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National Health Insurance Program financing during the COVID-19 pandemic: financial viability and the burden of paying for NHIP benefits

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This paper examines the state of National Health Insurance Program (NHIP) financing during the COVID-19 pandemic in the Philippines, an event which coincides with the implementation of the Universal Health Care (UHC) mandates on restructuring the NHIP premium schedule, providing immediate eligibility to NHIP benefits, and expanding member benefits. Using the ratio of total expenditures to total revenues as the measure of financial viability, it shows that the NHIP remains financially viable during the COVID-19 pandemic year of 2020. Projections for 2021 however show that NHIP financial viability may be adversely affected by the significantly higher number of COVID-19 cases with the negative effect mitigated only if COVID-19 benefit claim patterns remain as weak as observed for 2020. On the revenue side, the potential for a lower premium is observed to be offset by the higher rates in the UHC mandated premium schedule. On the expenditure side, potential increases associated with the implementation of immediate eligibility and the introduction of COVID-19 benefits are mitigated by lower NHIP benefit utilization due to reduced mobility and access to health facilities. Secondary analysis on who has to bear the burden of paying for NHIP benefits, however, shows that the implementation of UHC financing initiatives may heighten adverse incentives on members' willingness to pay premiums. Using the benefit expenditure-premium contribution ratio as the measure for the burden of paying for NHIP benefits, it is shown that the Formal Economy sector shoulders the burden of funding the NHIP benefits of the Informal Economy and Sponsored sectors.

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1. Introduction

The National Health Insurance Program (NHIP) which is managed by the Philippine Health Insurance Corporation (PhilHealth), a government corporation attached to the Department of Health (DOH), provides social health insurance to Filipinos[1]. Recognizing the key role of the NHIP in the health care financing sector, the Universal Health Care (UHC) Act identifies three NHIP financing initiatives for implementation in 2020[2], namely: (a) the restructuring of the premium schedule, (b) the provision of immediate eligibility to all Filipinos[3], and (c) the expansion of member benefits[4]. The first initiative (a) is expected to increase premium contribution revenues as the revised premium schedule mandated increases in both the premium rates and the applicable reference income cap. Unlike (a), the second initiative (b) is anticipated to increase both premium contribution revenues as well as benefit payment expenditures due to enrolment and benefit utilization increases. Lastly, the third initiative (c) is expected to increase benefit payment expenditures with the introduction of new benefits.

The role of financing in health care reforms and the introduction of measures to ensure the financial sustainability of social insurance programs are well documented in other countries' experiences such as Egypt [Nandakumar et al. 1999], Croatia [Vončina et al. 2012], Korea [Kang et al. 2012], Ghana [Wang et al. 2017], and Indonesia [Prabhakaran et al. 2019]. Moreover, financial viability reviews such as that by Okungu et al. [2017] have examined the feasibility of financing mechanisms in the implementation of UHC by modelling contributory arrangements, revenue flows, and expenditures.

Unfortunately, 2020 also marked the onset of the COVID-19 pandemic in the Philippines. In mid-March the Philippine government imposed mobility restrictions and isolation measures, collectively referred to as community quarantine, which reduced economic activity and prospectively limited both premium contribution collections and the utilization of NHIP benefits. According to the Department of Labor and Employment, about 1.19 million workers were displaced from work in April 2020 by COVID-19. The use of health care services was also adversely affected, with the Philippine Hospital Association reporting both a stark decrease in bed occupancy and a significant decline in outpatient census compared to 2019 [Almora 2020]. As of May 2021, the country continues to impose mobility restrictions as the pandemic continued.

[1] 2017 National Demographic and Health Survey Final Report, Philippine Statistical Authority.

[2] The implementing rules and regulations of the Universal Health Care Act took effect on October 2019.

[3] Based on PhilHealth circular no. 2019-0010, immediate eligibility shall apply to all services provided in PhilHealth accredited or contracted public facilities and in basic accommodations in PhilHealth accredited or contracted private health care institutions.

[4] Implementing Rules and Regulations of the Universal Health Care Act (RA 11223) Section 8 Program Membership.

Although the pandemic experience is quite recent, a number of studies have examined the COVID-19 pandemic implications on many financing landscapes, including that for health. The World Bank [2020] projects a deep global economic contraction as a result of the COVID-19 pandemic. Fiscal sustainability challenges are anticipated for countries with contributory social health insurance schemes given the detrimental effects of the pandemic on labor market conditions. With the anticipated increase in unemployment and poverty, the World Bank estimates US$70 million in potential additional spending in the Philippines to cover the contributions lost due to unemployment as well as subsidies for those who are impoverished due to the pandemic. On one hand, in terms of health spending, the World Health Organization [2020] cites lower health spending for routine health services in some countries despite health budget increases. On the other hand, a technical note by Sugimoto and Windsor [2020] discusses expected increases in COVID-19 related claims concurrent with a deferral of non-urgent health care, while the effect of the pandemic on premium collections remains unclear. The decrease in non-COVID claims in the Philippines was noted in the study of Ulep et al. [2021] which observed a large decline in medical claims in 2020. This decline is presumed to be caused by mobility restrictions, fear of contracting COVID-19, decline in income, and the reduction or closure of other non-essential medical services in facilities.

The analysis of COVID-19 pandemic shocks from these earlier studies indicates three key revenue and expenditure effects, namely: (a) the reduction in premium revenues due to lower capacity to pay on the part of members, employers, sponsors, and government; (b) the reduction in benefit expenditures due to restricted access and treatment-seeking behavior; and (c) the increase in benefit expenditures due to NHIP benefits financing the utilization of COVID-19 care.

The coincidence of the COVID-19 pandemic and the implementation of UHC financing initiatives confounds the potential determination of changes in premium revenues and benefit expenditures attributable to these two events. For example, the increase in premium collections due to the higher premium rates may be offset by reduced premium collections due to lower capacity to pay on the part of workers. Accordingly, it will be difficult to disentangle the marginal effects of the pandemic and UHC implementation. Without micro-level individual data on the utilization and financing of health services, it would be impossible to employ multivariate statistical methods that facilitate the disentangling of pandemic and UHC implementation effects. Thus, a limitation of the study is that the analysis will not be able to decompose the combined revenue and expenditure effects associated with the onset of the pandemic and UHC implementation, with the exception of added expenditures due to COVID-19 benefit packages. As such, the paper presents the state of NHIP revenue and expenditure streams during the COVID-19 pandemic as UHC initiatives are being implemented, rather than identify specific pandemic and UHC implementation effects.

The paper examines the NHIP revenue and expenditure streams through an accounting framework that defines financial viability in terms of changes to its reserve fund. These additions or subtractions to the reserve fund constitute the net difference between revenues and expenditures which to a large extent accrue from premium contributions and benefit payments to Direct Contributors – Formal and Informal Economy member sectors – and Indirect Contributors – Indigent, Senior Citizen and Sponsored member sectors - as well as Lifetime Members sector.

Rather than describe the effect of UHC financial initiatives and the onset of the COVID-19 pandemic on the state of NHIP finances in terms of revenues and expenditures, the paper examines effects in terms of the financial viability of the NHIP and the financial burden of paying for NHIP benefits. Accordingly, financial viability is measured as the total expenditures-total revenues ratio. This ratio describes the relative difference between total expenditures and total revenues, with indications of financial viability being adversely affected when total expenditures exceed total revenues. On the other hand, the financial burden of paying for NHIP benefits is measured through two indicators. These are the benefit payment-premium contribution ratio and the lifetime member equity. The benefit payment-premium contribution ratio represents the relative difference between the value of benefits received and the amount of premium paid by member sector, i.e., whether a member sector is a net recipient or payer of NHIP benefits. The lifetime member equity on the other hand reflects the pension fund character of the UHC which distinguishes it from the typical pay-as-you-go health insurance scheme where membership is applied on a per-year basis contingent on whether the member or a third-party sponsor pays the premium. Accordingly, the lifetime member equity represents the implicit subsidy provided by all member sectors other than Lifetime Members to support the provision of NHIP to Lifetime Members.

An important NHIP concern is the amount of additional benefit expenditures due to the introduction of the COVID-19 benefit packages and how this affects the financial viability of the NHIP. As such, a segment of the analysis is devoted to estimating the amount of additional COVID-19 benefit expenditures and its effect on financial viability. The succeeding sections of this paper present framework, data, methodology, results, discussion, summary of findings and conclusion.

2. Framework

2.1. Accounting framework

The capacity of the NHIP to provide benefits is defined by the accounting identity, that given the year the total expenditures are equal to total revenues plus changes to the reserve fund (see Equation 1). This relationship implies that when total expenditures exceed total revenues then excess expenditures need to be supported by drawdowns from the reserve fund. Conversely, an addition to

the reserve fund occurs when total expenditures are less than total revenues. All financial indicators are on an annual basis.

$$Total\ Expenditures = Total\ Revenues + \Delta Reserve\ Fund \quad (1)$$

The NHIP accounting framework identifies total revenues as composed of premium contributions and interest and other incomes, and identifies total expenditures as composed of benefit payments and administrative expenses (see Equations 2 and 3).

$$Total\ Revenues = Premium\ Contribution + Interest\ and\ Other\ Incomes \quad (2)$$

$$Total\ Expenditure = Benefit\ Payment + Administrative\ Expenses \quad (3)$$

The same accounting framework further classifies premium contribution collections and benefit payment expenditures in terms of membership sectors. The main categories of members are Direct and Indirect Contributors, and Lifetime Members. Accordingly, total premium contributions and total benefit payment expenditures are defined by Equations 4 and 5.

$$Premium\ Contribution = Premium\ Contribution_{Direct} + Premium\ Contribution_{Indirect} \quad (4)$$

$$Benefit\ Payment = Benefit\ Payment_{Direct} + Benefit\ Payment_{Indirect} + Benefit\ Payment_{Lifetime} \quad (5)$$

The Direct Contributors, as defined by the UHC law, refer to PhilHealth members who are gainfully employed and are bound by an employer-employee relationship or are self-earning, professional practitioners, or migrant workers. Direct Contributors who are bound by employer-employee relationships (i.e., those working in private establishments or government institutions as well as those working as kasambahay or house help, family drivers, and enterprise owners) are those considered under the Formal Sector, and their premiums are collected through the mandatory withholding of contributions for social protection programs. On the other hand, members from the Informal Sector, which include self-earning individuals, migrant workers, Filipinos with dual citizenship, naturalized Filipino citizens and citizens of other countries working and/or residing in the Philippines, are paying their premium contributions on a voluntary basis.

$$Premium\ Contribution_{Direct} = Premium\ Contribution_{Formal} + Premium\ Contribution_{Informal} \quad (6)$$

$$Benefit\ Payment_{Direct} = Benefit\ Payment_{Formal} + Benefit\ Payment_{Informal} \quad (7)$$

Indirect Contributors refer to PhilHealth members whose premium contributions are subsidized by the national government. This group includes the Indigent (National Household Targeting System (NHTS)-identified poor), Senior Citizens, and Sponsored sectors (poor identified by means other than NHTS). The Indigent sector members are enrolled to the NHIP through the Listahanan system of the Department of Social Welfare and Development while the Senior Citizen sector must register through the Office of the Senior Citizen Affairs or a PhilHealth Local Health Insurance Office. The Sponsored sector members, on the other hand, can register through a Point of Service (POS) system where enrollment is limited to patients in health facilities who were identified to be not NHIP registered.

$$\begin{aligned} Premium\ Contribution_{Indirect} = {} & Premium\ Contribution_{NHTS} + \\ & Premium\ Contribution_{Senior} + \\ & Premium\ Contribution_{Sponsored} \end{aligned} \quad (8)$$

$$\begin{aligned} Benefit\ Payment_{Indirect} = {} & Benefit\ Payment_{NHTS} + Benefit\ Payment_{Senior} + \\ & Benefit\ Payment_{Sponsored} \end{aligned} \quad (9)$$

Lifetime Members, while considered as Direct Contributors by the UHC law, operate under a different payment scheme compared to the other membership sectors. The following individuals who are not gainfully employed and who have paid at least 120 months of PhilHealth premiums and the former Medicare Programs of Social Security System (SSS) and Government Service Insurance System (GSIS) are provided Lifetime Member status wherein the member is eligible for NHIP benefits without the need to pay premiums. These are 1) individuals aged 60 years old and above, 2) uniformed personnel aged 56 years old and above, or 3) SSS underground miner-retirees aged 55 years old and above. SSS and GSIS pensioners prior to March 4, 1995 are also eligible to become Lifetime Members. To facilitate the comparison of revenue and expenditure elements, this paper defines the following measures: (1) total expenditures-total revenues ratio, (2) benefit payment-premium contribution ratios, or (3) lifetime member equity. A paper by Yevutsey and Aikins [2010] also used similar measures in assessing the financial viability of a district mutual health insurance scheme in Ghana. The authors used the expense ratio or the ratio of administrative cost to annual premium collected, and the claims ratio defined as the ratio of medical claims with the total premium collected.

2.2. Measures of the State of NHIP Financing

This paper defines NHIP financial viability in terms of the relative difference between NHIP expenditures and revenue which is expressed as the total expenditures-total revenues ratio (see Equation 10).

$$total\ expenditures - total\ revenues\ ratio = Total\ expenditures\ /\ Total\ revenues \quad (10)$$

This ratio describes the relative difference between total expenditures and total revenues with financial viability adversely affected when total expenditures exceed total revenues. That is, financial viability is negatively affected when the total expenditures-total revenues ratio exceeds 1 as this implies a drawdown from the reserve fund. On the other hand, an opposite conclusion is reached when the total expenditures-revenues ratio is less than 1.

The burden of paying for NHIP benefits is described by two measures: the benefit payment-premium contribution ratio and the lifetime member equity (see Equations 11 and 12).

$$Benefit\ payment\text{-}premium\ contribution\ ratio_{sector} = \frac{Benefit\ payment_{sector}}{Premium\ contribution_{sector}} \quad (11)$$

$$Lifetime\ Member\ Equity = \frac{Benefit\ payment_{Lifetime}}{\Sigma Premium\ contribution_{sector}} \quad (12)$$

The benefit payment-premium contribution ratio is interpreted differently from the total expenditures-total revenues ratio. Rather than describe financial viability, the benefit payment-premium contribution ratio represents the relative difference between the value of benefits received by a particular member sector and the amount of premium that the member sector has paid or contributed to the NHIP. The benefit payment-premium contribution ratio can thus be regarded as an indicator of whether a particular member sector is a net recipient of NHIP benefits as when the value of benefits received exceeds premiums paid (ratio greater than 1), or is a net payer of NHIP benefits as when the value of benefits received is less than premiums paid (ratio less than 1).

The lifetime member equity, on the other hand, reflects the pension fund character of the NHIP which distinguishes it from the typical pay-as-you-go health insurance scheme, where membership is applied on a per-year basis contingent on whether the member or a third-party sponsor pays the premium. Accordingly, the lifetime member equity can be viewed as a return to excess premium payments made during an earlier period. This implies, however, that during the earlier periods the member must have received less in benefits compared to premiums paid.

3. Data and methodology

3.1. NHIP revenue and expenditure data and projection methodology

The analysis of NHIP revenues and expenditures streams before and during the COVID-19 pandemic utilizes data from various published and unpublished PhilHealth reports. The 2015-2018 revenue and expenditure data are from the restated financial statements of PhilHealth that are published on the 2016-2019 Annual Audit Reports of the Commission on Audit. Due to recognized delays in claims processing, the restated financial statements (which are published alongside the succeeding year's audited financial statements) are used instead of the current year audited financial statements because the former uses more updated financial data. For 2019 revenue and expenditure data, the restated 2019 financial statement included in the 2020 unpublished audited PhilHealth financial statement as of February 23, 2021 is used.

The 2020 premium contribution and benefit expenditure data are directly lifted from PhilHealth 2020 Stats and Charts. Data on interest and other income and administrative expenses are sourced from PhilHealth's 2020 unpublished financial statement. As data on benefit payment for Lifetime Members are not available, the reported paid claims for Lifetime Members in the 2020 Stats and Charts are used instead. Given that Lifetime Members are no longer required to pay premiums, the corresponding source of funds for their NHIP benefit use is drawn from the Retirement Fund component of the Reserve Fund. On the expenditure side, adjustments to benefit payments are applied to proportionately distribute the benefit payments released through the internal reimbursement mechanism (IRM). This IRM amount represents a portion of the substantial aid provided to accredited health care institutions directly hit by the COVID-19 pandemic that had clear and apparent intent to continuously operate during the pandemic in order to provide continuous health care services to Filipinos. The use of IRM in response to the COVID-19 pandemic has been enabled by the issuance of PhilHealth Circular no. 2020-0007 last March 2020[5]. While most of the funds allocated through the IRM have already been classified under the corresponding recipient member sector, a relatively small portion of the IRM amounting to ₱3.7 billion remain unclassified in the 2020 Stats and Charts. To allow for year-on-year comparison and calculation of benefit payment to premium ratios, the unclassified portion of the IRM is proportionately distributed across benefit payments per membership sector, which includes paid claims for Lifetime Members (see Equation 13).

[5] The implementation of IRM was suspended by PhilHealth on August 14, 2020 to facilitate further review of the process.

$$Adjusted\ benefit\ payment_{sector2020} = Benefit\ Payment_{type2020} + \left(IRM_{2020} \times \frac{Benefit\ payment_{type2020}}{\Sigma Benefit\ payment_{type2020}} \right) \quad (13)$$

Projections for the 2021 premium contributions vary per membership type due to differences in assumptions. Considering that the implementation of the UHC-mandated premium schedule has been suspended in 2021[6], the only adjustment in the revenue projections involves accounting for population growth in select member sectors. Table 1 shows the historical membership data of PhilHealth from 2015-2020. The membership data are directly lifted from the 2015-2020 PhilHealth Stats and Charts.

TABLE 1. PhilHealth membership count per sector, 2015-2020

Membership Sector	2015	2016	2017	2018	2019	2020
Direct Contributors	17,293,737	17,896,999	25,981,453	27,768,288	28,963,233	29,369,259
Formal Sector	13,869,211	14,636,188	14,903,502	15,989,829	16,748,991	16,737,134
Informal Sector	3,424,526	3,260,811	11,077,951	11,778,458	12,214,242	12,632,125
Indirect Contributors	23,208,135	23,334,850	23,602,334	26,048,181	24,378,400	23,432,516
Indigent	15,288,583	14,641,685	14,329,442	15,718,882	12,834,955	12,794,699
Senior	5,868,005	6,245,583	6,899,207	7,531,326	8,070,076	8,332,032
Sponsored	1,049,921	1,217,941	1,127,692	1,519,424	2,153,992	958,985
Lifetime	1,001,626	1,229,641	1,245,993	1,278,549	1,319,377	1,346,800
Total	40,501,872	41,231,849	49,583,787	53,816,469	53,341,633	52,801,775

Sources of data: PhilHealth Stats and Charts 2015-2020.

The projected revenue from the Formal sector is calculated by inflating the 2020 Formal Economy sector premium collection with the ratio of 2019 Formal Economy sector member count to 2020 (see Equation 14). This suggests that Formal Economy sector member count is expected to return to its 2019 level by 2021 in consideration of a slight improvement in economic growth that can be expected following the increase in economic activities due to gradual lifting of community quarantine rules. On the other hand, the revenue from the Informal Economy sector for 2021 is projected to stay at the 2020 level with the assumption that collection rate from voluntary payment will not change. In the case of Indirect Contributors, premium subsidies for Indigent and Sponsored members are expected to remain at the 2020 level in 2021, following the assumption that

[6] Based on PhilHealth's Official Statement on the implementation of adjusted contribution rate for CY 2021, the premium rate of 3.5 percent for 2020 is retained in 2021 but increase in the monthly basic salary ceiling still adopted the 2021 ceiling prescribed in the UHC law.

registration rate of Indigent and Sponsored members will not change in 2021. Projected 2021 premium subsidy for Senior Citizens sector is calculated by inflating the 2020 senior citizen subsidy with the ratio of 2020 Senior Citizen sector member count to that in 2019, suggesting that the number of senior citizen members will grow at the same rate observed in 2020 (see Equation 15). Interest and other income are assumed to remain unchanged from 2020 to 2021.

$$Projected\ premium\ contribution_{Formal2021} = Premium\ contribution_{Formal2020} \times \left(\frac{Member\ count_{Formal2019}}{Member\ count_{Formal2020}} \right) \quad (14)$$

$$Projected\ premium\ contribution_{Senior2021} = Premium\ contribution_{Senior2020} \times \left(\frac{Member\ count_{Senior2020}}{Member\ count_{Senior2019}} \right) \quad (15)$$

To project the 2021 benefit payments per membership category, the 2020 benefit payments are adjusted using the growth rate of paid claims based on the year of admission from 2016 to 2019. These ratios are calculated by dividing the current year paid claims amount by the previous year paid claims amount (see Equation 16). Table 2 shows the historical claims amount from 2016 to 2019. The 2021 projected benefit payments to Lifetime Members, however, is assumed to stay at the 2020 level.

$$Projected\ benefit\ payment_{sector2021} = Benefit\ payment_{sector2020} \times \left[\frac{\left(\frac{Paid\ claims_{sector_{2017}}}{Paid\ claims_{sector_{2016}}} + \frac{Paid\ claims_{sector_{2018}}}{Paid\ claims_{sector_{2017}}} + \frac{Paid\ claims_{sector_{2019}}}{Paid\ claims_{sector_{2018}}} \right)}{3} \right]^2 \quad (16)$$

TABLE 2. Claims amount per membership sector, 2016-2019 (in pesos)

Membership Sector	2016	2017	2018	2019
Formal Sector	24,140,781,505	24,392,639,788	23,831,238,616	24,870,211,102
Informal Sector	20,860,675,358	21,654,117,230	21,221,422,850	21,079,248,867
Indigent	21,191,698,801	20,477,790,445	21,274,558,824	20,548,359,071
Senior Citizen	18,371,153,623	21,043,465,420	21,806,226,437	22,425,205,253
Lifetime	6,334,462,215	6,284,256,575	6,134,660,654	5,994,160,074
Sponsored	11,434,444,693	10,664,597,380	11,914,561,782	15,348,344,535

Sources of data: 2016 to 2019 PhilHealth Corporate Dashboard tables as of April 2021.

3.2. COVID-19 case projections, benefit use and payments estimates

Given that the projection methodology for the 2021 benefit payments employs the average annual growth in benefit payments and that the number of COVID-19 cases is significantly higher in 2021, there is a need to adjust the projected 2021 benefit payments to account for a possible higher growth rate in benefit payments due to COVID-19. This adjustment involves projecting utilization and benefit payments corresponding to the COVID-19 benefit packages – community isolation, inpatient cases of varying severity, and reverse transcription polymerase chain reaction (RT-PCR) testing with varying service inclusions (Table 3).

TABLE 3. PhilHealth COVID-19 benefit packages and package amounts

Benefit Package Type	Package Code	Package Amount (in ₱)
Community Isolation Package	C19CI/C19CIS	22,449
Inpatient Packages	C19IP1 (Mild pneumonia)	43,997
	C19IP2 (Moderate pneumonia)	143,267
	C19IP3 (Severe pneumonia)	333,519
	C19IP4 (Critical pneumonia)	786,384
Packages for SARS-CoV-2 testing by RT-PCR	C19T1	3,409
	C19T2	2,077
	C19T3	901

Sources of data: PhilHealth Circulars 2020-0009, 2020-0017, 2020-0018.

This study estimates NHIP COVID-19 benefit package payments through a two-step procedure. First, the total number of individuals tested for COVID-19 as well as the total number of COVID-19 cases in 2021 are projected, considering the population eligible to avail of the COVID-19 testing and community isolation/ inpatient packages, respectively. The second step involves projecting the amount of benefit package payments in 2021 for each type of COVID-19 benefit package type, using 2020 use rate estimates as reference.

3.3. Projecting COVID-19 case and testing counts

Actual data[7] for the period of 2020, as well as January to April 2021, was extracted from the DOH Data Drop dated April 28, 2021. The DOH Data Drop is a compilation of relevant COVID-19 information collected and disseminated by the DOH in compliance with its duty to publish timely, true, accurate, and updated key information. The DOH Data Drop is published daily, linked to the DOH COVID-19 Tracker page, and and it comprises multiple datasets on COVID-19 case counts,

[7] COVID-19 actual case data for 2021 covers the period of January 1 to April 28, while actual testing data covers the period January 1 to April 27.

health facility capacities, and testing counts. Two datasets were used in this study: the Case Information dataset which is extracted daily from the COVID-19 Information System by the DOH Epidemiology Bureau at 12 noon and uses case investigation forms as the primary data source; and the Testing Aggregates dataset which are from collated daily laboratory results released as of 6 pm.

The COVID-19 case counts are obtained from the Case Information dataset and refer to the number of total COVID-19 cases as reported by the DOH. The total number of individuals tested for COVID-19 is obtained from the Testing Aggregates dataset. Cumulative counts of unique individuals tested as of a given date are used in this study. Testing counts are disaggregated into individuals tested by Philippine Red Cross (PRC) Laboratories and individuals tested by COVID-19 Testing Centers. These are counted separately since the payment scheme implemented for PRC testing laboratories is based on a Memorandum of Agreement with PhilHealth and not on PhilHealth Circular no. 2020-0017 "Benefit Package for SARS-CoV-2 testing using RT-PCR (Revision 1)."

The estimated numbers for the remaining period of April up to December 31, 2021 are derived from the average number of new cases or unique individuals tested per day from January to April and projected to the rest of the year. This assumes that the number of cases for the rest of the year will, on average, be similar to case counts from January to April 2021. Adjustments[8] to the 2021 projected case counts were made to account for the effect of the current COVID-19 vaccination efforts (see Equations 17 and 18).

Totals for 2021 are estimated by adding the actual number of cases and individuals tested to date and the projected numbers of cases and individuals to be tested until the end of the year.

$$\textit{Projected number of cases}_{\textit{Apr to Dec } 2021} = \frac{\textit{Average number of individuals tested per day}_{\textit{Jan to Apr } 2021} \times \textit{number of days remaining in } 2021}{1 + (\textit{vaccine efficacy x vaccine coverage})} \quad (17)$$

$$\textit{Projected number of individuals tested}_{\textit{Apr to Dec } 2021} = \textit{Average number of individuals tested per day}_{\textit{Jan to Apr } 2021} \times \textit{number of days remaining in } 2021 \quad (18)$$

[8] We assume a 50 percent vaccine efficacy and 10 percent vaccine coverage of the entire population by end of the year based on authors' calculations given the current vaccine allocation and the anticipated number of vaccines to be delivered to and administered by the national government by the end of the year.

3.4. Projecting 2021 COVID-19 benefit package claims

Data received from PhilHealth on the COVID-19 benefit package claims includes claims received in 2020 that were extracted from the PhilHealth Claims Database as of Jan 14, 2021. One limitation in the use of this extracted data is that claims for patients who were infected and/or discharged in 2020 but which were filed[9] in 2021 are excluded from the data.

Estimates of the number of claims and amount of COVID-19 benefit payments in 2021 are calculated on the basis of use rates corresponding to the various COVID-19 benefit packages in 2020. Use rates refer to the proportion of individuals who were able to claim specific COVID-19 benefits, meaning, individuals who have filed claims and whose claims are paid by PhilHealth, among all the individuals eligible to receive the benefits. In particular, use rates were calculated using the total number of COVID-19 cases in 2020 and cumulative counts of unique individuals tested in 2020 as denominators for the Community Isolation Unit (CIU)/inpatient benefit claims and the COVID-19 testing claims, respectively (see Equation 19).

$$Benefit\ package\ use\ rate_{benefit\ package\ type} = \frac{Number\ of\ benefit\ package\ claims_{2020,benefit\ package\ type}}{Total\ number\ of\ cases\ or\ individuals\ tested_{2020}} \quad (19)$$

The adjusted 2020 use rates are then applied to the projected case and testing counts for 2021. This assumes that the proportion of the individuals who are availing of the COVID-19 benefit packages in 2021 will be similar to that in 2020 given that there have been no new policy issuances from PhilHealth with regards to the COVID-19 benefit packages. Thus, there are no anticipated changes in the implementation of PhilHealth's existing COVID-19 policies.

Two scenarios were considered in adjusting the use rates. The first scenario (low-end estimate) considers the present situation where the number of paid claims for COVID-19 benefit packages is low. Under this scenario, the estimated 2020 use rate based on the number of paid claims is used to calculate the number of claims in 2021. An inflation factor of ten percent is used to account for the number of pending claims that are still expected to be paid. The second scenario (high-end estimate) utilizes the estimated 2020 use rate based on the number of paid and pending[10] claims. This assumes that all currently pending claims will be processed and paid by PhilHealth.

The projected number of claims for the COVID-19 CIU and inpatient benefit packages is calculated as the product of the projected number of COVID-19 cases in 2021 multiplied by the corresponding use rates for each benefit package. Similarly, the projected number of claims for the COVID-19 testing packages is calculated as the projected number of individuals tested in 2021 multiplied by the estimated use rates (see Equation 20).

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[9] PhilHealth allows claims to be filed within 60 days after date of patient discharge (Section 46 of RA 7875).

[10] Claims tagged with claim status "RTH," "Approved for Payment", and "In-Process" in the extracted PhilHealth COVID-19 claims data are classified as "Pending".

$$\textit{Number of benefit package claims}_{2021,\textit{benefit package type}} = \textit{Projected number of cases or individuals tested}_{2021} \times \textit{benefit package use rate}_{\textit{benefit package type}} \quad (20)$$

The projected amount of COVID-19 benefit payments for each benefit package type is then calculated by multiplying the projected number of claims by the corresponding benefit package amount or case rate[11]. (see Equations 21 and 22)

$$\textit{Benefit package total claim amount}_{2021,\textit{benefit package type}} = \textit{Number of benefit package claims}_{2021,\textit{benefit package type}} \times \textit{case rate}_{\textit{benefit package type}} \quad (21)$$

The total COVID-19 benefit payments for the various benefit package types is calculated as the sum of the total claim amounts of each type of benefit package (see Equation 22).

$$\textit{Total COVID-19 benefit payments}_{\textit{year}} = \sum \textit{Benefit package total claim amounts}_{\textit{benefit package type}} \quad (22)$$

3.5. Adjustments to the 2021 net revenue estimates

The projected COVID-19 benefit payments for 2021 are used to adjust the 2021 total expenditure and net revenue estimates. First, the COVID-19 benefit payments are abstracted from the projected 2021 benefit expenditures by multiplying the actual COVID-19 2020 benefit payments reported in the OCOO data by the 2020-2021 benefit payment growth rate which is used as the inflation factor (see Equation 23).

$$\textit{COVID-19 benefit payments in } 2021 \textit{ projected benefit expenditures} = \textit{Total COVID-19 benefit payments}_{2020} \times \textit{inflation factor} \quad (23)$$

This amount is subtracted from the projected 2021 benefit expenditures, and the difference is added to the COVID-19 benefit payment estimates to arrive at the adjusted 2021 projected benefit expenditures (see Equation 24).

$$\textit{Adjusted projected benefit expenditures}_{2021} = \textit{Projected benefit expenditures}_{2020} - \textit{COVID-19 benefit payments in } 2021 \textit{ projected benefit expenditures} + \textit{Total COVID-19 benefit payments}_{2021} \quad (24)$$

[11] Case rates for PhilHealth benefit packages are based on current PhilHealth guidelines, i.e. PhilHealth Circulars 2020-0009, 2020-0017, 2020-0018; case rate for Philippine Red Cross Laboratories is based on the Memorandum of Agreement with PhilHealth.

4. Results and discussion

4.1. Analysis of NHIP revenue and expenditure streams before and during the COVID-19 pandemic

4.1.1. Historical NHIP revenue and expenditure streams

TABLE 4. Revenue by membership sector for 2015-2019 (in pesos)

Membership Sector	2015	2016	2017	2018	2019
Premium Contributions					
Direct Contributors	47,374,227,259	52,928,020,253	57,478,065,426	74,339,259,039	77,378,850,588
Formal	40,558,515,410	47,964,407,088	49,542,046,363	66,869,781,334	69,074,001,510
Informal	6,815,711,849	4,963,613,165	7,936,019,063	7,469,477,705	8,304,849,078
Indirect Contributors	52,386,727,540	50,897,778,585	49,968,972,845	59,749,573,806	69,395,038,148
Indigent - NHTS	36,257,956,800	34,682,688,000	33,860,356,800	37,157,479,200	30,407,623,000
Senior Citizens	13,045,051,200	13,044,616,800	13,045,051,000	18,674,391,216	33,868,279,600
Sponsored	3,083,719,540	3,170,473,785	3,063,565,045	3,917,703,390	5,119,135,548
Total Premium Contributions	99,760,954,799	103,825,798,838	107,447,038,271	134,088,832,845	146,773,888,736
Interest and Other Income	7,093,891,589	5,835,386,425	5,852,075,305	6,742,430,076	8,128,422,262
Total Revenue	**106,854,846,388**	**109,661,185,263**	**113,299,113,576**	**140,831,262,921**	**154,902,310,998**

Sources of data: PhilHealth 2015-2019 Financial Statements, 2020 Financial Statement unpublished draft as of February 23, 2021.

Premium contribution revenue has been growing from 2015 to 2019, as demonstrated in Table 4. Significant increases are noted between 2017 and 2018 amounting to ₱26 billion due to higher premium collections from the Formal Economy sector[12], followed by ₱14 billion increase between 2018 and 2019 due to higher premium subsidies for the Senior Citizen sector[13]. The proportion of premiums accounted for by Direct Contributors has also been increasing relative to the proportion accounted for by Indirect Contributors during the period 2015-2019.

Likewise, total benefit payments have been growing from 2015 to 2019, as illustrated in Table 5. In contrast to premium contributions, the increases in benefit payments are largely accounted for by Indirect Contributors as benefit payments for Direct Contributors have remained relatively unchanged. Interest income from investments and administrative expenses have remained relatively unchanged from 2015 to 2019.

[12] PhilHealth Annual Report 2017 and PhilHealth Stats and Charts 2018.

[13] During the same period, premium schedules also increased for Senior Citizens from ₱2,400 to ₱3,120 per annum (as per DOH Budget Folio).

TABLE 5. Benefit payments by membership sector for 2015-2019 (in pesos)

Membership Sector	2015	2016	2017	2018	2019
Benefit Payments					
Direct Contributors	46,001,894,598	45,630,777,330	45,860,390,868	46,147,058,314	48,822,061,536
Formal	24,922,914,693	24,867,012,076	24,317,341,611	24,427,851,224	26,616,078,252
Informal	21,078,979,905	20,763,765,254	21,543,049,257	21,719,207,090	22,205,983,284
Indirect Contributors	53,223,530,625	56,499,919,046	51,674,470,119	58,013,038,633	64,201,896,627
Indigent - NHTS	25,896,272,119	19,687,975,690	21,105,362,722	27,511,238,757	32,931,215,186
Senior Citizens	19,914,306,807	25,105,666,775	20,949,323,856	20,649,020,746	21,364,596,140
Lifetime Members			8,881,787,900	8,796,365,924	12,276,862,300
Sponsored	7,412,951,699	11,706,276,581	9,619,783,541	9,852,779,130	9,906,085,301
Total Benefit Payments	99,225,425,223	102,130,696,376	106,416,648,887	112,956,462,871	125,300,820,463
Administrative Expenses	6,197,037,625	7,782,019,982	6,645,298,055	6,850,134,819	12,938,660,054
Total Expenditure	**105,422,462,848**	**109,912,716,358**	**113,061,946,942**	**119,806,597,690**	**138,239,480,517**

Sources of data: PhilHealth 2015-2019 Financial Statements, 2020 Financial Statement unpublished draft as of February 23, 2021.

NHIP revenues and expenditures from 2015 to 2017 were approximately the same magnitude, but NHIP revenues grew much larger than expenditures in 2018 and 2019. Hence, the total expenditures-total revenues ratio has been declining, from approximately equal to 1 in the 2015-2017 period to noticeably lower than 1 in 2018-2019, as demonstrated in Table 6.

TABLE 6. Benefit payment-premium contribution ratios by membership sector

Membership Sector	2015	2016	2017	2018	2019
Direct Contributors	0.97	0.86	0.80	0.62	0.63
Formal	0.61	0.52	0.49	0.37	0.39
Informal	3.09	4.18	2.71	2.91	2.67
Indirect Contributors	1.02	1.11	1.03	0.97	0.93
Indigent - NHTS	0.71	0.57	0.62	0.74	1.08
Senior Citizens	N/A	N/A	1.61	1.11	0.63
Sponsored	2.40	3.69	3.14	2.51	1.94
Aggregate Benefit/Premium Ratio	0.99	0.98	0.99	0.84	0.85
Lifetime Member Equity	N/A	N/A	0.08	0.07	0.08
Expenditure to Revenue Ratio	0.99	1.00	1.00	0.85	0.89

Sources of data: Authors' calculations based on PhilHealth 2015-2019 Financial Statements.

Examining the ratios per member sector, it can be seen that the benefit payment-premium contribution ratio for Direct Contributors is consistently less than 1 and declining over time, indicating Direct Contributors are net payers of NHIP benefits. Specifically, members under the Formal Economy sector are distinctly net payers with the associated benefit payment-premium contribution ratio well below 1 and continuously declining over the 2015-2019 period. Members under the Informal Economy sector, however, are net recipients of NHIP benefits with the associated benefit payment-premium contribution ratio is consistently greater than 1, although lesser in magnitude in 2017-2019 compared to 2015-2016. This may be due to adverse selection in the Informal Economy sector, where enrolled contributing members consist of those with higher health risks[14].

Indirect Contributors, while net recipients of NHIP benefits in 2017, became net payers in 2018. The trend, however, differs across the member sectors classified as Indirect Contributors. The Indigent sector was a net payer until 2018 and became a net recipient in 2019. The Senior Citizen sector was a net recipient in 2017 and 2018, and became a net payer in 2019, mainly due to the large premium rate increase in the subsidy for the sector paid by the national government in 2019. The Sponsored Program sector is clearly a net recipient of NHIP benefits although the associated benefit payment-premium contribution ratio has been declining since 2016. The observation of benefit payment-premium contribution ratios well in excess of 1 for the Sponsored sector is expected since by design, registration is through the POS system. The vulnerability with the POS mechanism is that registration is made at the point where the registrant utilizing health services has a risk or probability of incurring health expenditures equal to 1, which is well above the risk of using care for the general population.

Benefit payments for the Lifetime Member sector from 2017 to 2019 is distinctly above zero (lifetime member equity ratio is around 0.08)[15], which implies either a drawdown from the reserve fund or implicit subsidies from the other membership sectors.

4.1.2. NHIP 2020 and 2021 revenue and expenditure streams during the COVID-19 pandemic

Table 7 shows that total revenues increased between 2019 and 2020, more likely because of the UHC-mandated increases in the premium schedule implemented by December 2019[16]. Table 7 also indicates a minimal increase in total revenues from

[14] The determination of adverse selection however will require establishing that the risk profile of those enrolled under the Informal Economy sector is different as compared to the representative risk profile of the population segment from which members under the Informal Economy sector are drawn from, an assessment beyond the scope of this paper.

[15] Similar to the observation on the possible occurrence of adverse selection this observation will also be undertaken in a separate paper.

[16] This is pursuant to PhilHealth Circular no. 2019-0009 entitled "Premium Contribution Schedule in the National Health Insurance Program (NHIP) Pursuant to R.A. No. 11223 Known as the 'Universal Health Care Act'".

2020 to 2021. Again, this is possibly accounted for the decision to put on hold the UHC-mandated premium increases in 2021 because of the COVID-19 situation.

TABLE 7. Estimated 2020 and projected 2021 NHIP revenue and expenditure streams (in pesos)

Membership Sector	2019 Restated PhilHealth Financial Statement	2020 PhilHealth Stats and Charts	2021 Projected Revenue and Expenditure
Premium Contributions			
Direct Contributors	77,378,850,588	85,569,185,891	85,624,428,073
Formal	69,074,001,510	77,978,899,294	78,034,141,476
Informal	8,304,849,078	7,590,286,597	7,590,286,597
Indirect Contributors	69,395,038,148	63,425,436,284	64,437,453,021
Indigent - NHTS	30,407,623,000	30,290,011,200	30,290,011,200
Senior Citizens	33,868,279,600	31,177,190,000	32,189,206,737
Sponsored	5,119,135,548	1,958,235,084	1,958,235,084
Total Premiums	146,773,888,736	148,994,622,175	150,061,881,095
Interest and Other Income	8,128,422,262	9,113,372,620	9,113,372,620
Total Revenue	**154,902,310,998**	**158,107,994,795**	**159,175,253,715**
Drawdown from Retirement Fund component of Reserve Fund		*5,466,917,817*	*5,466,917,817*
Benefit Payments			
Direct Contributors	48,822,061,536	54,688,731,572	55,372,443,479
Formal	26,616,078,252	20,377,594,403	20,801,110,263
Informal	22,205,983,284	34,311,137,169	34,571,333,216
Indirect Contributors	64,201,896,627	66,053,877,831	71,322,078,024
Indigent - NHTS	32,931,215,186	30,507,613,503	29,922,385,328
Senior Citizens	21,364,596,140	28,025,012,122	32,087,730,169
Lifetime Members	12,276,862,300	5,466,917,817	5,466,917,817
Sponsored	9,906,085,301	7,521,252,206	9,311,962,527
Total Benefit Payments	125,300,820,463	126,209,527,220	132,161,439,321
Administrative Expenses	12,938,660,054	7,144,713,938	7,144,713,938
Total Expenditure	**138,239,480,517**	**133,354,241,158**	**139,306,153,259**

Sources of data: PhilHealth 2020 Stats and Charts and PhilHealth CY 2020 Financial Statement unpublished draft as of February 23, 2021; Authors' calculations.

TABLE 8. Benefit payment to premium ratio for 2020 estimates and 2021 projections of revenue and expenditure streams (in pesos)

Membership Sector	2019	2020 PhilHealth Stat and Charts	2021 Projected Revenue and Expenditure
Direct Contributors	0.63	0.64	0.65
Formal	0.39	0.26	0.27
Informal	2.67	4.52	4.55
Indirect Contributors	0.93	1.04	1.11
Indigent - NHTS	1.08	1.01	0.99
Senior Citizens	0.63	0.90	1.00
Sponsored	1.94	3.84	4.76
Aggregate Benefit to Premium ratio	0.85	0.85	0.88
Lifetime Member Equity	0.08	0.04	0.04
Expenditure to Revenue Ratio	0.89	0.84	0.88

Sources of data: Authors' calculations.

An inspection of the total expenditures-total revenues ratios for the period 2019-2021 in Table 8 shows a declining trend. This suggests that the provision of COVID-19 benefits has not adversely affected the financial viability of the NHIP and its capacity to provide social health insurance services at least for 2020[17]. Aggregate benefit payment-premium contribution ratios in 2020 and 2021 are relatively close to the 2019 estimate. This implies that for 2020 and 2021, infusions rather than draw downs are expected for the NHIP reserve fund.

Direct Contributors from the Formal Economy sector are still net payers based on the 2020 estimates and 2021 projections, implying that the sector continues to bear the burden of subsidizing the benefits of net recipient member sectors, particularly the Informal Economy and Sponsored sectors. Given the implementation of UHC-mandated immediate eligibility and the use of the POS mechanism to facilitate implementation of immediate eligibility then it is possible that majority of new registrants to these sectors are users or patients of health facility services rather than the general pool of workers in the informal labor market or the non-NHIP registered poor.

For Indirect Contributors, the estimated benefit payment-premium contribution ratio of the Senior Citizen sector for 2020 is higher than that of 2019. This is possibly due to the decrease in premium subsidy and almost ₱6.7 billion increase in benefit payments corresponding to the Senior Citizen sector. Thus in contrast to the prior declining trend, the benefit payment-premium contribution ratio for the Senior Citizen sector increased in 2020 and is projected to approximately

[17] For 2021, an adjustment to account for the higher number of COVID-19 cases needs to be incorporated.

1.0 in 2021, thereby indicating that premium subsidies will be adequate to cover the projected benefit payments for the Senior Citizen sector. Likewise, increases in the benefit payment-premium contribution ratio for the Sponsored sector are estimated, with an increase from 1.94 in 2019 to 3.84 in 2020 and potentially to 4.76 in 2021. Given the use of the POS to facilitate immediate eligibility, this raises the concern of magnified adverse selection which appears to be observable even in the analysis of 2015-2019 historical data.

The lifetime member equity declined from 0.08 in 2019 to 0.04 and is expected to stay at 0.04 in 2021. This is driven more by the decline in benefit payments due to the possible COVID-19 pandemic effect that inhibited treatment-seeking in health facilities.

Looking back at Table 7, it appears that the trend of increasing total benefit payments may have been inhibited by the COVID-19 pandemic even with the implementation of the COVID-19 benefit packages. Given, however, the increasing trend in COVID-19 cases, it will be important to undertake a separate assessment of incremental benefit payments corresponding to the said COVID-19 benefit packages, namely: the testing, CIU, and inpatient benefit packages. The subsequent analysis takes into consideration the large increase in COVID-19 cases in 2021 compared to 2020.

4.2. Adjustments to projected COVID-19 benefit payments

Due to a surge in COVID-19 cases beginning in March 2021, actual case counts as of April 2021 already exceed the total number of cases in 2020. Actual[18] and projected number of COVID-19 cases and individuals tested for COVID-19 for the years 2020 and 2021 are presented in Table 9. It is estimated that in 2021, 2.99 million individuals will have been tested by PRC laboratories, 11.25 million individuals will have been tested in other COVID-19 testing centers, and 1.62 million individuals will have been infected by the disease.

Claims data for COVID-19 benefits are further examined to ascertain the corresponding use rates of each of the COVID-19 benefit packages. Table 10 summarizes the paid and pending[19] claims, as well as the use rates for all PhilHealth COVID-19 benefits for 2020 including: the CIU, inpatient packages, testing packages, and COVID-19 testing under the Philippine Red Cross.

[18] COVID-19 case data uses date of onset of symptoms and date of specimen collection as reference date following DOH COVID-19 tracker reporting. Date report confirmed is used as a proxy for individuals with no data on date of symptom onset and date of specimen collection. COVID-19 testing counts are based on cumulative number of unique individuals tested as of a specific reference date.

[19] Claims tagged with claim status "RTH," "Approved for Payment", and "In-Process" in the extracted PhilHealth COVID-19 claims data are classified as "Pending".

TABLE 9. Estimated and projected number of COVID-19 cases and unique individuals tested, 2020-2021

Period	Number of COVID-19 cases	Number of unique individuals tested	
		Testing Centers	Philippine Red Cross Laboratories
2020	480,286	4,978,635	1,428,629
January - April 2021	540,209	3,606,191	957,282
April - Dec 31, 2021	1,076,930	7,643,892	2,029,111
2021	1,617,139	11,250,083	2,986,393

Sources of data: Authors' calculations based on DOH COVID-19 Data Drop as of April 28, 2021.

TABLE 10. PhilHealth COVID-19 benefit claims and estimated use rates, 2020

PhilHealth Benefit Packages	Claims Count			Use rates of PhilHealth Benefit Packages		Proportion of Claims Filed among Total Cases or Individuals Tested
	Paid Claims	Pending Claims	Total Number of Claims Filed	based on Paid Claims	based on Paid + Pending Claims	
Community Isolation Package	439	12,376	13,978	0.09%	2.67%	2.91%
Inpatient Packages	6,851	39,244	47,642	1.43%	9.60%	9.92%
FRP (Full financial risk protection)	2,290	6,670	9,256	0.48%	1.87%	1.93%
MILD	652	7,001	7,965	0.14%	1.59%	1.66%
MODERATE	2,498	15,422	18,403	0.52%	3.73%	3.83%
SEVERE	995	6,619	7,932	0.21%	1.59%	1.65%
CRITICAL	416	3,532	4,086	0.09%	0.82%	0.85%
Testing Centers	122,118	312,130	451,480	6.27%	8.72%	9.07%
C19T1	70,730	167,660	247,255	1.42%	4.79%	4.97%
C19T2	46,721	102,218	153,350	0.94%	2.99%	3.08%
C19T3	4,667	42,252	50,875	0.09%	0.94%	1.02%
Philippine Red Cross, TOTAL	817,963	-	-	57.26%	57.26%	N/A

Sources of data: PhilHealth Corporate Dashboard, Authors' calculations.

Examining the proportion of paid and pending claims relative to the total number of COVID-19 cases (for the CIU or inpatient packages) or individuals tested (for the testing packages), use rates of COVID-19 benefit packages were seen to be highest for the inpatient packages at 9.60 percent, followed by testing packages at 8.72 percent, and the CIU package at only 2.67 percent. This low use rate of the CIU package may be further contextualized by the low number

of accredited CIU facilities that filed claims[20] for the CIU benefit. Out of 711 accredited CIU facilities in December 2020[21], there were only about 178 unique facilities that filed CIU benefit claims in 2020 or about 25 percent of the total number of accredited CIU facilities. In comparison, 44 percent of PhilHealth-accredited hospitals[22,23,24] filed claims for the COVID-19 inpatient benefit packages, while 76 percent and 123 percent of the testing labs licensed/accredited by DOH[25] and PhilHealth, respectively, filed claims for testing benefits[26].

Among the inpatient packages, the Moderate Pneumonia (COVID-19) package was most utilized with a corresponding use rate of 3.73 percent, while the Critical Pneumonia (COVID-19) package was least utilized at 0.82 percent. This most likely reflects how the majority of COVID-19 cases present as mild symptoms, at about 95 percent as identified by the DOH[27], as well as the relatively low number of critical COVID-19 cases. On the other hand, testing through the PRC which is counted separately from the other testing packages had a use rate of 57.26 percent, the highest among all the COVID-19 testing benefits provided by PhilHealth. Based on this number, PRC is the largest provider of COVID-19 testing covered by PhilHealth in 2020.

As of the date of data extraction, only 25 percent of all claims received in 2020 for the COVID-19 benefit packages have been paid, while 71 percent of the claims are still pending. Payment rate, defined as the proportion of claims paid among all claims filed, of the testing packages was highest among the COVID-19 benefits in 2020, at 27 percent. The inpatient benefit packages and the CIU package showed payment rates of 14 percent and three percent in 2020, respectively.

The 2020 use rates for the various COVID-19 benefit packages presented above are utilized in projecting benefit package use in 2021. This assumes that the 2020 trends in benefit use, that is, individuals who file claims for and are able to avail of COVID-19 benefits from PhilHealth, will hold in 2021.

For 2021, two scenarios for COVID-19 benefit payments are explored. Table 11 illustrates the projected number of claims and estimated benefit payments for each of the COVID-19 benefit packages for each scenario. In the first scenario, where the use rates of COVID-19 benefits are lower and based primarily on the number of claims in 2020 that have been paid to date, the estimated amount of COVID-19

[20] Claims tagged with claim status "RTH," "Approved for Payment", "In-Process", and "Denied" in the extracted PhilHealth COVID-19 claims data are treated as "filed".
[21] "List of Accredited Community Isolation Units as of December 31, 2020" PhilHealth website; downloaded February 3, 2021.
[22] List of Accredited Level 1 Hospitals as of December 31, 2020; downloaded 3 Feb 2021.
[23] List of Accredited Level 2 Hospitals as of December 31, 2020; downloaded 3 Feb 2021.
[24] List of Accredited Level 3 Hospitals as of December 31, 2020; downloaded 3 Feb 2021.
[25] DOH Health Facility Registry; downloaded February 3, 2021.
[26] Further context that must be noted in interpreting the data is that as of the time of writing, there was no current PhilHealth guidance on cartridge-based PCR testing, there may be facilities with on-going accreditation, and that the DOH facility data was extracted as of February 2021. Guidance on cartridge-based PCR testing was subsequently published on May 26, 2021.
[27] DOH COVID-19 data drop as of 28 April 2021; downloaded April 29, 2021.

benefit payment is around ₱10.7 billion. In the second scenario, where the use rate of COVID-19 benefits is higher and assumes that all remaining pending claims will be paid, the estimated amount of COVID-19 benefit payment is around ₱38.4 billion.

TABLE 11. Projected 2021 claim counts and claim amounts

Benefit Package	Total Claim Counts		Case Rate (in pesos)	Total Claim Amounts (in pesos)	
	Low	High		Low	High
Community Isolation Package	1,626	43,149	22,449	36,500,736	968,641,396
Inpatient Packages	16,893	125,035		3,872,457,267	28,781,775,882
MILD	2,415	25,768	43,997	106,245,553	1,133,710,562
MODERATE	9,252	60,337	143,267	1,325,496,853	8,644,334,961
SEVERE	3,685	25,637	333,519	1,229,090,214	8,550,290,440
CRITICAL	1,541	13,293	786,384	1,211,624,647	10,453,439,919
Testing Centers	303,541	981,258		850,991,098	2,630,917,869
C19T1	175,809	538,683	3,409	599,333,819	1,836,371,208
C19T2	116,132	336,553	2,077	241,205,247	699,021,237
C19T3	11,600	106,022	901	10,452,032	95,525,425
Philippine Red Cross	1,709,862	1,709,862	3,500	5,984,517,445	5,984,517,445
Total COVID-19 Benefit Payments	**2,031,922**	**2,859,304**		**10,744,466,545**	**38,365,852,593**

Sources of data: Authors' calculations

Using the incremental COVID-19 benefit payments projected for 2021, adjustments to the 2021 revenue are made. Table 12 shows the net revenue across the COVID-19 benefit payment scenarios. Scenarios 1 and 2, corresponding to the low and high COVID-19 benefit payment projections for 2021, are presented.

Examining these scenarios, assuming that COVID-19 benefit use in 2021 follows a trend similar to 2020, the NHIP revenue will be able to accommodate the prospective COVID-19 benefit payments for 2021 only if benefit payments remain low. In the low-end scenario, the NHIP 2021 total expenditures-total revenues ratio will approximately be 0.91 and net revenue is estimated to be ₱14.5 billion. However, in the high-end scenario where benefit use is higher, the 2021 total expenditures-total revenues ratio is estimated to be 1.08 with a corresponding deficit amounting to ₱13.1 billion that would need to be drawn from the NHIP reserve fund.

It is noted however, that the number of claims filed for the COVID-19 benefit packages comprise only a small proportion of the total number of COVID-19 cases and individuals tested. Increases in the number of claims filed for COVID-19 benefit packages due to a surge in COVID-19 cases may lead to greater COVID-19 spending and a greater fund deficit, more adversely affecting the financial viability of the

NHIP. Given this possibility, there may be a need to revisit the premium and benefit mechanisms to make the NHIP resilient to benefit expenditure shocks associated with health emergencies, such as the COVID-19 pandemic. The resilience of the NHIP becomes more pertinent in view of ensuring adequate financial risk protection is provided to all Filipinos in line with the UHC Act.

TABLE 12. Net premium revenue across COVID-19 benefit scenarios (in pesos)

Projected 2021 Benefit Payments with no adjustments		
	Scenario 1	Scenario 2
Total Revenue	159,175,253,715	159,175,253,715
Total Expenditures	139,306,153,259	139,306,153,259
Net Revenue for 2021 Projections	**19,869,100,456**	**19,869,100,456**
Projected 2021 Benefit Payments adjusted with COVID-19 benefit payment estimates		
Total Revenue	159,175,253,715	159,175,253,715
Adjusted Total Expenditures	144,647,909,400	172,269,295,448
Net Revenue adjusted based on COVID-19 benefit payment estimates	**14,527,344,314**	**(13,094,041,733)**
Aggregate Benefit Payment to Premium Contribution Ratio	**0.92**	**1.10**
Expenditure to Revenue Ratio	**0.91**	**1.08**

Sources of data: Authors' calculations.

5. Summary of findings and conclusion

This paper examines the state of NHIP financing in cognizance of the implementation of UHC-mandated financing initiatives on restructuring the NHIP premium schedule, providing immediate eligibility to NHIP benefits, and expanding member benefits, as well as, the pandemic engendered effects of reduced capacity to pay premium contributions, lower treatment seeking rates and the new COVID-19 benefit packages affect.

Using the total expenditures-total revenues ratio as measure of financial viability, the analysis of 2020 data shows that the NHIP remains financially viable with an estimated total expenditures-total revenues ratio of 0.84. Projections for 2021, however, show a potentially different situation because of the potentially higher number of COVID-19 cases in 2021[28]. If the proportion of processed COVID-19 claims increases significantly from the 25 percent figure in 2020, then NHIP financial viability is likely to be adversely affected with an estimated total expenditures-total revenues ratio of 1.08 for the high-end scenario, thereby indicating possible deficits for the NHIP. It is only if COVID-19 benefit claim patterns continue to remain as

[28] Even in the middle of 2021 the number of COVID-19 cases reported by the DOH was already twice the number of cases reported for 2020.

weak as in 2020 that a low-end scenario remains financially viable with estimates the total expenditures-total revenues ratio to be at 0.91.

Another concern raised in this paper is the possibility that the implementation of UHC financing initiatives may heighten adverse incentives on member willingness to pay premiums. Using the benefit expenditure-premium contribution ratio as the measure for the burden of paying for NHIP benefits, it is shown that the Formal Economy sector shoulders the burden of funding the NHIP benefits of the Informal Economy and Sponsored sectors. This appears to be due to the application of the POS mechanism as the enrollment system to support the implementation of immediate eligibility whereby the new registrants to the NHIP possess the common characteristic of utilizing care upon enrolment and registration reminiscent of the adverse selection problem.

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