitchens for the most vulnerable households.

ACKNOWLEDGMENTS

The authors acknowledge the IFS-SEARCA Mentorship Program for Advanced Grants (i.e., International Foundation for Science and the Southeast Asian Regional Center for Graduate Study in Research and Development) for the technical and financial support and the DOST-FNRI for the assistance during data collection.”

REFERENCES

- ADB (Asian Development Bank) 2010. “Weaving Social Safety Nets.” *Pacific Studies Series*. Mandaluyong City, Philippines: ADB. <http://hdl.handle.net/11540/996>
- . 2020. “Food Security in Asia and the Pacific amid the COVID-19 Pandemic.” *ADB Briefs* 139, June 2020. Accessed 7 August 2020. <http://dx.doi.org/10.22617/BRF200176-2>
- Angeles-Agdeppa, I., C.A. Javier, C.A. Duante, and M.L.V. Maniego. 2022. “Impacts of COVID-19 Pandemic on Household Food Security and Access to Social Protection Programs in the Philippines: Findings from a Telephone Rapid Nutrition Assessment Survey.” *Food and Nutrition Bulletin* 43(2): 213–231. <https://doi.org/10.1177/037957212211078363>
- Bahru, B.A., M.G. Jebena, R. Birner, and M. Zeller. 2020. “Impact of Ethiopia’s Productive Safety Net Program on Household Food Security and Child Nutrition: A Marginal Structural Modeling Approach.” *SSM-Population Health* 12: 100660. <https://doi.org/10.1016/j.ssmph.2020.100660>
- Calder, P.C. 2020. “Nutrition, Immunity and COVID-19.” *BMJ Nutrition, Prevention & Health* 3(1):74–92. DOI:10.1136/bmjnph-2020-000085
- Ceballos F, M. Hernandez, and C. Paz. 2021. “Survey: Short-Term Impacts of COVID-19 in Rural Guatemala Call for a Closer, Continuous Look at the Food Security and Nutritional Patterns of Vulnerable Families.” *IFPRI (International Food Policy Research Institute) Blog: Research Post*, 13 May 2021. Accessed 30 June 2021. ifpri.org/blog/survey-short-term-impacts-covid-19-rural-guatemala-call-closer-continuous-look-food-security

- Cervantes, F.M. 2020. "Stringent Validation Causes Delay in SAP Distribution: DSWD." *Philippine News Agency*, 22 June 2020. Accessed 28 December 2022. <https://www.pna.gov.ph/articles/1106665>
- Cho, Y., J.E. Avalos, Y. Kawasoe, D. Johnson, and R.R. Rodriguez. 2021. "Mitigating the Impact of COVID-19 on the Welfare of Low Income Households in the Philippines: The Role of Social Protection (English)." *COVID-19 Low Income HOPE Survey*, Note No. 1 Washington, D.C.: World Bank Group. <http://documents.worldbank.org/curated/en/698921611118950758/Mitigating-the-Impact-of-COVID-19-on-the-Welfare-of-Low-Income-Households-in-the-Philippines-The-Role-of-Social-Protection>
- DA-RFO 4 (DA Regional Field Office No. 4). 2020. "The KADIWA on Wheels." *DA-RFO 4 CALABARZON* Accessed 12 December 2022. <https://calabarzon.da.gov.ph/the-kadiwa-on-wheels/>
- Dasgupta, S., and E.J.Z. Robinson. 2021. "Food Insecurity, Safety Nets, and Coping Strategies during the COVID-19 Pandemic: Multi-Country Evidence from Sub-Saharan Africa." *International Journal of Environmental Research and Public Health* 18(19): 9997. <https://doi.org/10.3390/ijerph18199997>
- DOH (Department of Health). 2020. "IATF Omnibus Guidelines in the Implementation of Community Quarantine." *IATF Resolutions*, 22 October 2020. Accessed 07 March 2022. <https://doh.gov.ph/COVID-19/IATF-Resolutions>
- DOST-FNRI (Department of Science and Technology-Food and Nutrition Research Institute). 2020. *Philippine Nutrition Facts and Figures: 2018 Expanded National Nutrition Survey (ENNS)*. Taguig City, Philippines: DOST-FNRI.
- DSWD (Department of Social Welfare and Development). 2020. "DSWD, LGUs to Provide Food, Non-food Aid to Families during Quarantine Period." Accessed 12 December 2022. <https://www.dswd.gov.ph/dswd-lgus-to-provide-food-non-food-aid-to-families-during-quarantine-period/>
- Eckstein, D., V. Künzel, and L. Schäfer. 2021. "Global Climate Risk Index 2021." *Germanwatch Briefing Paper*. Accessed 10 May 2022. https://www.germanwatch.org/sites/default/files/Global%20Climate%20Risk%20Index%202021_2.pdf
- FAO (Food and Agriculture Organization). 2024. "The Food Insecurity Experience Scale." *Voices of the Hungry*. <https://www.fao.org/in-action/voices-of-the-hungry/fies/en/>
- Gentilini, U. 2015. "Revisiting the 'Cash Versus Food' Debate: New Evidence for an Old Puzzle?" *The World Bank Research Observer* 31(1): 135–167. <https://doi.org/10.1093/wbro/lkv012>
- . 2020. "SP Links May 22 – Global Social Protection Covid-Response Paper v.10!" *The World of Social Protection*, 22 May 2020. Accessed 26 November 2022. <https://www.ugogentilini.net/?p=920>
- Gentilini, U., M. Almenfi, et al. 2020. "Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures." *Living Paper* version 10, 22 May 2020. Accessed 26 November 2022. https://www.ugogentilini.net/wp-content/uploads/2020/05/Country-SP-COVID-responses_May22.pdf
- Gonzales, C. 2021. "Featured: The Rise of Community Pantries Embodies the Filipinos' 'Bayanihan' Spirit." *adobomagazine*, 4 May 2021. <https://www.adobomagazine.com/featured/featured-the-rise-of-community-pantries-embodies-the-filipinos-bayanihan-spirit/>
- Gudmalin, C., L. Perante-Calina, J. Balbosa, J. Mangahas, and M.A. Samoza. 2021. "Protecting the Poor and Vulnerable Against the Pandemic." *Asian Development Bank Institute (ADBI) Development Case Study* No. 2021-3 (September). Accessed 25 March 2022. <https://www.adb.org/sites/default/files/publication/736446/adbi-cs2021-03.pdf>
- Hale, T., N. Angrist, R. Goldszmidt, et al. 2021. "A Global Panel Database of Pandemic Policies (Oxford COVID-19 Government Response Tracker)." *Nature Human Behaviour* 5: 529–538. <https://doi.org/10.1038/s41562-021-01079-8>
- Hamad, R., K. Ruffini, M. Bitler, and J. Currie. 2022. "Leveraging the Urgency of Economic Disparities Driven by the COVID-19 Pandemic to Strengthen the U.S. Safety Net." *NAM Perspectives: Commentary, National Academy of Medicine*, 7 February 2022. <https://doi.org/10.31478/202202a>
- Hapal, K. 2021. "The Philippines' COVID-19 Response: Securitising the Pandemic and Disciplining the Pasaway." *Journal of Current Southeast Asian Affairs* 40(2): 224–244. <https://doi.org/10.1177/1868103421994261>

- Jazul, N. 2021. "Simultaneous ECQ Aid Distribution in Metro Manila to Start Wednesday." *Manila Bulletin: News Metro*, 9 August 2021. Accessed 28 December 2022. <https://mb.com.ph/2021/08/09/simultaneous-ecq-aid-distribution-in-metro-manila-to-start-wednesday/>
- Kapoor, R. 2022. "Strengthening India's Social Protection Architecture for the Informal Sector: Lessons from the Covid-19 Crisis." *Japan Labor Issues* 6(40): 19-26.
- Kusuma, N. 2021. "Maginhawa Community Pantry in the Philippines: A New Hope." *Green network*, 3 August 2021. Accessed 12 December 2022. <https://greennetwork.asia/news/maginhawa-community-pantry-in-the-philippines-a-new-hope/>
- Limon, M.R. 2021. "Food Safety Practices of Food Handlers at Home Engaged in Online Food Businesses during COVID-19 Pandemic in the Philippines." *Current Research in Food Science* 4: 63–73. <https://doi.org/10.1016/j.crf.2021.01.001>
- Mednet. 2020. "DSWD Assures Resolution of SAP Distribution Issues." *The Mediator*, 6 March 2023 (updated). <https://www.mediatorsnetwork.com/post/dswd-assures-resolution-of-sap-distribution-issues>
- Ogundari, K., A. Aromolaran, and J.O. Akinwehinmi. 2022. "Social Safety Net Programs and Food Sufficiency during COVID-19 Pandemic in the USA." *International Journal of Development Issues* 21(2): 292–308. <https://doi.org/10.1108/IJDI-11-2021-0238>
- Picchioni, F., L.F. Goulao, and D. Roberfroid. 2022. "The Impact of COVID-19 on Diet Quality, Food Security and Nutrition in Low and Middle Income Countries: A Systematic Review of the Evidence." *Clinical Nutrition* 41(12): 2955–2964. <https://doi.org/10.1016/j.clnu.2021.08.015>
- Provincial Government of Cavite. 2021. *Cavite Ecological Profile 2020*. Accessed 05 December 2021. <https://cavite.gov.ph/home/cavite-ecological-profile-2020/>
- Reyes, C.M. (ed). 2022. *The Philippines' Response to the COVID-19 Pandemic: Learning from Experience and Emerging Stronger to Future Shocks*. Quezon City: Philippine Institute for Development Studies. Accessed 10 May 2022. <https://www.pids.gov.ph/publication/books/the-philippines-response-to-the-covid-19-pandemic-learning-from-experience-and-emerging-stronger-to-future-shocks>
- Sandigan News. 2020. "Major Delays in SAP Distribution Caused by 'Stringent' Validation Process by LGUs, DSWD Says." 2 July 2020. Accessed from: <https://www.sandigannews.com/2020/07/02/major-delays-in-sap-distribution-caused-by-stringent-validation-process-by-lgus-dswd-says/>
- Watson, F. 2020. "What are We Going to Eat Today? The Impact of COVID-19 on Children's Diets." *UNICEF East Asia and Pacific*, 16 December 2020. Accessed 10 May 2022. <https://www.unicef.org/eap/stories/what-are-we-going-eat-today>
- WHO (World Health Organization). 2020a. "WHO Director-General's Opening Remarks at the Media Briefing on COVID-19." *WHO Director General: Speeches*, 11 March 2020. Accessed 30 June 2020. <https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020>
- . 2020b. "Coronavirus Disease (COVID-19): Food Businesses." *Newsroom: Questions and answers*, 15 May 2020. Accessed 30 June 2020. <https://www.who.int/news-room/questions-and-answers/item/coronavirus-disease-covid-19-food-businesses#:~:text=Food%20businesses%20need%20to%20ensure,should%20not%20replace%20hand%20washing>
- Workie, E., J. Mackolil, J. Nyika, and S. Ramadas. 2020. "Deciphering the Impact of COVID-19 Pandemic on Food Security, Agriculture, and Livelihoods: A Review of the Evidence from Developing Countries." *Current Research in Environmental Sustainability* 2: 100014. <https://doi.org/10.1016/j.crsust.2020.100014>
- World Bank. 2018. "Social Safety Nets Can Improve the Poor's Resilience to Shocks." *Press Release*, 23 November 2018. <https://www.worldbank.org/en/news/press-release/2018/11/23/social-safety-nets-can-improve-the-poor-s-resilience-to-shocks>