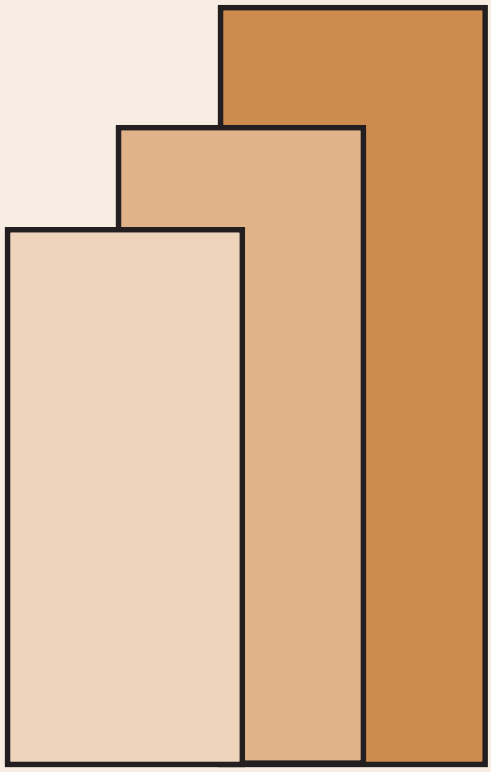
Philippine Institute for Development Studies
Surian sa mga Pag-aaral Pangkaunlaran ng Pilipinas

The Sponsored Program of the Philippine National Health Insurance – Analyses of the Actual Coverage and Variations across Regions and Provinces

Raymunda R. Silfverberg

DISCUSSION PAPER SERIES NO. 2014-19



March 2014

For comments, suggestions or further inquiries please contact:
The Research Information Staff, Philippine Institute for Development Studies
5th Floor, NEDA sa Makati Building, 106 Amorsolo Street, Legaspi Village, Makati City, Philippines
Tel Nos: (63-2) 8942584 and 8935705; Fax No: (63-2) 8939589; E-mail: publications@pids.gov.ph
Or visit our website at http://www.pids.gov.ph

Health Systems Research Management Project

The Sponsored Program of the Philippine National Health Insurance – Analyses of the Actual Coverage and Variations Across Regions and Provinces

FINAL REPORT

By

Raymunda R. Silfverberg, PhL.

For

Philippine Institute for Development Studies
Makati, Philippines

ABSTRACT

This study established the breadth of socialized Philippine health insurance, known as PhilHealth Sponsored Program. It examined the extent of coverage relative to its target "poor" population, how much coverage rates varied across provinces and the factors likely to explain variation. PhilHealth-Sponsored Program appeared to have attained universal coverage over the targeted "poor" population at the national level for the year 2011. However, universal coverage was not true in all regions or provinces. Majority of provinces experienced mild to extreme leakages in the program. Several demand and supply-variables identified to have strong statistical significance in explaining variations were age-groups, education, LGUs' real per capita income, health expenditures, governance style, accessibility to PHIC support offices and availability of health professionals, all of which were found to very likely affect under-coverage rates relative to full coverage. Severity of poverty, administrative and political governance and availability of accredited RHUs and private hospitals provided strong statistical evidence in influencing the levels of leakage vis-à-vis full coverage. Effects of most variables conformed to expectations. Results of the study point to a number of research issues that can be undertaken and some policy recommendations addressed to the national agencies and local government implementers and financiers for the PhilHealth Sponsored Program.

KEY WORDS:

National health insurance, PhilHealth Sponsored Program, regional/provincial PhilHealth coverage, NHTS-PR data, Good Governance Index (GGI), universal coverage

CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDIX TABLES

ABBREVIATIONS AND ACRONYMS

AGI	-	Administrative Governance Index
CR	-	Coverage Rate
DOH	-	Department of Health
DoF-BLGF	-	Department of Finance -Bureau of Local Government Finance
DSWD	-	Department of Social Welfare
EGI	-	Economic Governance Index
FCR	-	Full Coverage Rate
FIES	-	Family Income and Expenditure Survey
HDI	-	Human Development Index
LGU	-	Local Government Unit
LKR	-	Leakage rate
NHIP	-	National Health Insurance Program
NHTS	-	National Housing Targeting System
NSCB	-	National Statistical Coordination Board
NSO	-	National Statistical Office
PGI	-	Political Governance Index
PHIC	-	Philippine Health Insurance Corporation
PIR	-	Poverty Incidence Rate
Q1	-	Quintile 1 (Lowest income quintile)
Q2	-	Quintile 2 (Next lowest income quintile)
RA	-	Republic Act
RHU	-	Rural Health Unit
SIR	-	Subsistence Incidence Rate
SP	-	Sponsored Program
SPI	-	Severity of Poverty Index
UHC	-	Universal Health Care

SUMMARY

The pro-poor orientation of the Philippine National Health Insurance Program is clearly enunciated in the law since 1995 when it was first enacted and in the succeeding amendments made in 2004 and recently in 2013. Guided by the principles of universality, equity, solidarity and care for the indigent , the Philippine Health Insurance Corporation (PHIC) was mandated to establish a pro-poor program, called initially as Sponsored Indigent Program, alongside other programs for the Employed (government and private sectors), the voluntary Individually-Paying, the Non-Paying (retired persons) and later on for Overseas Filipino Workers Program.

As it denotes, Sponsored Indigent Program is heavily subsidized by the national and local governments, which mainly pay for the premium contributions of the enrolled indigents and other marginalized vulnerable persons or families. The latter groups' PHI premium payments may be fully or partially covered by the local governments, national agencies and private donors.

Nearly two decades after the implementation of NHIP, the five (5) programs have grown in breadth and in depth, with the Sponsored Program growing faster than the others. While the Employed Program might have contributed the most in terms of total membership and premium contributions, the pro-poor Sponsored Program has grown the fastest relative to membership under other programs. PHIC's annual reports and statistics indicate SP having attained its goal for universal population coverage at par with the national target period and much ahead compared to the rest of the national program.

This study established the breadth of the Sponsored Program across geographical regions and examined the extent of coverage relative to its target "poor" population and how much coverage rates varied across provinces. It explored further explanatory factors likely to elucidate variations in the coverage. The analyses were performed looking into the total SP membership and later disaggregated per the scheme of sponsorship: those enrolled under the NHTS (National Housing Targeting System of the Department of Social Welfare) and Regular schemes.

The study used datasets on PHI-SP registration records from PHIC and population estimates derived from the National Statistical Office/Coordinating Board's (NSO/NSCB) 2010 Population and Housing Census, 2009 Poverty Survey, Family Income and Expenditures Survey. Coverage ratios were estimated, determining the levels of under-coverage, full coverage and leakage rates under the SP for the country's seventeen (17) administrative regions and eighty five (85) provinces. In exploring the factors likely to explain variations between provincial coverage rates, both descriptive and multinomial-logit techniques were applied.

The study found that PhilHealth-Sponsored Program appeared to have successfully attained universal coverage over the targeted "poor" population at the national level for the year 2011. However, universal coverage was not true in all regions or provinces. Some areas experienced severe to mild under-coverage rates while majority of the provinces indicated mild to very extreme leakage rates, suggesting that considerable number of families who were not part of the targeted indigent population were included while still many true poor households were excluded from the program. Coverage rates varied between provinces; gaps between lowest and highest rates could be extremely wide and rates were highly skewed towards the leakage levels.

Several identified demand and supply-variables were found to have strong statistical significance in explaining variations between provincial coverage rates. Age-groups, education, LGUs' real per capita income, health expenditures, governance style, accessibility to PHIC support offices and availability of health professional were very likely to affect under-coverage rates relative to full coverage. Meanwhile, other than various age groups and education variables, severity of poverty, administrative and political governance and availability of accredited RHUs and private hospitals provided strong statistical evidence in influencing the levels of leakage vis-à-vis full coverage. Effects of most variables conformed with expectations.

Based on the main findings and the cited caveats on membership data, the study identified a number of research issues that can be undertaken and some policy recommendations addressed to the national agencies and local government implementers and financiers for the PhilHealth Sponsored Program.

1. INTRODUCTION

Nearly two decades after the enactment of the National Health Insurance law in 1995, the Philippine government has yet to achieve fully its long-term target by 2015 for a universal health care coverage for its entire population (DOH 2010a, NSO and ORC Macro 2004 and NSO and ICF Macro 2009, PHIC 2013)[1].

Since mid-2010, the Aquino administration has pursued reforms within the health care sector, including expansion of the national health insurance, both in terms of population coverage and benefit contents, to attain the goals and objectives of achieving Universal Health Care (UHC), locally termed as "KalusuganPangkalahatan – KP " program (DOH 2011)[2]. A major and important component of the KP or UHC is the extension of the PhilHealth-Sponsored Program to cover widely the poorest and marginalized segments of the total populace, in relation to the national government's poverty reduction efforts, programs and policies. The recent amendment of the 1995 NHI law for the second time (the first amendment promulgated in 2004 with RA 9241) with the enactment of National Health Insurance Act of 2013, RA 10606[3] reflect the reforms being vigorously pursued by the Philippine government to achieve its target for a UHC by 2015.

When approaching its target for a universal health care, the Philippine government has gained successes in some aspects but still inadequacies in other issues. Early reviews of the NHI Program recognized its positive impact within the country's health financing system in terms of improved accessibility to health services, i.e., greater population coverage; narrowing of inequity in access to health care due to the equalization of benefits across all kinds of patients regardless of economic status; significant attention given and prioritization of health insurance in

[1] Statement is based on findings from a study (DOH 2010), from calculations of population coverage that can be extracted from the NDHS surveys 2003 and 2008 (NSO 2004 and 2009) and information on statistics and charts from PHIC website, downloaded on March 2013.

[2] Aquino's Health Agenda (AHA) to achieve Universal Health Care was issued as DOH Administrative Order AO 2010-0036 in 2010a. KalusuganPangkalahatan's translation into English is "Universal Health Care" per DOH DO 2011-0188.

[3] . RA 7875 OF 1995 was recently amended with RA 10606 known as National Health Insurance Act of 2013. Formulation of the Implementing Rules and Regulations is still in process, as of this writing.

budget allocation and policy making both at the national and local government levels (Jowett and Hsiao 2005; Oberman et al 2006; Obermann et al 2008). On the other hand, the same papers observed that financial protection was limited to the poor and marginalized sectors under the Indigent and Self-Employed Programs[4]. Their observations confirmed Hindle et al's (2001) argument about the inadequacy of the national program in lowering financial barriers, given the relatively high co-payments from private out-of-pocket-sources.

An in-depth study in 2008 under the auspices of the Department of Health (DOH) in cooperation with PHIC and the USAID assessed the performance of NHIP, in terms of the benefits delivered by the PhilHealth programs (DOH 2010b). The main issue which the review tried to answer was "How much financial protection is being provided to Filipinos, especially the poor" (DOH 2010b p. 13).

Using 2008 data on PHI membership under the different programs, the study estimated the benefit delivery rate (BDR) of NHIP based on the computations of coverage rates of the population in terms of enrollment and eligibility, availment and financial benefit coverage. The study found that at the national level, coverage rate was 60% based on the list of PHIC registered members vis-à-vis the total population, 49% coverage rate of the poor population segment and 66% for the non-poor. Enrollment coverage rates varied considerably between the administrative regions of the country from a high of 86% for NCR to a low of 15% for ARMM. Availment coverage rates (subject to eligibility) were 53% for the national level, 49% and 55% for the poor and non-poor population, respectively. Similarly, the regional availment coverage rates differed significantly from 77% for NCR and 14% again, for the ARMM region. Coverage rates presented comparable patterns between provinces.

The estimates led to the conclusion that out of a target for example of 100 fully protected Filipinos, only 53 were enrolled (enrollment coverage). Of the 53, only 22 availed of the services from accredited PHI facilities (availment coverage). The 22 covered and who availed were only equivalent to eight (8) fully protected Filipinos.

[4]Later renamed as Individually Paying Program.

The BDR estimates on population coverage rate of 60%, while found to be higher than the figures derived from the NDHS 2008 report of 38 % (51% if the GSIS and SSS Medicare members were to be included--NSO-ORC Macro 2009) contradicted the PHIC's national coverage rate of 76% out of the country's total population for the same year. In the absence of prior detailed studies evaluating NHIP's performance at the regional or lower levels with which comparisons can be made, the BDR study also underscored the need to assess regional/provincial variations as well as the performance of each NHIP sub-program. Furthermore, a salient policy recommendation was for the national government to shoulder the full cost of enrolling the indigents (DOH 2010), among others.[5]

Focusing on the PhilHealth-Sponsored Program, PHIC membership statistics suggest great stride in terms of increased coverage of the poor population over the years. Relative to the magnitude of poor families, the SP membership was already showing indication of leakages from 2006 (see Section 2.2 of this report). Albeit, the BDR's findings may have weakened somewhat the success rates when viewed from the regional and provincial levels.

This study was commissioned to analyze the actual coverage of the member-beneficiaries vis-à-vis the targeted poor and marginalized population under the PhilHealth-SP and how the coverage rates differ between regions and provincial LGUs[6]. Different from that of the BDR study cited earlier, the analysis limits its emphasis on enrollment coverage rates based on the PHIC registration records on the membership under the Sponsored Program. The study shall address issues on possible "under-coverage" or "leakage" rates by establishing its extent.

This report proceeds in the second section with a brief review of the pro-poor provisions of the NHI law and the trends on population coverage rates over the years. The third section states the objectives, scope and significance of the study, followed by the presentation of the methods and datasets applied in the fourth section. The results and discussion of the findings are expounded in the fifth part

[5] See BDR study of DOH (2010) for detailed policy recommendations addressed to DOH, PHIC and the LGUs.

[6] The study was commissioned prior to the signing of RA 10606 NHI 2013 into law. The analyses therefore covered data and information gathered before the second amendment of NHI. However, revised provisions were taken into consideration when advocating some policy recommendations based on findings of the study.

while some research issues and policy recommendations are posited in the final section.

2. A BRIEF REVIEW OF THE NATIONAL HEALTH INSURANCEACTS

2.1 The National Health Insurance Pro-Poor Mandate: Salient Provisions of the Law

The Philippine's National Health Insurance Program (NHIP), more popularly known as *PhilHealth* has a clear mandate of providing financial means to all Filipinos in general , enabling them to access basic yet effective health care and services at affordable costs. Priority is given to address the "needs of the poor, the underprivileged, the sick, elderly, disabled, women and children in particular". (RA 7875, Article I, Section 2).

That the NHIP has a pro-poor orientation is distinct in the various provisions of the law. The guiding principles of universality, equity, solidarity and care for the indigent express the intent of the law not only to provide needed health care but likewise to endow upon the marginalized segments of the total population protection from financial risks due to illness. The law and its Implementing Rules and Regulations (IRR) spell out related provisions, specifically the definition of an "indigent" individual or household, the manner of identifying the indigent through a *means test* protocol, the authority or agencies responsible in enrolling the "indigents", the funding source or sharing of resources in covering premium contributions (between national and local governments and other possible sponsors) and the minimum benefit entitlements (of health services) for the identified and sponsored "indigents" (RA 7875 of 1995, RA 9241 of 2004, IRR 2004, RA 10606 of 2013).

The Philippine Health Insurance Corporation, instituted under the same 1995 law and per its mandate, established four (4) sub-programs, foremost of which was the *Sponsored Indigent Program (SIP)* - a scheme which should cover persons or families who had no visible income or whose income was insufficient for the subsistence of his family. The other three (3) schemes should address the

following sectors: a.) *Employed Program* which initially accommodated the transfer of Medicare members of the GSIS and SSS, who were then employed at the government and private sectors, respectively. This subsequently applies to all employed population; b.) *Individually Paying Program*, a voluntary enrollment scheme intended for the self-employed, the workers in the informal sector including the overseas Filipino Workers[7] and others (i.e., parents and children not qualified as legal dependents, foreign permanent residents in the country); c.) *Non-Paying Program* (renamed as *Lifetime Program* since 2008), enrolling the retirees under the old Medicare system and who completed 120 monthly contributions before retirement.

While amendments of the original NHI law have taken placed over the years, the pro-poor provisions of the NHI Act have remained, if not improved (RA 9241 of 2004, IRR of 2004). Specifically, target population under the SIP was expanded to include largely the indigents (with full premium subsidy), and marginalized groups (underprivileged, elderly, persons with disability, children, indigenous peoples) who could fall under the socialized Partial Subsidy Scheme. The manner of identification and enrollment of SIP beneficiaries, especially the indigents was enhanced by interphasing *means tests* protocol with the Community-based Information System-Minimum basic need (CBIS-MBN) approach[8] administered at the barangay level by the City/Municipal Social Welfare and Development Office (C/MSWDO) and/or the barangay. The approach would help determine the above-subsistence poor who could afford only part of the contributions required and would not qualify for full subsidy under the means test rules. These families could be enlisted by the LGUs and the PhilHealth premiums could be subsidized partially by the government and/or other donors.

In relation to the enrollment process, PHIC in coordination with the LGU would evaluate annually the list of sponsored indigents and would revoke or cancel membership under the program for reasons such as non-compliance of the rules and

[7] In 2005, a separate program for the overseas workers was established, called Overseas Workers Program.

[8] CBIS-MBN Survey approach has been applied by the LGUs since the early stage of the decentralization. The approach has been used to identify economic status of families, among others, based on the minimum basic needs-criteria.

regulations, change of membership status due to employment or increase in family income above poverty threshold. The LGU however could propose replacement for the revoked member/s during the membership year.

Changes were also made on the sharing schemes between the national government and LGUs for the payment of premium contributions for the indigents based on the income classification of the LGUs. For an indigent residing in the 1st to 6th class cities and 1st to 3rd class municipalities, PhilHealth premium sharing was 50-50% between the national and local governments. For an indigent-resident of a 4th to 6th class municipality, premium –payment-sharing between the national government and LGU ranges from 90-10% during the first year up to 50-50% at the 10th year. (Originally, the provision of counterpart funding from the national government of up to 90% applicable to the lowest-class municipalities was five (5) years.) The same group of municipalities (4th-6th class) should be made to contribute equal share with that of the national government only when their status would have been upgraded to 1st, 2nd or 3rd income class. From 2004 to 2010, premium subsidy from the LGU included its counterpart premium for the indigents and partly for the partially subsidized - paying members. Under the Partial Subsidy scheme, a premium donor could either be a government agency, a local/foreign private entity/organization, charitable organization, cooperative, or an individual person.

Finally, the sponsored indigent members could avail of the benefit packages (which are also offered to all other members under the various schemes): inpatient coverage in public (or private) hospitals, outpatient consultation and diagnostic package (OCDP) at RHUs, maternity care package for non-hospital but facility-based-delivery, including pre-post-natal care and family planning services, other special benefit packages (case rates, TB, SARS, Avian Flu).

The LGUs providing OCDP (now termed as OPB) at their RHUs are reimbursed a capitation fee of P300 Philippine pesos for every indigent family enrolled under the program. Such capitation funds are reserved for use in procurement of drugs or equipment needed payment of referral fees and other administrative costs. This is to motivate LGUs to enroll as widely as possible the indigent population in their communities.

The latest amendments stipulated in NHI RA 10606 of 2013 have extended even more the provisions relevant to the SIP, i.e., expansion of population coverage, content of benefit packages, and greater financial protection for the poor in terms of broader subsidies from the national government and partly from LGUs and other donors. An important amendment is the delineation of the government subsidies for those under Indigent scheme from that of the Sponsored Program. Under the former scheme, full subsidy for premium contributions shall be covered by the national government, specifically under the appropriations of the Department of Health (DOH). Under the latter scheme (SP), "those from the lowest income segment who do not qualify for full subsidy under the means test rule of the DSWD shall be entirely subsidized by the LGUs or through cost sharing mechanisms between/among LGUs and/or legislative sponsors and/or other sponsors and/or the member, including the national government" (RA 10606 Section 18.b). Moreover, premium contributions for certain groups under the care of the DSWD shall be paid for from the DSWDs annual budget; whereas LGUs shall fully subsidize premiums for their volunteer workers, (barangay health workers, nutrition scholars, other volunteers- Sec.20.b)[9].

The NHI's mandate for the care of the indigent through a specific program has thus evolved slowly and has gained some grounds in moving towards universal coverage - health insurance for all Filipinos, the poor population in particular.

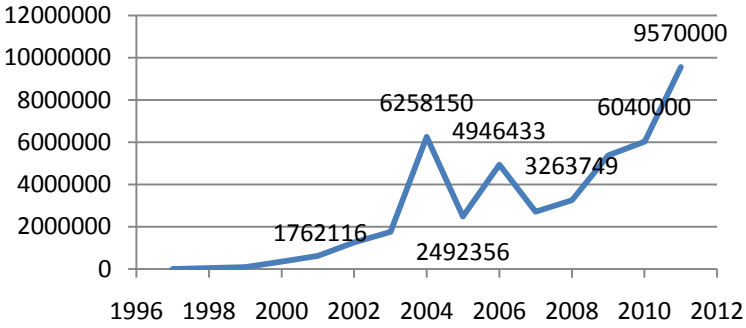
2.2 PhilHealth – Sponsored Program: Membership Growth over the Years

While the over-all performance of the NHIP has been looked at as yet short of its goals and targets, the contrary can be said of the PhilHealth- Sponsored Program in terms of universal health insurance coverage of the poor population. PHIC enrollment data shows that from 1997 upon the first Memorandum of Agreement

[9] Refer to NHI RA 10606 for other provisions which have been amended. PHIC has started to delineate in 2011 Sponsored membership under the NHTS (National Housing Targetting System) list of indigents and Regular Members under LGU subsidized program. Albeit, it was not clear if premium payments for Sponsored members (whether national or local governments) have been simultaneously decomposed into the two sources and on the same year (PHIC Corporate Planning, February 2013).

contracted with the LGU of Abra Province (Banzuela 2005) to the recent years, family/household membership has grownun paralleled vis-à-vis the other programs (see Figure 1). From 2904 households enrolled in 1997, SP membership passed the one million mark (1.261M) in 2002 and continued to grow fast, with its height in 2004 (prior to 2011).

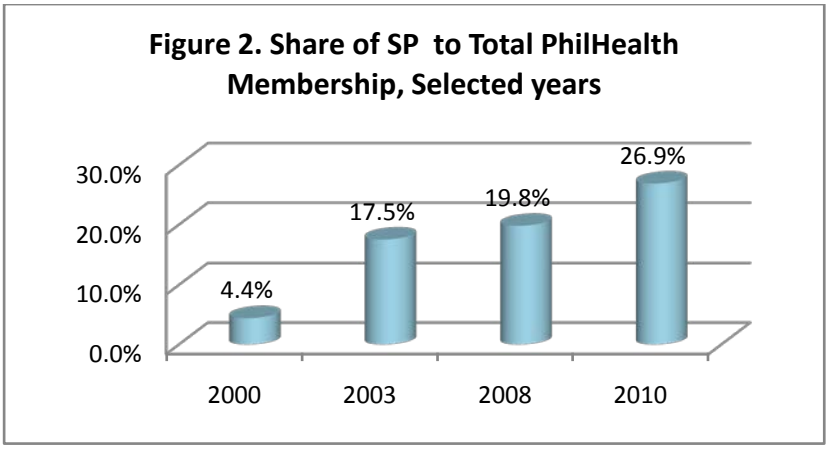
Figure 1. PhilHealth-Sponsored Members 1997-2011



Sources: PHIC Stats and Charts various years; PHIC Corporate Planning Department Evaluation and Statistics Division.

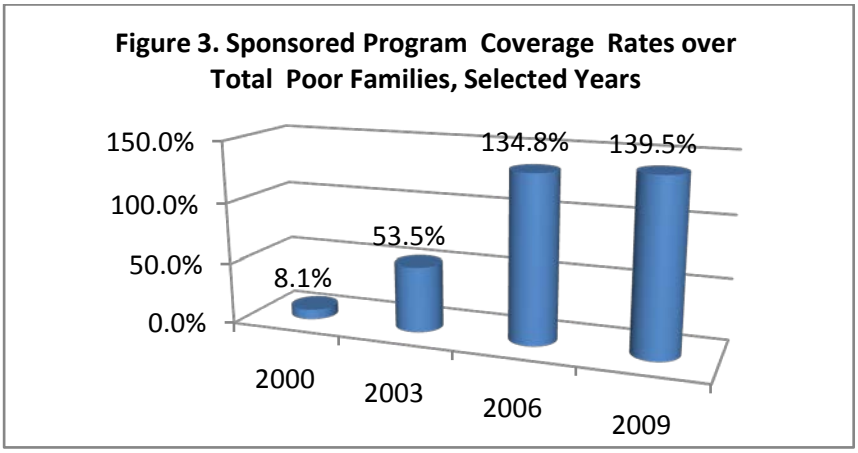
Growth of membership at the early stage of implementation can be attributed to the launching of the first outpatient diagnostic package (OPD) and capitation payments in 2000; introduction of special packages, i.e., dialysis, anti-TB DOTS and maternity package in 2003: and the increasing number of LGU participation (in 2004, there were already 68 out of the 79 provinces, 113 of 116 cities and 1365 out of the 1500 municipalities that signed their MOAs (PHIC -CPD 2004)). However, the record high numbers in 2004 and 2006 were results of the Plan 5M and Oplan 2.5M programs under the previous Arroyo administration launched by PHIC to fast-track targets on universal insurance coverage.

Relative to total PhilHealth membership, enrollment under the Sponsored Program came to surpass that of the other programs, except the Private Employed. Share of the SP to total membership increased from 4.4% in 2000 to 27% in 2010 (Figure 2). In comparison, the voluntary Individually-Paying Program contributed 12.6% in 2000 to 17% in 2010 (PHIC Stats and Charts, selected years).



Source: Author's own estimates based on PHIC reports for selected years.

Given the membership growth statistics, the extent of SP coverage of the targeted poor population of the country can be gleaned at Figure 3. Using published data on the magnitude of the poor population based on poverty incidence rates (PIR) during each survey year and PHIC's membership reports, the PhilHealth-Sponsored Program seem to have obtained universal coverage in between years 2003 and 2006, wherein levels of "leakage" in the program are indicated in 2006 and 2009. Albeit, these estimates are not corroborated by the 2008 BDR study of DOH.



Source: Author's own estimates based on NSCB Poverty Survey results and PHIC reports for selected years.

3. OBJECTIVES, SCOPE AND SIGNIFICANCE OF THE STUDY

3.1 Primary and Secondary Objectives

Issues on disparity of membership counts between reports and independent studies remain half- resolved. Likewise, there emerges concerns about exclusion of

true indigents and inclusion of unintended beneficiaries under the program. Policy-makers in the health sector seek explanations to varying enrollment patterns within and between PhilHealth programs. This study primarily aims to:

1.) Determine the actual coverage (individuals and households) of the PhilHealth - Sponsored Program in totality, at the regional and provincial levels;
2.) Examine the possibility of a "leakage" (families/households who should not be in the program but were included) and "under coverage" (families who should be in the program but were not included);
3.) Identify and analyze factors explaining variations across provinces.

Since subsidies for premium contributions come from the national and local governments as well as other kinds of sponsors, PHIC has started to delineate membership listing into either the NHTS (full subsidy) or the Regular scheme (partial subsidy)[10]. Separate datasets on actual headcounts is available for 2011. The secondary objective of the study is to disaggregate the analyses by examining the coverage rates, issues on "under-coverage and leakages" and likely causes of variations across provinces per the schemes of the Sponsored Program. Disaggregation may provide clear-cut explanation to varying levels of coverage rates.

3.2 Scope and Significance of the Study

This study forms part of a larger research project"Health Systems Research Management in the Department of Health", the main objective of which is "to improve the capacity of the DOH and the Philippine Health Insurance Corporation (PHIC) in the formulation and implementation of policies through conduct of systems research, dissemination and capacity-building activities" (PIDS 2012). Several studies

[10] Premium payments for the fully-subsidized indigents could still be shared between the national and LGUs. The delineation might have been done in anticipation for the amendments made in the 2013 NHI law, where sources of subsidies are clearly enunciated (RA 10606 Sections 19 and 20).

are being undertaken, addressing issues on health financing, health service delivery and Millenium Development Goals (MDG).

The research is focused on PhilHealth -Sponsored Program and is limited to analyzing the enrollment rates (coverage of targeted poor population) beyond national levels. For practical reasons, detailed analyses are confined to a cross-section examination of SP's performance in terms of population coverage at the provincial level and for a single year, 2011.

Together with the other research studies being (or have been) conducted, this particular study partially supports the national government's endeavors to assess the financial risk protection initiatives of the NHIP (PIDS 2012). The analyses and findings of this study may become valuable inputs to related research works under the same project, i.e., review of the draft Congressional Bills on Health Insurance, formulation of policies relevant to the implementation of the revised law on National Health Insurance RA 10606, among others.

Moreover, as a sequel to the BDR study of DOH albeit limited in scope, the analysis on population coverage using more recent datasets could partially provide an updated understanding of the impact of the PHI-Sponsored Program. With only a handful of assessment studies available, relevant and appropriate evidence-based policy recommendations can be derived from the findings of the study.

4. METHOD AND DATASETS

4.1 Analytical Framework

4.1.1 Estimation of Population Coverage Rates under Sponsored Program

To estimate coverage rates at the regional and provincial levels, the formula is expressed, to wit:

$$CRSP_{R1\text{-}n} = \frac{NSPT_{R1\text{-}n}\ members}{PoorPop_{R1\text{-}n}} \quad \text{(Equation 1)}$$

$$CRSP_{P1\text{-}n} = \frac{NSPT_{P\ 1\text{-}n}\ members}{PoorPop_{P1\text{-}n}} \quad \text{(Equation 2)}$$

where:

$CRSP_{R1\text{-}n}$ = Coverage rate for total registered SP members (principal members +dependents) for **Region** 1….n;

$NSPT_{R1\text{-}n}$ = Total number of registered SP members in **Region** 1….n;

$PoorPop_{R1\text{-}n}$ = Estimated number of poor population in **Region** 1….n;

$CRSP_{P1\text{-}n}$ = Coverage rate for total registered SP members (principal members +dependents) for **Province** 1….n;

$NSPT_{P1\text{-}n}$ = Total number of registered SP members in **Province**1….n;

$PoorPop_{P1\text{-}n}$ = Estimated number of poor population in **Province**1….n;

4.1.2 Determination of Under-coverage and Leakage Levels

To determine the extent of the relevant poor population being covered by the PhilHealth-SP schemes, coverage rates converted into ratios should establish the level of "undercoverage" or "leakage" problems per region and province. In totality, coverage rate was categorized as:

If: CR = 0, no coverage

0 < CR < 1, under-coverage

CR = 1, right amount of coverage

CR > 1, leakage

Based on results, coverage rate was further sub-categorized into severe, moderate to mild under-coverage, full coverage, mild to moderate and extreme leakage rates. Equivalent ratios for sub-categories were labeled subsequently.

4.1.2 Provincial Coverage Rates Variations: Determination of Demand and Supply-side Explanatory Factors

Due to the limited sample size of the regions, variation analysis was conducted only for the provinces. When exploring factors likely to explain the observed variations in the coverage rates, regression techniques were employed, given the equation:

$$CR_{SP} = \alpha_1 \mathbf{X} + \alpha_2 \mathbf{S} + \varepsilon \qquad (3)$$

where:

CR_{SP} = coverage ratio

X = vector of socio-economic and demographic characteristics of the population per province;

S = vector of supply side variables (at the provincial level).

Based on theory and depending on the availability of relevant data, the choice of the variables representing X and S included the following:

<u>X variables</u>:

- Severity of poverty
- Male/female ratios
- Age composition/brackets
- Human development index (HDI as a whole); HDI Education index

<u>S variables:</u>

- GDP/capita of the province
- Health expenditures/capita of the province
- LGU Income classification
- Good Governance Index (GGI) as a whole; alternatively its components:
    - Economic governance index (EGI)
    - Administrative governance index (AGI)

    - Political governance index (PGI)
- PHIC office support per province
- Availability of PHIC accredited health facilities/manpower:
    - RHUs/CHOs and private clinics
    - Public and private hospitals
    - Health professionals

Justifications for the inclusion of these variables are in order.

Demand-side variables

Severity of Poverty

Poverty is often cited as a main reason for non-enrolment of poor households into the insurance program, possibly due to unaffordable premiums and other transactional costs related to purchase; low appreciation of the future value of health insurance against choice for present consumption out of necessity (Schneider 2004). A few studies found reasons contrary to these arguments in explaining poor household's enrollment into the health insurance program. According to Wagstaff (2000), poor households could become increasingly averse to risk of a costly illness as they move closer to poverty, thus may seek to enroll into the program earlier. A World Bank report (2000) stated that "according to concepts of time preference, those with a higher value for future protection than current consumption are more likely to purchase insurance". Morduch (1995) further cited that due to credit constraints in the future, poor households may also become more willing to sacrifice current income thus will insure in order to have less risk in the future.

In the case of the PhilHealth-SP, while LGUs are encouraged to enlist their " indigent constituents" into the program, enrollment by the households can still be considered as voluntary, depending on how strong the motivation is to become part of the program. Anecdotal evidence suggests that "political indigents" do exists, i.e.,

those not qualified to be in the list are holders of PhilHealth-Sponsored cards (Silfverberg 2009).

The NSCB (2012a)provides statistics on severity of poverty per province and region for year 2009. Derived from Foster-Greer-Thorbecke (FGT) class of poverty measures,[11] severity of poverty is a measure which is sensitive to income/expenditure distribution among the poor – the worse this distribution is, the more severe poverty is in the economy.

Using "severity poverty index" as a measure of the extent of poverty in each province, it can be assumed that the effects of this variable on coverage rates can go both ways: a higher index denotes wider poverty and income inequality among the poorest. Per se, it becomes more difficult for this group of population to enroll themselves into the health insurance scheme. On the other hand, the higher the severity of poverty index, the greater the need for the government, both national and local to cover this segment under both the NHTS and Regular schemes.

Female/Male Ratios

In the Filipino family context, the man or husband usually takes the role as the head of the family and as a major decision-maker. This may have changed and roles of male and female may have shifted over the evolving modern times. Nonetheless, when it comes to care of children, including health care, the woman or mother is an influential decision-maker, significantly co-sharing the responsibility as well as actual care of the young family members.

This variable is given importance since the DSWD targets the enrollment of families into the government programs, i.e., Cash Transfer and PhilHealth – NHTS via the enlistment of the mother and family-dependents identified to belong to the poorest and above subsistence poor population of each province (see Sections 4.2.1 and 4.2.2 on membership data and population estimates).

[11] For more detailed explanation of FGT poverty measures, see Foster J, Greer J and Thorbecke E, 2010; Tungodden B, 2005.

Age Composition of Population

The presence of more children and dependents (<21 years) and the elderly amongst the poor households should lead to high coverage rates in the province. Public primary health care is provided and financed by the LGUs. Public PHC is largely focused on maternal and child health care. Therefore, LGUs which share in the payment of premiums for PHI-Regular members, shall be encouraged to enlist indigent mothers with young children, in anticipation to the capitation payments from PHIC for every indigent family it would enroll.

Human Development Index (HDI)

NSCB (2012b) defines HDI as a measure on how well the country has performed in terms of real income growth and social indicators of people's ability to lead a long and healthy life, acquire knowledge and skills and have access to resources needed to afford a decent standard of leaving. HDI is estimated based on sub-components, namely, life-expectancy, education and income indices. HDI as a whole and the Education index per province are treated as separate variables[12]. The educational background of individuals or families as explanatory variable to health insurance enrollment and health care utilization is well-established in the international literature (Silfverberg 2009, Lavado 2007; Schell et al 2007, among others).

Supply-side variables

Gross Domestic Product per Capita

GDP data are provided by NSO only at the regional level. In the absence of such data, the Annual Operating Income of the Provincial LGU is taken as a proxy measure of the GDP level in each province. Provincial income data was derived from the Statement of Receipts and Expenditures provided by the Department of Finance Bureau of Local Government and Finance (DoF-BLGF). The latest and almost-

[12] Data on 2009 HDI per province was accessed from NSCB's website www. nscb.gov.ph/hdi/2009.

complete SRE report is available for 2010.[13] LGU income was deflated by 2006 consumer price index.

Health Expenditures per Capita

Health expenditures refer to that spent by the Provincial LGU for 2011, which include expenditures for public health care, nutrition and population control. Similarly, data on health care expenditures was obtained from the DoF-BLGF SRE for 2010.

LGU Income Classification

At the start of the PHI-Sponsorship Program, premium-payments for indigents listed by the Local Government Units were shared by the national and local governments, depending on the latter's income classification. Sharing schemes ranged from 10% - 90% for the highest to the lowest income class LGU, whether a municipality, city or province. Reimbursements to the LGUs were likewise provided by PHIC in terms of capitation per enrolled indigent[14].

Provincial LGUs in varying income classes could behave differently in the implementation of the Sponsorship Program over the years. Diverse priority-settings of LGUs could most likely influence SP coverage rates, i.e., full-coverage to leakage can be expected from high-income class LGU and severe under-coverage from low-income-groups. At the provincial level, LGUs are classified from First to Fifth Income Class (DoF-BLGF 2013).

Good Governance Index (GGI)

Good Governance Index, is a measure of the LGU's good governance outcomes or performance, with the aims of promoting and sustaining best practices and addressing specific areas for improvement in governance (NSCB 2012c). GGI is measured along 3 important dimensions:

[13] There is a handful of municipalities and cities under a few provinces which are awaiting for final approval from BLGF, hence SREs of these provinces remain to be incomplete as of this writing.
[14] Sharing schemes have been altered recently in the revised NHI law RA 10606 of 2013.

Economic Governance Index (EGI)- indicator of the LGU's sustainable management of its resources through generation of adequate financial resources and responsiveness to alleviation of poverty;

Administrative Governance Index (AGI) – indicator of LGU's efficiency of the delivery of services on health, education and power supply;

Political Governance Index - the application of the rule of law and people's empowerment and participation.

These variables, taken as a whole (GGI) or as component-indices (EGI), (AGI), (PGI),while new in theory and has yet to be empirically tested, are relevant factors in the Philippine context in affecting coverage rates as the implementation of PHI-SP rests largely on the governance- style of the LGUs. The NHTS scheme, while separated and implemented by the DSWD, requires the assistance, if not support from the local governments in the listing of recipients/beneficiaries of the Cash Transfer and PhilHealth cards coming from the national government.

PHIC Office Support

The presence of at least one or more PHIC offices in the province serves as an access measure to administrative support needed by LGUs, other private health care providers or even individual members when requiring transaction-assistance from the PHIC. It is expected that the convenience of having accessible PHIC offices or business centers within the locality can lead to higher coverage rates in the province.

Availability of Accredited Health Facilities

Availability of health care facilities in the locality is in itself an important factor in explaining variations in health care utilization. Accessibility to health services is often measured in terms of distance and transport barriers (Silfverberg 2009, Heller 1982; Ensor and Cooper 2004) . This study applied the presence of PHI-accredited health care facilities/providers as a measure of access (data supplied by

PHIC). Such can be a motivating factor both for the local population and the Local Governments. From the members' side, they are able to avail of the PHI benefits and services offered in these facilities. From the LGUs' viewpoint, accredited government health centers and hospitals gain additional income out of PHIC's reimbursements for services provided by them to the sponsored indigents.

4.1.3 Disaggregation of Analyses by Schemes: NHTS and Regular SP

Given the goals of the Universal Health Care or KP, the PhilHealth- Sponsored Program and schemes are heavily subsidized by both the national and local governments. Thus, it is of great interest to examine the effectiveness of the schemes in terms of coverage of targeted population groups and how the patterns vary from one region or province to another.

The study analyzed separately the program by source of sponsorship, i.e., determining coverage ratios for membership under NHTS-SP vis-à-vis poorest population and Regular-DOH SP vis-à-vis near poor population. Equations (1) – (3) were applied in addressing the secondary objectives.

4.2 Datasets and Estimation Approaches

4.2.1 PhilHealth- Sponsored Program Membership Data

Data on the enrolled/registered members and dependents under the PHI-SP for the year 2011 was provided by the Corporate Planning Department of PHIC Main Office. Two notations must be emphasized regarding PHI datasets.

Firstly, principal members' count for both listed under the NHTS and Regular-DOH schemes are actual. The number of dependents for NHTS are similarly actual counts while those under the Regular-DOH were generated by PHIC, using member-to-dependent multipliers per region, which in turn were applied to estimate the provincial counts (PHIC-CPD, 2013*)*.These multipliers were recommended by the BDR

Study (DOH 2010), in lieu of the PHIC database which has incomplete registration of SP dependents[15].

The use of multipliers certainly serves as a weakness of the dataset when establishing total membership counts. There can be risk for potential bias upwards when estimating coverage rates due to possibly inflated numbers of dependents. Not until the PHIC is able to address fully this basic issue on membership-data-registration, studies/analyses shall be subject to such data limitation. There are other technical issues raised by the BDR study which must be taken into account when determining estimated headcounts of both the principal members and their dependents. [16]

Secondly, PHIC datasets on membership were presented based on the division/location of the PHI Regional Offices (PRO). Not all PROs correspond to the geographical location/division of the country's administrative/political regions. For example, there are two PROs (III-A and III-B) in the administrative Region III while Batangas Province is situated in PRO IV-B instead of being under administrative

[15] The incompleteness of registration records for the SP dependents emanates from the problem of incomplete or lack of information on dependent profile at the very PMIS database of the PHIC Regional Office, i.e., lists of LGU- sponsored –indigents are often not accompanied with completely-filled up membership-application-forms, where dependent's profile is indicated. This observation is confirmed by a Local Health Insurance Officer in Tagum City, during a personal interview in May 2013.

[16] The BDR study identified important and basic flaws of PHIC membership registration database systems. A few of the weaknesses pertained to the recording of the SP members and dependents. Firstly, there was a problem reconciling SP membership data between the PMIS database maintained by the PHIC Regional Office and that of PREMIS database in the PHIC Central Office. Secondly, there is only one membership status variable in database hence only membership status for the current year is captured - meaning membership database only reflects current cumulative membership. Thirdly, the current database allows for only a single entry – e.g. "Start date" field – renewed coverage gets recorded in database by over-writing info in "start date". In effect, all previous enrollments under the SP would not be recorded in database. Fourth, there is lack of family ID and relationship to principal members, i.e., husband and wife and common dependents. As of the writing of this report, records on dependents of SP principal members remains to be incomplete because "SP members usually do not declare their dependents during enrollment" (confirmed by a Local Health Office in-charge of the PHI-SP, Tagum City LHIO, June 2013). The BDR study found the dependent database deemed unreliable for certain stratification variables, hence the authors did some adjustments with membership ,including that under the SP. While PHIC is slowly addressing these issues, not all flaws have been easily resolved, i.e., the four issues cited above, per the recommendations of the study.

Region IV-A. Similarly, Rizal Province is placed under NCR listing and not under Region IV-A. Adjustments are therefore made so that all provincial data would match those of the administrative regional divisions. This is done to be consistent with other datasets, i.e., provincial population estimates and the variables to be utilized for the regression analyses. The results of these data adjustments on membership of the PHI-SP, total and by scheme are presented in Tables 1 and 2 for the regional and Tables 3 and 4 for the provincial distribution.

Table 1. PhilHealth- Sponsored Program Membership (Members+Dependents):
NHTS, Regular and Total Membership by Administrative Region 2011

REGION	NHTS-SP	REGULAR-DOH SP	TOTAL- SP Membership
National Capital Region	996689	1008684	2005373
Cordillera Administrative Region (CAR)	159655	389280	548935
I Ilocos	928598	881771	1810369
II Cagayan Valley	406456	579141	985597
III Central Luzon	996265	1827286	2646814
IV-CALABARZON	1417490	678143	2095633
IV-B MIMAROPA	924254	733372	1657626
V Bicol	1894280	1588525	3482805
VI Western Visayas	1634487	1927625	3562112
VII Central Visayas	1220401	1424844	2645245
VIII Eastern Visayas	1121208	1996636	3117844
IX Zamboanga Peninzula	1231667	496134	1727801
X Northern Mindanao	803660	2665457	3469117
XI Davao Region	977761	629768	1607529
XII SOCCSKSARGEN	1031115	1081087	2112202
XIII Caraga	784457	931398	1715855
Autonomous Region in Muslim Mindanao (ARMM)	2372286	624764	2997050
PHILIPPINES	18,900,729	19,463,914	38,187,907

Source: Philippine Health Insurance Corp. Corporate Planning Department. Sent March 7, 2013

See Appendix Table 1 for base data.

Table 2. PhilHealth- Sponsored Program Members and Dependents: NHTS and Regular Membership by Administrative Region 2011

REGION	NHTS SP		NHTS TOTAL	REGULAR-DOH SP		REGULAR-DOH TOTAL
	MEMBERS	DEPENDENTS		MEMBERS	DEPENDENTS	
NCR	235386	761303	996,689	246622	762062	1008684
CAR	52831	106824	159655	129760	259520	389280
1 Ilocos	213,620	714,978	928,598	244,258	637,513	881,771
II Cagayan Valley	84,696	321,760	406,456	147,364	431,777	579,141
III Central Luzon	233,003	763,262	996,265	500,597	1,411,684	1,912,281
IV-A CALABARZON	318,653	1,098,837	1,417,490	185,730	492,413	678,143
IV-B MIMAROPA	196,275	727,979	924,254	202,589	530,783	733,372
V Bicol	401,507	1,492,773	1,894,280	399,127	1,189,398	1,588,525
VI Western Visayas	343,471	1,291,016	1,634,487	550,750	1,376,875	1,927,625
VII Central Visayas	274,209	946,192	1,220,401	399,116	1,025,728	1,424,844
VIII Eastern Visayas	249,869	871,339	1,121,208	526,817	1,469,819	1,996,636
IX Zamboanga Peninzula	298,957	932,710	1,231,667	145,855	350,279	496,134
X Northern Mindanao	186,536	617,124	803,660	761,559	1,903,898	2,665,457
XI Davao	232,820	744,941	977,761	176,901	452,867	629,768
XII SOCCSKSARGEN	241,116	789,999	1,031,115	300,302	780,785	1,081,087
XIII CARAGA	187,611	596,846	784,457	239,434	691,964	931,398
ARMM	491,877	1,880,409	2,372,286	174,515	453,507	628,022
PHILIPPINES	**4,242,437**	**14,658,292**	**18,900,729**	**5,331,296**	**14,217,458**	**19,548,754**

Source: Philippine Health Insurance Corp. Corporate Planning Department. Sent March 7, 2013

See Appendix Table 1 for base data.

Table 3. PhilHealth- Sponsored Program Membership (Members+Dependents): Total and by Scheme, by Region/ Province 2011

Province	NHTS-SP	REGULAR-DOH	TOTAL SP Members
NCR	**996689**	**1008687**	**2,005,376**
NCR1st District	194222	48467	242689
NCR2nd District	275300	288525	563825
NCR3rd District	314855	254738	569593
NCR4th District	212312	416957	629269
Cordillera Administrative Region	**159655**	**389280**	**548935**
Abra	32,031	72,138	104,169
Apayao	21,113	33,252	54,365
Benguet	37,757	97,407	135,164
Ifugao	27,452	54,180	81,632
Kalinga	24,211	62,646	86,857
Mountain Province	17,091	69,657	86,748
I Ilocos Region	**928,031**	**879,130**	**1,807,161**
Ilocos Norte	85,963	156,982	242,945
Ilocos Sur	125,618	153,194	278,812
La Union	143,562	183,208	326,770
Pangasinan	572,888	385,747	958,635
II Cagayan Valley	**407,023**	**581,340**	**988,363**
Batanes	567	2,200	2,767
Cagayan	135,503	151,568	287,071
Isabela	183,287	224,824	408,111
Nueva Vizcaya	58,737	54,423	113,160
Quirino	28,929	148,326	177,255

Table 3.Con't…

III Central Luzon	**996,265**	**1,827,286**	**2,646,814**
Aurora	33,312	84,995	118,307
Bataan	48,509	94,916	143,425
Bulacan	253,555	353,763	607,318
Nueva Ecija	318,088	217,297	535,385
Pampanga	157,313	439,155	596,468
Tarlac	122,671	553,056	675,727
Zambales	62,817	169,100	231,917
IV-A CALABARZON	**1,417,490**	**678,143**	**2,095,633**
Batangas	329,036	574,248	903,284
Cavite	214,488	18,680	233,168
Laguna	199,811	200	200,011
Quezon	496,254	29,963	526,217
Rizal	177,901	55,051	232,952
IV-B MIMAROPA	**924,254**	**733,372**	**1,657,626**
Marinduque	60,560	8,254	68,814
Occidental Mindoro	146,036	24,663	170,699
Oriental Mindoro	284,144	314,111	598,255
Palawan	351,357	327,787	679,144
Romblon	82,157	58,557	140,714
V Bicol	**1,894,280**	**1,588,525**	**3,482,805**
Albay	308,852	737,124	1,045,976
Camarines Norte	159,761	243,799	403,560
Camarines Sur	611,403	222,725	834,128
Catanduanes	52,629	115,058	167,687
Masbate	449,499	144,494	593,993
Sorsogon	312,136	125,326	437,462

Table 3.Con't…

VI Western Visayas	**1,634,487**	**1,927,625**	**3,562,112**
Aklan	133,203	242,617	375,820
Antique	163,719	177,513	341,232
Capiz	172,063	305,046	477,109
Guimaras	41,898	108,500	150,398
Iloilo	512,309	507,101	1,019,410
Negros Occidental	611,295	586,849	1,198,144
VII Central Visayas	**1,220,401**	**1,424,844**	**2,645,245**
Bohol	273,340	438,796	712,136
Cebu	585,012	738,861	1,323,873
Negros Oriental	355,477	202,737	558,214
Siquijor	6,572	44,450	51,022
VIII Eastern Visayas	**1,121,208**	**1,996,636**	**3,117,844**
Biliran	31,263	90,623	121,886
Eastern Samar	123,898	218,331	342,229
Leyte (incl. Tacloban City)	471,537	742,738	1,214,275
Northern Samar	183,296	432,087	615,383
Samar (Western Samar)	233,744	375,119	608,863
Southern Leyte	77,470	137,740	215,210
IX Zamboanga Peninzula	**1,231,667**	**496,134**	**1,727,801**
Zamboanga del Norte	317,840	150,205	468,045
Zamboanga del Sur	611,683	266,420	878,103
Zamboanga Sibugay	257,615	74,987	332,602
City of Isabela	44,529	4,522	49,051
X Northern Mindanao	**803,660**	**2,665,457**	**3,469,117**
Bukidnon	247,556	651,200	898,756
Camiguin	14,600	59,441	74,041
Lanao del Norte	255,614	480,421	736,035
Misamis Occidental	91,708	463,285	554,993
Misamis Oriental	194,182	1,011,112	1,205,294

Table 3.Con't…

XI Davao	**977,761**	**629,768**	**1,607,529**
Compostela Valley	191,660	139,267	330,927
Davao del Norte	203,122	118,836	321,958
Davao del Sur	406,737	923,778	1,330,515
Davao Oriental	176,242	137,886	314,128
XII SOCCSKSARGEN	**1,031,115**	**1,081,087**	**2,112,202**
Cotabato City	74,282	17,586	91,868
North Cotabato	328,766	364,500	693,266
Saranggani	165,388	98,708	264,096
South Cotabato	239,314	367,002	606,316
Sultan Kudarat	223,365	233,291	456,656
XIII CARAGA	**784,457**	**931,398**	**1,715,855**
Agusan del Norte (incl. Butuan Cit	151,663	254,492	406,155
Agusan del Sur	243,256	238,134	481,390
Dinagat Islands	45,158	20,174	65,332
Surigao del Norte	144,496	226,165	370,661
Surigao del Sur	199,884	192,434	392,318
ARMM	**2,372,286**	**624,764**	**2,997,050**
Basilan (excl. Isabela City)	102,705	34,468	137,173
Lanao del Sur	601,439	325,490	926,929
Maguindanao (excl. Cotabato City	972,572	153,084	1,125,656
Sulu	555,127	75,900	631,027
Tawi-Tawi	140,443	35,821	176,264
Grand Total	**18,900,729**	**19,548,754**	**38,449,483**

Source: Philippine Health Insurance Corp. Corporate Planning Department. Sent March 7, 2013

Note: Based on PHIC dataset, provinces were re-grouped according to actual administrative regions where they belonged. Hence estimates per province and region may differ with the the original figures presented in the PHIC dataset. Data on cities, i.e., Baguio, Zamboanga and Davao were also incorporated in Benguet, Zamboanga del Sur and Davao del Sur, respectively.

See Appendix Table 1 for base data.

Table 4. PHI Sponsored Program Members and Dependents: NHTS and Regular Membership by Region and Province 2011

Region/Province	NHTS SP		NHTS TOTAL	REGULAR-DOH SP		REGULAR-DOH TOTAL
	Members	Dependents		Members	Dependents	
NCR	**235386**	**761303**	**996689**	**246622**	**762062**	**1008684**
NCR1st District	47461	146761	194222	11,850	36,617	48466.5
NCR2nd District	65394	209906	275300	70,544	217,981	288525
NCR3rd District	73255	241600	314855	62,283	192,454	254737
NCR4th District	49276	163036	212312	101,945	315,010	416955
CAR (Cordillera Administrative Region)	**52831**	**106824**	**159655**	**129760**	**259520**	**389280**
Abra	11,142	20,889	32,031	24,046	48,092	72,138
Apayao	7,979	13,134	21,113	11,084	22,168	33,252
Benguet	13,240	24,517	37,757	32,469	64,938	97,407
Ifugao	7,313	20,139	27,452	18,060	36,120	54,180
Kalinga	8,725	15,486	24,211	20,882	41,764	62,646
Mountain Province	4,432	12,659	17,091	23,219	46,438	69,657
1 ILOCOS REGION	**213,490**	**714,541**	**928,031**	**243,647**	**635,483**	**879,130**
Ilocos Norte	21,673	64,290	85,963	43,606	113,376	156,982
Ilocos Sur	30,663	94,955	125,618	42,436	110,758	153,194
La Union	34,497	109,065	143,562	50,750	132,458	183,208
Pangasinan	126,657	446,231	572,888	106,855	278,892	385,747
II CAGAYAN VALLEY	**84,826**	**322,197**	**407,023**	**147,975**	**433,365**	**581,340**
Batanes	130	437	567	611	1,589	2,200
Cagayan	27,855	107,648	135,503	38,567	113,001	151,568
Isabela	39,021	144,266	183,287	57,207	167,617	224,824
Nueva Vizcaya	11,694	47,043	58,737	13,848	40,575	54,423
Quirino	6,126	22,803	28,929	37,742	110,584	148,326
III CENTRAL LUZON	**233,003**	**763,262**	**996,265**	**500,597**	**1,411,684**	**1,912,281**
Aurora	6,752	26,560	33,312	22,250	62,745	84,995
Bataan	11,620	36,889	48,509	24,847	70,069	94,916
Bulacan	56,536	197,019	253,555	92,608	261,155	353,763
Nueva Ecija	76,471	241,617	318,088	56,884	160,413	217,297
Pampanga	37,988	119,325	157,313	114,962	324,193	439,155
Tarlac	28,244	94,427	122,671	144,779	408,277	553,056
Zambales	15,392	47,425	62,817	44,267	124,833	169,100
IV-A CALABARZON	**318,653**	**1,098,837**	**1,417,490**	**185,730**	**492,413**	**678,143**
Batangas	73,542	255,494	329,036	158,632	415,616	574,248
Cavite	49,519	164,969	214,488	5,189	13,491	18,680
Laguna	46,584	153,227	199,811	56	144	200
Quezon	110,625	385,629	496,254	8,393	21,570	29,963
Rizal	38,383	139,518	177,901	13,460	41,591	55,051

Table 4.Con't….

IV-B MIMAROPA	**196,275**	**727,979**	**924,254**	**202,589**	**530,783**	**733,372**
Marinduque	12,106	48,454	60,560	2,280	5,974	8,254
Occidental Mindoro	30,611	115,425	146,036	6,813	17,850	24,663
Oriental Mindoro	62,729	221,415	284,144	86,771	227,340	314,111
Palawan	74,218	277,139	351,357	90,549	237,238	327,787
Romblon	16,611	65,546	82,157	16,176	42,381	58,557
V Bicol	**401,507**	**1,492,773**	**1,894,280**	**399,127**	**1,189,398**	**1,588,525**
Albay	66,147	242,705	308,852	185,207	551,917	737,124
Camarines Norte	35,225	124,536	159,761	61,256	182,543	243,799
Camarines Sur	122,873	488,530	611,403	55,961	166,764	222,725
Catanduanes	10,799	41,830	52,629	28,909	86,149	115,058
Masbate	96,366	353,133	449,499	36,305	108,189	144,494
Sorsogon	70,097	242,039	312,136	31,489	93,837	125,326
VI Western Visayas	**343,471**	**1,291,016**	**1,634,487**	**550,750**	**1,376,875**	**1,927,625**
Aklan	28,759	104,444	133,203	69,319	173,298	242,617
Antique	34,537	129,182	163,719	50,718	126,795	177,513
Capiz	36,029	136,034	172,063	87,156	217,890	305,046
Guimaras	9,696	32,202	41,898	31,000	77,500	108,500
Iloilo	110,187	402,122	512,309	144,886	362,215	507,101
Negros Occidental	124,263	487,032	611,295	167,671	419,178	586,849
VII Central Visayas	**274,209**	**946,192**	**1,220,401**	**399,116**	**1,025,728**	**1,424,844**
Bohol	61,259	212,081	273,340	122,912	315,884	438,796
Cebu	130,877	454,135	585,012	206,964	531,897	738,861
Negros Oriental	80,175	275,302	355,477	56,789	145,948	202,737
Siquijor	1,898	4,674	6,572	12,451	31,999	44,450
VIII Eastern Visayas	**249,869**	**871,339**	**1,121,208**	**526,817**	**1,469,819**	**1,996,636**
Biliran	6,293	24,970	31,263	23,911	66,712	90,623
Eastern Samar	26,505	97,393	123,898	57,607	160,724	218,331
Leyte (incl. Tacloban City)	107,861	363,676	471,537	195,973	546,765	742,738
Northern Samar	39,631	143,665	183,296	114,007	318,080	432,087
Samar (Western Samar)	51,971	181,773	233,744	98,976	276,143	375,119
Southern Leyte	17,608	59,862	77,470	36,343	101,397	137,740
IX Zamboanga Peninzula	**298,957**	**932,710**	**1,231,667**	**145,855**	**350,279**	**496,134**
Zamboanga del Norte	83,388	234,452	317,840	44,178	106,027	150,205
Zamboanga del Sur	144,228	467,455	611,683	78,359	188,062	266,421
Zamboanga Sibugay	61,318	196,297	257,615	22,055	52,932	74,987
City of Isabela	10,023	34,506	44,529	1,263	3,259	4,522

Table 4.Con't….

X Northern Mindanao	**186,536**	**617,124**	**803,660**	**761,559**	**1,903,898**	**2,665,457**
Bukidnon	52,722	194,834	247,556	186,057	465,143	651,200
Camiguin	3,805	10,795	14,600	16,983	42,458	59,441
Lanao del Norte	59,255	196,359	255,614	137,263	343,158	480,421
Misamis Occidental	24,306	67,402	91,708	132,367	330,918	463,285
Misamis Oriental	46,448	147,734	194,182	288,889	722,223	1,011,112
XI Davao	**232,820**	**744,941**	**977,761**	**176,901**	**452,867**	**629,768**
Compostela Valley	46,476	145,184	191,660	39,120	100,147	139,267
Davao del Norte	49,755	153,367	203,122	33,381	85,455	118,836
Davao del Sur	96,608	310,129	406,737	65,668	168,110	233,778
Davao Oriental	39,981	136,261	176,242	38,732	99,154	137,886
XII SOCCSKSARGEN	**241,116**	**789,999**	**1,031,115**	**300,302**	**780,785**	**1,081,087**
Cotabato City	17,682	56,600	74,282	4,885	12,701	17,586
North Cotabato	75,601	253,165	328,766	101,250	263,250	364,500
Saranggani	38,341	127,047	165,388	27,419	71,289	98,708
South Cotabato	56,991	182,323	239,314	101,945	265,057	367,002
Sultan Kudarat	52,501	170,864	223,365	64,803	168,488	233,291
XIII CARAGA	**187,611**	**596,846**	**784,457**	**239,434**	**691,964**	**931,398**
Agusan del Norte (incl. Butuan C	35,363	116,300	151,663	65,422	189,070	254,492
Agusan del Sur	56,639	186,617	243,256	61,217	176,917	238,134
Dinagat Islands	11,501	33,657	45,158	5,186	14,988	20,174
Surigao del Norte	36,451	108,045	144,496	58,140	168,025	226,165
Surigao del Sur	47,657	152,227	199,884	49,469	142,965	192,434
ARMM	**491,877**	**1,880,409**	**2,372,286**	**174,515**	**453,507**	**628,022**
Basilan (excl. Isabela City)	20,737	81,968	102,705	9,628	24,840	34,468
Lanao del Sur	107,782	493,657	601,439	90,919	234,571	325,490
Maguindanao (excl. Cotabato Ci	213,553	759,019	972,572	42,761	110,323	153,084
Sulu	121,252	433,875	555,127	21,201	54,699	75,900
Tawi-Tawi	28,553	111,890	140,443	10,006	25,815	35,821

Source: Philippine Health Insurance Corp. Corporate Planning Department. Sent March 7, 2013

See Appendix Table 1 for base data.

4.2.2 Poor- Population Estimates as Denominators

Regional and provincial population estimates for 2011 were generated based on the 2010 Population Census (NSCB, 2012d). The 2010 estimates were projected to 2011, using the annual average growth rates, Medium Assumption, for each region and province.

The primary objective of the study is to analyze coverage rates under PhilHealth-Sponsored Program. The secondary objective is to examine the variations of coverage rates of program across regions and provinces , not only in its totality but also looking into coverage of the population segment, the "poorest amongst the poor" group targeted under the current sponsorship scheme of the national government, NHTS, separate from the "poor" population under the Regular-DOH scheme supported mainly by the local governments. The DSWD's listing for the NHTS applies Quintile 1 and 2 distribution based on FIES. Quintile 1 is equated to as the "poorest" and is covered under NHTS while Quintile 2 is the remaining segment of the total poor referred to as "poorer" and is assigned to be covered under Regular-DOH scheme sponsored by the LGUs and others[17].

To derive the *poor population* for both the regions and provinces, which are the denominators to the coverage rates equations, two approaches were adopted: 1.) the use of the 2009 Poverty incidence rates (PIR) available for every province and region, multiplied by the projected 2011 provincial/regional population; 2.) use of the proportions of the *poor vis the non-poor* population generated from the 2009 Family Income and Expenditures Survey (NSCB 2010).

A direct decomposition of the population by economic status, i.e., poorest and poor-poorer and by province was achieved by using the NSCB's official statistics on poverty and subsistence incidence rates per province, PIR and SIR, respectively. Based on their definitions[18], it was assumed that the estimated *total*

[17] The enrollment of the poorest families into the PhilHealth-SP classified as Quintile 1 population has been incorporated into the DSWD's NHTS, which is a listing of its recipients of the Cash Transfer Program. PHI premiums under the NHTS scheme are paid for by the national government. Premiums for Quintile 2 falling under the Regular Scheme are subsidized by the LGUs and other sponsors, including national government (PHIC 2013). It is possible that in reality, some of the Quintile2 indigent-population would have been included in the NHTS list, therefore might have been fully subsidized by the national government (Anonymous Reviewer). Based on author's interview of PHIC staff, the Office could not clearly delineate how much of Q2 population has been included in the NHTS per province (PHIC 2013). Therefore, the analysis applied the estimated Q1 and Q2 population as denominators to the equations to compute for the coverage rates.

[18] Poverty incidence rate is defined as the proportion of families/individuals with per capita income/expenditures less than the per capita poverty threshold to the total number of families/individuals. Poverty threshold is the minimum income/expenditure required for a family/individual to meet basic food and non-food requirements. Subsistence incidence is the

poor is those falling below the poverty line while the "poorest" is the group under the subsistence rate. The difference between total poor and subsistence poor would be equivalent to the poor-poorer segment of the total. The "subsistence population" is labeled as the poorest group while the "above subsistence poor" as the poorer group.

The distribution of population by income quintiles was based on the FIES 2009 (NSCB 2010). Since FIES dataset was stratified by region, the provincial level numbers might not be representative of the true population. . Although the estimates are not expected to be biased, the variance would be expected to be higher than desired given the small sample sizes of some of the provinces. The regional and provincial population were distributed into 5 wealth index quintiles and the proportions for each quintile per region and province were derived. Quintile 1 and Quintile 2 proportions were generated. These proportions were applied to the projected 2011 population – providing the magnitude of *poorest population* belonging to the lowest quintile (Q1) and the next lower quintile (Q2) as the poorer segment of the total poor population.

a.) Total Poor Population Estimates by Region and Province

The resulting regional and provincial population estimates based on the two approaches are presented in Tables 5 and 6. Note that the PIRs for the National Capital Region are provided in districts (first to fourth) taken as provinces while the FIES has presented proportions in the different component cities. The latter were first applied to the projected *poor population* segment of individual cities, and resulting figures are converted into districts, the components of which are pre-defined by NSO. Furthermore, the Province of Batanes has no data on PIR while Dinagat Island Province has no data on FIES proportions either. Hence, no

proportion of families/individuals with per capita income/expenditure less than the per capita food threshold to the total number of families/individuals (NSCB 2012).

population estimates were derived for these two places, despite availability of data on SP membership counts.

Given the definitions for the PIR/SIR and assumptions for the FIES proportions, some differences in the population estimates between approaches can be noted in a few provinces. For example, the population counts in the NCR districts based on PIR/SIR are much less than that of the FIES- based.

The disparities would certainly cause variations in the coverage rates across provinces when comparing the population between the two methods.

Table 5. Estimated Poor Population 2011 using PIR and FIES Bases by Region *

Region	Projected Population 2011	Est. Poor Population 2011 (PIR-based)	Est. Total Poor 2011 (FIES-based)
PHILIPPINES	**94092271**	24934452	**36065567**
National Capital Region	12068671	482747	4112483
Cordillera Administrative Region	1644354	376557	596687
I Ilocos	4806777	1119979	1586471
II Cagayan Valley	3274048	615521	1127740
III Central Luzon	10354684	1584267	3539275
IV-CALABARZON	12996923	1806572	4571650
IV-B MIMAROPA	2793801	977830	960347
V Bicol	5499549	2480296	1821030
VI Western Visayas	7198321	2245876	2354537
VII Central Visayas	6920543	2456793	2326173
VIII Eastern Visayas	4153819	1719681	1381365
IX Zamboanga Peninzula	3471071	1496032	2259714
X Northern Mindanao	4385848	1736796	1496468
XI Davao Region	4556594	1426214	1600128
XII SOCCSKSARGEN	4210667	1503208	1520098
XIII Caraga	2465419	1178470	849655
Autonomous Region in Muslim Mindanao (ARMM)	3305308	1517136	1065817

Source: Author's estimates. See Appendix Table 3 for base data.

*PIR = Proverty incidence rate 2009; FIES = Family Income and Expenditures Survey 2009

Table 6. Estimated Poor Population 2011 using PIR and FIES Bases by Province *

Province / Region	Projected Population 2011	Poor Population 2011	
		PIR-based	FIES-based
PHILIPPINES			
NCR			
NCR First District:	1659441	97907	518243
NCR Second District:	4116239	148185	1346422
NCR Third District:	2715420	149348	1172790
NCR Fourth District:	3577571	89439	1106543
Cordillera Administrative Region			
Abra	237409	103748	138433
Apayao	114314	49384	65399
Benguet (incl. Baguio City)	738381	42826	103226
Ifugao	194307	56155	80521
Kalinga	204597	52991	94933
Mt. Province	155606	71112	99261
I Ilocos			
Ilocos Norte	573697	71138	163905
Ilocos Sur	665370	113113	190895
La Union	750883	229770	249368
Pangasinan	2817112	704278	983454
II Cagayan Valley			
Batanes	16617	NA	2301
Cagayan	1138833	234600	402577
Isabela	1511543	320447	610663
Nueva Vizcaya	427212	37167	85442
Quirino	179880	22125	30813

Table 6.Con't…

III Central Luzon			
Aurora	204211	49419	107272
Bataan	701988	72305	153665
Bulacan	3004270	210299	693986
Nueva Ecija	1987637	618155	1073722
Pampanga (incl. Angeles City)	2391849	217658	543189
Tarlac	1295649	256538	583949
Zambales (incl.Olangapo City)	769795	140872	335015
IV-A CALABARZON			
Batangas	2430649	456962	983441
Cavite	3218028	205954	575062
Laguna	2752879	220230	826414
Quezon (incl. Lucena City)	2020746	656743	1459383
Rizal	2579761	245077	646230
IV-B MIMAROPA			
Marinduque	228899	79886	84326
Occidental Mindoro	460943	167322	125330
Oriental Mindoro	796836	261362	243035
Palawan (incl. Puerto Princessa City)	1016469	299858	349971
Romblon	293129	158290	149760
V Bicol			
Albay	1248603	544391	371210
Camarines Norte	550733	232960	171994
Camarines Sur	1851893	870390	614643
Catanduanes	249625	71143	71393
Masbate	848505	459890	337620
Sorsogon	750447	309935	251025

Table 6.Con't…

VI Western Visayas			
Aklan	544993	251242	271516
Antique	553948	217702	259746
Capiz	726594	209259	191094
Guimaras	165257	33878	14080
Iloilo (incl. Iloilo City)	2264475	606879	575403
Negros Occidental (incl. Bacolod City)	2949446	949722	1091000
VII Central Visayas			
Bohol	1267303	612107	552544
Cebu (incl. Cebu, Lapu-Lapu and Mandaue Cities)	4247680	1274304	1025814
Negros Oriental	1310855	549248	713498
Siquijor	95537	36304	53806
VIII Eastern Visayas			
Biliran	164073	57261	41609
Eastern Samar	434581	234674	180568
Leyte (incl. Tacloban City)	1807765	620063	530760
Northern Samar	598673	306521	206782
Samar (Western Samar)	743278	334475	271222
Southern Leyte	403248	174606	133314
IX Zamboanga Peninzula			
Zamboanga del Norte	986450	607653	487898
Zamboanga del Sur	592812	554548	488684
Zamboanga Sibugay	592812	295220	217028
City of Isabela	100773	23581	10904

Table 6.Con't…

X Northern Mindanao			
Bukidnon	1325825	550217	451576
Camiguin	84829	37834	17661
Lanao del Norte (incl. Iligan City)	954863	435418	370009
Misamis Occidental	574738	262655	264207
Misamis Oriental (incl. Cagayan de Oro City)	1440902	436593	371032
XI Davao Region			
Compostela Valley	698946	256513	257002
Davao del Norte	968746	328405	351655
Davao del Sur (incl. Davao City)	2351539	578479	668543
Davao Oriental	529834	279222	319384
XII SOCCSKSARGEN			
Cotabato City	279151	76208	59962
North Cotabato	1290164	429625	447687
Saranggani	511327	264867	252186
South Cotabato	1394765	411456	416616
Sultan Kudarat	760684	339265	347709
XIII Caraga			
Agusan del Norte (incl. Butuan City)	652022	227112	168935
Agusan del Sur	666133	387023	257793
Dinagat Islands	128845	NA	NA
Surigao del Norte	450201	256615	180035
Surigao del Sur	570648	256221	201724
Autonomous Region in Muslim Mindanao			
Basilan (excl. Isabela City)	296901	88476	120690
Lanao del Sur	947725	424581	339096
Maguindanao (excl. Cotabato City)	960400	515735	417294
Sulu	728992	336065	152432
Tawi-Tawi	371278	142571	90518

Source: Author's estimates based on 2010 Population Census. See Appendix Table 4 for base data.

b.) Subsistence Poorest and Above-Subsistence Poor vs. Quintiles 1 and 2 Population Estimates

Poor population sub-sets from both approaches are used as the denominators in the determination of coverage rates for the NHTS and the Regular-DOH schemes of PhilHealth. Population estimates are shown in Tables 7 and 8. The observed variances in the total poor population counts between PIR/SIR and FIES bases are carried over when decomposing population into sub-sets, i.e., subsistence and above-subsistence vis-à-vis- Q1 and Q2, respectively.

Table 7. Estimated Subsistence Poorest and Above-Subsistence Poor, Quintile 1 and Quintile2 Poor Population by Base and By Region, 2011

Region	Projected Population 2011	Est. Subsistence (Poorest) Popn. (2009 PIR/SR-based)	Est. Above-Susbsistence (Poorer)Popn. (2009 PIR/SR-based)	Est.Q1 POPN (2009 FIES-based)	Est.Q2 POPN (2009 FIES-based)
PHILIPPINES	**94,092,271**	**10,165,532**	**14,768,920**	**16,023,914**	**20,051,063**
National Capital Region	12,068,671	74,385	408,362	1,821,134	2,291,349
Cordillera Administrative Region	1,644,354	176,952	199,605	238,805	357,882
I Ilocos	4,806,777	379,888	740,091	675,490	910,981
II Cagayan Valley	3,274,048	189,251	426,270	491,464	636,277
III Central Luzon	10,354,684	521,562	1,062,705	1,590,900	1,948,374
IV-CALABARZON	12,996,923	477,575	1,328,997	2,064,781	2,506,868
IV-B MIMAROPA	2,793,801	412,275	565,555	396,422	563,925
V Bicol	5,499,549	979,293	1,501,003	753,982	1,067,048
VI Western Visayas	7,198,321	808,328	1,437,548	1,004,525	1,350,012
VII Central Visayas	6,920,543	1,186,173	1,270,620	965,144	1,361,029
VIII Eastern Visayas	4,153,819	789,784	929,897	579,268	802,096
IX Zamboanga Peninzula	3,471,071	817,223	678,809	522,462	688,895
X Northern Mindanao	4,385,848	907,303	829,493	633,511	862,956
XI Davao Region	4,556,594	674,850	751,364	711,168	888,960
XII SOCCSKSARGEN	4,210,667	657,440	845,768	665,301	854,797
XIII Caraga	2,465,419	623,285	555,185	369,027	480,629
Autonomous Region in Muslim Mindanao	3,305,308	381,483	1,135,653	469,315	596,502

Source: Author's estimates.

Table 8. Estimated Magnitude of Poorest (Q1) and Poorer (Q2) Population by Base and by Province 2011

Region and Province	Projected Population 2011	Est. Subsistence (Poorest)	Est. Above Subsistence (Poorer)	Est. Q1 Population	Est. Q2 Population
		2009 PIR/SR-based		2009 FIES-based	
PHILIPPINES	**94,092,271**	**10,165,532**	**14,754,571**	**16,023,914**	**20,051,063**
NCR					
NCR First District:	1,659,441	9,957	1,649,484	230,994	287,249
NCR Second District:	4,116,239	28,425	119,760	612,085	734,749
NCR Third District:	2,715,420	33,680	115,668	547,157	625,633
NCR Fourth District:	3,577,571	12,990	76,449	450,774	655,411
Cordillera Administrative Region					
Abra	237,409	51,952	51,796	62,676	75,757
Apayao	114,314	29,394	19,990	33,883	31,528
Benguet (incl. Bagui City)	738,381	12,851	29,975	28,501	74,724
Ifugao	194,307	19,220	36,935	30,351	50,151
Kalinga	204,597	23,137	29,854	41,390	53,543
Mt. Province	155,606	39,001	32,111	33,237	66,024
I Ilocos					
Ilocos Norte	573,697	24,508	46,630	63,508	100,397
Ilocos Sur	665,370	15,869	97,244	82,107	108,788
La Union	750,883	102,465	127,305	132,831	116,612
Pangasinan	2,817,112	234,365	469,913	398,621	584,832
II Cagayan Valley					
Batanes	16,617		0	512	1,790
Cagayan	1,138,833	79,701	154,899	166,156	236,422
Isabela	1,511,543	87,856	232,591	279,635	330,877
Nueva Vizcaya	427,212	11,344	25,823	36,228	49,215
Quirino	179,880	9,584	12,541	10,379	20,434
III Central Luzon					
Aurora	204,211	11,128	38,291	62,917	44,355
Bataan	701,988	4,933	67,372	53,421	100,314
Bulacan	3,004,270	32,762	177,537	221,415	472,572
Nueva Ecija	1,987,637	283,591	334,564	628,690	445,032
Pampanga (incl. Angeles City)	2,391,849	38,879	178,779	148,773	394,416
Tarlac	1,295,649	71,700	184,838	296,444	287,505
Zambales (incl. Olangapo City)	769,795	70,992	69,880	129,941	204,996

Table 8.Con't…

IV-A CALABARZON					
Batangas	2,430,649	148,144	308,818	476,893	506,790
Cavite	3,218,028	26,579	179,375	124,859	450,202
Laguna	2,752,879	36,080	184,150	287,676	538,738
Quezon (incl. Lucena City)	2,020,746	194,091	462,652	912,165	547,420
Rizal	2,579,761	64,782	180,295	197,610	448,620
IV-B MIMAROPA					
Marinduque	228,899	33,432	46,454	33,488	50,838
Occidental Mindoro	460,943	68,184	99,138	49,644	75,733
Oriental Mindoro	796,836	105,704	155,658	82,473	160,562
Palawan (incl. Puerto Princesa City)	1,016,469	134,487	165,371	172,292	177,679
Romblon	293,129	67,246	91,044	58,802	90,929
V Bicol					
Albay	1,248,603	249,255	295,136	167,812	203,273
Camarines Norte	550,733	67,559	165,401	61,186	110,807
Camarines Sur	1,851,893	346,648	523,742	260,561	354,082
Catanduanes	249,625	29,625	41,518	27,459	43,934
Masbate	848,505	197,868	262,022	142,803	194,817
Sorsogon	750,447	99,446	210,489	96,207	154,817
VI Western Visayas					
Aklan	544,993	134,764	116,478	136,085	135,431
Antique	553,948	104,986	112,716	133,058	126,688
Capiz	726,594	92,468	116,791	103,685	87,482
Guimaras	165,257	13,871	20,007	942	13,138
Iloilo (incl. Iloilo City)	2,264,475	195,977	410,902	213,767	361,637
Negros Occidental (incl. Bacolod City)	2,949,446	284,847	664,875	441,532	649,468
VII Central Visayas					
Bohol	1,267,303	322,457	289,650	248,391	304,153
Cebu (incl. Cebu, Lapu-Lapu and Mandaue cities)	4,247,680	587,529	686,775	372,946	652,868
Negros Oriental	1,310,855	278,921	270,327	327,714	385,785
Siquijor	95,537	6,295	30,009	26,148	27,658
VIII Eastern Visayas					
Biliran	164,073	19,361	37,900	17,113	24,496
Eastern Samar	434,581	139,762	94,912	100,866	79,702
Leyte	1,807,765	242,173	377,890	215,666	314,913
Northern Samar	598,673	163,943	142,578	61,544	145,178
Samar (Western Samar)	743,278	115,756	218,719	138,919	154,602
Southern Leyte	403,248	90,542	84,064	43,672	89,682

Table 8.Con't…

IX Zamboanga Peninzula					
Zamboanga del Norte	986,450	377,574	230,079	247,895	240,102
Zamboanga del Sur (incl. Zamboanga City)	592,812	267,345	287,203	202,975	285,709
Zamboanga Sibugay	592,812	159,552	135,668	59,815	157,214
Isabela City	100,773	2,313	21,268	988	9,916
X Northern Mindanao					
Bukidnon	1,325,825	287,627	262,590	166,789	284,787
Camiguin	84,829	10,837	26,997	6,625	11,036
Lanao del Norte (incl. Iligan City)	954,863	221,122	214,296	164,714	205,296
Misamis Occidental	574,738	143,655	119,000	105,522	158,685
Misamis Oriental (incl. Cagayan de Oro City)	1,440,902	239,807	196,786	178,528	192,505
XI Davao Region					
Compostela Valley	698,946	95,427	183,795	102,815	154,187
Davao del Norte	968,746	168,496	88,017	193,555	158,099
Davao del Sur (incl. Davao City)	2,351,539	291,161	37,244	275,600	392,707
Davao Oriental	529,834	125,191	453,288	141,042	178,342
XII SOCCSKSARGEN					
Cotabato City	279,151	197,512	232,113	14,488	45,502
North Cotabato	1,290,164	115,083	149,784	216,490	231,197
Saranggani	511,327	208,083	203,373	101,038	151,148
South Cotabato (incl. Gen.Santos City)	1,394,765	105,758	233,507	192,059	224,418
Sultan Kudarat	760,684	23,911	52,297	136,391	211,318
XIII Caraga					
Agusan del Norte (incl. Butuan City)	652,022	108,269	262,442	71,127	97,743
Agusan del Sur	666,133	240,552	146,471	121,236	136,557
Dinagat Islands	128,845	32,598	28,990		
Surigao del Norte	450,201	136,165	120,449	76,039	103,996
Surigao del Sur	570,648	116,188	140,033	83,885	117,839
Autonomous Region in Muslim Mindanao					
Basilan (excl. Isabela City)	296,901	8,692	79,784	53,531	67,159
Lanao del Sur	947,725	119,063	305,518	171,159	168,032
Maguindanao (excl. Cotabato City)	960,400	183,778	331,957	181,227	236,066
Sulu	728,992	38,952	297,113	56,934	95,498
Tawi-Tawi	371,278	47,135	95,436	33,267	57,251
Source: Author's estimates. See Appendix Table 4 for base data.					

5. RESULTS

5.1 Regional Coverage Rates: Total SP Membership, NHTS and Regular Schemes

Applying Equation (1), coverage rates of the estimated total poor under the Sponsored Program are presented in Table 9 for the regional rates using the Poverty and Subsistence Incidence Rates (PIR/SIR) base and the FIES poor population proportions. Table 10 displays the regional rates computed by PhilHealth-SP schemes for the corresponding population sub-sets.

The application of Eq.1 (and later the Eq.2) generates the ratio bounded by 0 to infinity. Results present highly skewed distribution of membership coverage rate. To obtain a clearer descriptive picture, the extent of under-coverage, full coverage or leakage are further sub-categorized into the following:

1.) Under-coverage

If: Ratio is< = 0.5 - severe under-coverage

Ratio is > 0.5 < 0.90 - moderate to mild under-coverage

2.) Full coverage

If: Ratio is = > 0.9 < = 1.10 - full coverage (giving 10% margin in both sides to allow errors in the estimates)

3.) Leakage

If: Ratio is >1.10 < = 1.5 - mild to moderate leakage

Ratio is >1.5 - extreme leakage

A few provinces emerged to have exceptionally very high (>3.0) ratios, hence coverage rate is considered as an outlier-leakage-case and is described as such.

At the national level, the results show that PhilHealth-Sponsored Program have already achieved universal status in terms of population coverage. Based on

PIR/SIR method, there is extreme leakage over the total poor, whereas the FIES-base estimation indicated full coverage over the estimated poor (Table 9).

Table 9. Estimated Regional Coverage Rates for Sponsored Program, Total Membership by Population Base 2011

Region	PHI-SP Coverage Rate (%) (PIR-based)	Classification	PHI-SP Coverage Rate (%) (FIES-based)	Classification
PHILIPPINES	**154.20%**	Extreme Leakage	**106.61%**	Full coverage
National Capital Region	*415.41%*	Extreme Leakage	48.76%	Severe undercoverage
Cordillera Administrative Region	145.78%	Mild to Moderate Leakage	92.00%	Full coverage
I Ilocos	161.36%	Extreme Leakage	113.91%	Mild to Moderate Leakage
II Cagayan Valley	160.57%	Extreme Leakage	87.64%	Moderate to Mild undercoverage
III Central Luzon	167.07%	Extreme Leakage	74.78%	Moderate to Mild undercoverage
IV-CALABARZON	81.16%	Moderate to Mild undercoverage	32.07%	Severe undercoverage
IV-B MIMAROPA	169.52%	Extreme Leakage	172.61%	Extreme Leakage
V Bicol	140.42%	Mild to Moderate Leakage	191.25%	Extreme Leakage
VI Western Visayas	158.61%	Extreme Leakage	151.29%	Extreme Leakage
VII Central Visayas	107.67%	Full coverage	113.72%	Mild to Moderate Leakage
VIII Eastern Visayas	181.30%	Extreme Leakage	225.71%	Extreme Leakage
IX Zamboanga Peninzula	115.49%	Mild to Moderate Leakage	76.46%	Moderate to Mild undercoverage
X Northern Mindanao	199.74%	Extreme Leakage	231.82%	Extreme Leakage
XI Davao Region	112.71%	Full coverage	100.46%	Full coverage
XII SOCCSKSARGEN	140.51%	Mild to Moderate Leakage	138.95%	Mild to Moderate Leakage
XIII Caraga	145.60%	Mild to Moderate Leakage	201.95%	Extreme Leakage
Autonomous Region in Muslim Mindanao	197.55%	Extreme Leakage	281.20%	Extreme Leakage

Source: Author's estimates. See Appendix Table 5 for base data.

Note that coverage rate (PIR-based) is highest at the National Capital Region (415%) – classified as *outlier- leakage* and lowest in CALABARZON Region (81%), indicating mild under-coverage. In comparison, the FIES-based regional rates present a contradictory picture where NCR poor population appear to be *severely under-covered* (49% coverage rate); albeit CALABARZON remains to have the lowest coverage and to a much lesser degree (32%) of its poor populace. ARMM Region obtained the most extreme coverage rate. Similarly, regional coverage rates diverged in the regions of Cagayan Valley, Central Luzon, and Zamboanga Peninsula.

These contrasting results are brought about by the differences in coverage rates found under the NHTS rather than those under the Regular-DOH sponsorship scheme . This impression can be extracted from Table 10, while the corresponding

Table 10. Estimated Regional Coverage Rates of PhilHealth Sponsored Program: NHTS and REGULAR-DOH Membership 2011

	PIR/SIR POPULATION BASE APPROACH				FIES POPULATION BASE APPROACH			
Region	NHTS-SP Coverage Rate (%) (Poorest)	Classification	REGULAR-DOH SP Coverage Rate (%)	Classification	NHTS-SP Coverage Rate (%) Q1 Population	Classification	REGULAR-DOH SP Coverage Rate (%) Q2	Classification
PHILIPPINES	**135.90%**	Mild to Moderate Leakage	**132.49%**	Mild to Moderate Leakage	**117.95%**	Mild to Moderate Leakage	**97.49%**	Full coverage
National Capital Region	561.11%	Outlying Leakage	247.01%	Extreme Leakage	54.73%	Moderate to Mild undercoverage	*44.02%*	Severe undercoverage
Cordillera Administrative Region	179.30%	Extreme Leakage	195.03%	Extreme Leakage	66.86%	Moderate to Mild undercoverage	108.77%	Full coverage
I Ilocos	244.29%	Extreme Leakage	119.14%	Mild to Moderate Leakage	137.47%	Mild to Moderate Leakage	96.50%	Full coverage
II Cagayan Valley	215.07%	Extreme Leakage	135.86%	Mild to Moderate Leakage	82.70%	Moderate to Mild undercoverage	91.37%	Full coverage
III Central Luzon	183.34%	Extreme Leakage	171.95%	Extreme Leakage	62.62%	Moderate to Mild undercoverage	93.79%	Full coverage
IV-CALABARZON	188.63%	Extreme Leakage	3.66%	Severe undercoverage	68.65%	Moderate to Mild undercoverage	1.94%	Severe undercoverage
IV-B MIMAROPA	99.71%	Full coverage	129.67%	Mild to Moderate Leakage	233.15%	Extreme Leakage	130.05%	Mild to Moderate Leakage
V Bicol	71.09%	Moderate to Mild undercoverage	105.83%	Full coverage	251.24%	Extreme Leakage	148.87%	Mild to Moderate Leakage
VI Western Visayas	93.91%	Full coverage	134.09%	Mild to Moderate Leakage	162.71%	Extreme Leakage	142.79%	Mild to Moderate Leakage
VII Central Visayas	107.12%	Full coverage	112.14%	Mild to Moderate Leakage	126.45%	Mild to Moderate Leakage	104.69%	Full coverage
VIII Eastern Visayas	86.26%	Moderate to Mild undercoverage	214.72%	Extreme Leakage	193.56%	Extreme Leakage	248.93%	Extreme Leakage
IX Zamboanga Peninzula	101.49%	Full coverage	73.09%	Moderate to Mild undercoverage	235.74%	Extreme Leakage	72.02%	Moderate to Mild undercoverage
X Northern Mindanao	104.03%	Full coverage	321.34%	Outlying Leakage	126.86%	Mild to Moderate Leakage	308.88%	Outlying Leakage
XI Davao Region	118.31%	Mild to Moderate Leakage	83.82%	Moderate to Mild undercoverage	137.49%	Mild to Moderate Leakage	70.84%	Moderate to Mild undercoverage
XII SOCCSKSARGEN	101.07%	Full coverage	127.82%	Mild to Moderate Leakage	154.98%	Extreme Leakage	126.47%	Mild to Moderate Leakage
XIII Caraga	86.57%	Moderate to Mild undercoverage	167.76%	Extreme Leakage	212.57%	Extreme Leakage	193.79%	Extreme Leakage
Autonomous Region in Muslim Mindanao	52.53%	Moderate to Mild undercoverage	55.01%	Moderate to Mild undercoverage	505.48%	Outlying Leakage	104.74%	Full coverage

Source: Author's estimates. See Appendix Table 6 for base data.

PIR = Proverty incidence rate 2009; SIR+ Subsistence Incience Rate; FIES = Family Income and Expenditures Survey 2009

regions showing the highest and lowest coverage rates per scheme and population base are presented in Table 10a . ARMM and NCR regions gained the lowest and most extreme coverage , respectively, estimated via PIR approach but the two regions shifted places when calculated using FIES-based population.

Table 10.a Highest and Lowest Regional Coverage Rates by Population Base

	SP NHTS (PIR/SR)		SP NHTS (FIES)	
Lowest coverage rate	52.53%	Autonomous Region in Muslim Mindanao (ARMM)	54.73%	National Capital Region
Highest coverage rate	561.11%	National Capital Region	505.48%	Autonomous Region in Muslim Mindanao (ARMM)
	SP REGULAR (PIR/SR)		**SP REGULAR (FIES)**	
Lowest coverage rate	3.60%	CALABARZON	1.94%	CALABARZON
Highest coverage rate	321.34%	Northern Mindanao	308.88%	Northern Mindanao

The distribution of regions according to coverage rate category and by population-base is further exhibited in Figures 4 and 5, showing the regional distribution to be apparently skewed towards leakage, whether in total membership or decomposed into NHTS and Regular schemes.

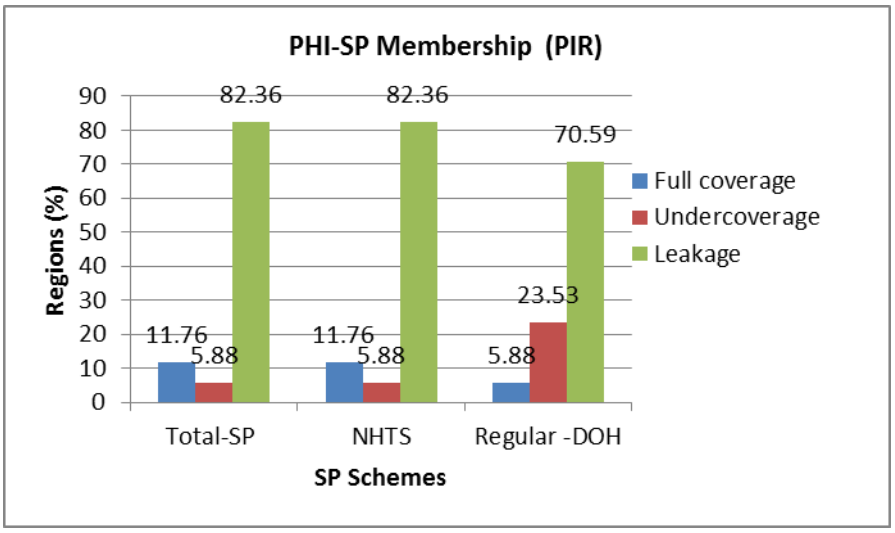


Figure 4. Distribution of Regions under PHI-SP by coverage rate category (PIR/SIR-based)

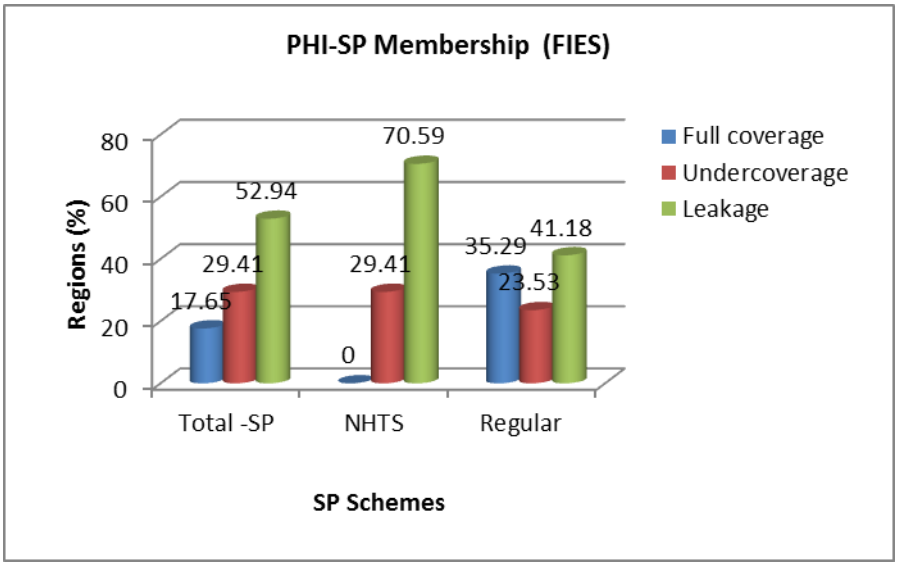


Figure 5. Distribution of Regions under PHI-SP by coverage rate category (FIES-based)

5.2 Provincial Coverage Rates: Total SP Membership, NHTS and Regular Schemes

In general, the PHI-SP membership data suggests wide variations in the population coverage rates, regardless of population-base. Large differences between provinces are indicated, i.e., deviating from the "full coverage" level, some provinces showing severe UCR, others presenting extreme or outlying leakage rates.

In particular, the diverging provincial coverage levels (depending on the population base), are reflected in the NCR districts and in the CALABARZON provinces (Cavite, Laguna, Quezon and Rizal). Contrasting coverage estimates are also noticeable in Mt. Province, Cagayan, Isabela and Bulacan. Lowest and highest coverage rates based on PIR/SIR estimates are found in Zamboanga del Norte (77%) and Quirino (801%), respectively. These are distinct from the FIES-based population where Laguna showed the lowest (24%) and Guimaras presenting an outlying leakage rate (1068%) – see Table 11.

Table 12 presents provincial coverage rates per sponsorship scheme for the two population-base-approaches. In both cases, distribution is skewed towards

“moderate to extreme and outlying leakages”. The skewness is lesser under the FIES estimation approach though.

The NHTS (PIR/SIR-based) coverage rates are as low as 43 % in Mt. Province (severe under-coverage) to an exceedingly high leakage of 1950% in NCR 1st District. The Regular-DOH scheme most severe under-coverage rate (0.11%) is found in Laguna Province while Davao del Sur (including Davao City) presented itself as an outlier-case with a leakage rate of 2480%.

The figures are quite different when examining coverage ratios with the FIES-based approach. The greatest leakage rate under NHTS (4448%) is found in Guimaras while the most severe under-coverage is seen in Siquijor. Under the Regular-DOH scheme, Laguna exhibited severe under-coverage in both bases, while Guimaras maintains to have the highest leakage rate. Provinces with most severe coverage rate (lowest) and most extreme leakage (highest) are highlighted in Table 12.a.

Table 11. Estimated Provincial Coverage Rates for Sponsored Program, Total Membership by Population 2011

Region/Province	PHI-SP Coverage Rate (%) PIR-based	Classification	PHI-SP Coverage Rate (%) FIES-based	Classification
NCR				
NCR1st District	247.88%	Extreme Leakage	46.83%	Severe undercoverage
NCR2nd District	380.49%	Outlying Leakage	41.88%	Severe undercoverage
NCR3rd District	381.39%	Outlying Leakage	48.57%	Severe undercoverage
NCR4th District	703.57%	Outlying Leakage	56.87%	Moderate to Mild undercoverage
Cordillera Administrative Region				
Abra	100.41%	Full coverage	75.25%	Moderate to Mild undercoverage
Apayao	110.09%	Full coverage	83.13%	Moderate to Mild undercoverage
Benguet	315.61%	Outlying Leakage	130.94%	Mild to Moderate Leakage
Ifugao	145.37%	Mild to Moderate Leakage	101.38%	Full coverage
Kalinga	163.91%	Extreme Leakage	91.49%	Full coverage
Mountain Province	121.99%	Mild to Moderate Leakage	87.39%	Moderate to Mild undercoverage
I Ilocos Region				
Ilocos Norte	341.51%	Outlying Leakage	148.22%	Mild to Moderate Leakage
Ilocos Sur	246.49%	Extreme Leakage	146.06%	Mild to Moderate Leakage
La Union	142.22%	Mild to Moderate Leakage	131.04%	Mild to Moderate Leakage
Pangasinan	136.12%	Mild to Moderate Leakage	97.48%	Full coverage
II Cagayan Valley				
Batanes		No data	120.21%	Mild to Moderate Leakage
Cagayan	122.37%	Mild to Moderate Leakage	71.31%	Moderate to Mild undercoverage
Isabela	127.36%	Mild to Moderate Leakage	66.83%	Moderate to Mild undercoverage
Nueva Vizcaya	304.46%	Outlying Leakage	132.44%	Mild to Moderate Leakage
Quirino	801.15%	Outlying Leakage	575.25%	Outlying Leakage
III Central Luzon				
Aurora	239.40%	Extreme Leakage	110.29%	Full coverage
Bataan	198.36%	Extreme Leakage	93.34%	Full coverage
Bulacan	288.79%	Extreme Leakage	87.51%	Moderate to Mild undercoverage
Nueva Ecija	86.61%	Moderate to Mild undercoverag	49.86%	Severe undercoverage
Pampanga	274.04%	Extreme Leakage	109.81%	Full coverage
Tarlac	263.40%	Extreme Leakage	115.72%	Mild to Moderate Leakage
Zambales	164.63%	Extreme Leakage	69.23%	Moderate to Mild undercoverage
IV-A CALABARZON				
Batangas	197.67%	Extreme Leakage	91.85%	Full coverage
Cavite	113.21%	Mild to Moderate Leakage	40.55%	Severe undercoverage
Laguna	90.82%	Full coverage	24.20%	Severe undercoverage
Quezon	80.13%	Moderate to Mild undercoverag	36.06%	Severe undercoverage
Rizal	95.05%	Full coverage	36.05%	Severe undercoverage
IV-B MIMAROPA				
Marinduque	86.14%	Moderate to Mild undercoverag	81.60%	Moderate to Mild undercoverage
Occidental Mindoro	102.02%	Full coverage	136.20%	Mild to Moderate Leakage
Oriental Mindoro	228.90%	Extreme Leakage	246.16%	Extreme Leakage
Palawan	226.49%	Extreme Leakage	194.06%	Extreme Leakage
Romblon	88.90%	Moderate to Mild undercoverag	93.96%	Full coverage
V Bicol				
Albay	192.14%	Extreme Leakage	281.77%	Extreme Leakage
Camarines Norte	173.23%	Extreme Leakage	234.64%	Extreme Leakage
Camarines Sur	95.83%	Full coverage	135.71%	Mild to Moderate Leakage
Catanduanes	235.70%	Extreme Leakage	234.88%	Extreme Leakage
Masbate	129.16%	Mild to Moderate Leakage	175.94%	Extreme Leakage
Sorsogon	141.15%	Mild to Moderate Leakage	174.27%	Extreme Leakage
VI Western Visayas				
Aklan	149.58%	Mild to Moderate Leakage	138.42%	Mild to Moderate Leakage
Antique	156.74%	Extreme Leakage	131.37%	Mild to Moderate Leakage
Capiz	228.00%	Extreme Leakage	249.67%	Extreme Leakage
Guimaras	443.94%	Outlying Leakage	1068.18%	Outlying Leakage
Iloilo	167.98%	Extreme Leakage	177.16%	Extreme Leakage
Negros Occidental	126.16%	Mild to Moderate Leakage	109.82%	Full coverage

Table 11.Con't…

VII Central Visayas				
Bohol	116.34%	Mild to Moderate Leakage	128.88%	Mild to Moderate Leakage
Cebu	103.89%	Full coverage	129.06%	Mild to Moderate Leakage
Negros Oriental	101.63%	Full coverage	78.24%	Moderate to Mild undercoverage
Siquijor	140.54%	Mild to Moderate Leakage	94.83%	Full coverage
VIII Eastern Visayas				
Biliran	212.86%	Extreme Leakage	292.93%	Extreme Leakage
Eastern Samar	145.83%	Mild to Moderate Leakage	189.53%	Extreme Leakage
Leyte	195.83%	Extreme Leakage	228.78%	Extreme Leakage
Northern Samar	200.76%	Extreme Leakage	297.60%	Extreme Leakage
Samar (Western Samar)	182.04%	Extreme Leakage	224.49%	Extreme Leakage
Southern Leyte	123.25%	Mild to Moderate Leakage	161.43%	Extreme Leakage
IX Zamboanga Peninzula				
Zamboanga del Norte	77.03%	Moderate to Mild undercoverag	95.93%	Full coverage
Zamboanga del Sur	158.35%	Extreme Leakage	179.69%	Extreme Leakage
Zamboanga Sibugay	112.66%	Mild to Moderate Leakage	153.25%	Extreme Leakage
Isabela City	208.01%	Extreme Leakage	449.85%	Outlying Leakage
X Northern Mindanao				
Bukidnon	163.35%	Extreme Leakage	199.03%	Extreme Leakage
Camiguin	195.70%	Extreme Leakage	419.22%	Outlying Leakage
Lanao del Norte	169.04%	Extreme Leakage	198.92%	Extreme Leakage
Misamis Occidental	211.30%	Extreme Leakage	210.06%	Extreme Leakage
Misamis Oriental	276.07%	Extreme Leakage	324.85%	Outlying Leakage
XI Davao				
Compostela Valley	129.01%	Mild to Moderate Leakage	128.76%	Mild to Moderate Leakage
Davao del Norte	98.04%	Full coverage	91.56%	Full coverage
Davao del Sur	230.00%	Extreme Leakage	199.02%	Extreme Leakage
Davao Oriental	112.50%	Mild to Moderate Leakage	98.35%	Full coverage
XII SOCCSKSARGEN				
North Cotabato	161.37%	Extreme Leakage	154.86%	Extreme Leakage
Sarangani	99.71%	Full coverage	104.72%	Full coverage
South Cotabato	147.36%	Mild to Moderate Leakage	240.42%	Extreme Leakage
Sultan Kudarat	134.60%	Mild to Moderate Leakage	131.33%	Mild to Moderate Leakage
Cotabato City	120.55%	Mild to Moderate Leakage	153.21%	Extreme Leakage
XIII CARAGA				
Agusan del Norte	178.83%	Extreme Leakage	240.42%	Extreme Leakage
Agusan del Sur	124.38%	Mild to Moderate Leakage	186.73%	Extreme Leakage
Dinagat Island		No data		No data
Surigao del Norte	144.44%	Mild to Moderate Leakage	205.88%	Extreme Leakage
Surigao del Sur	153.12%	Extreme Leakage	194.48%	Extreme Leakage
ARMM				
Basilan	155.04%	Extreme Leakage	113.66%	Mild to Moderate Leakage
Lanao del Sur	218.32%	Extreme Leakage	273.35%	Extreme Leakage
Maguindano	218.26%	Extreme Leakage	269.75%	Extreme Leakage
Sulu	187.77%	Extreme Leakage	413.97%	Outlying Leakage
Tawi-Tawi	123.63%	Mild to Moderate Leakage	194.73%	Extreme Leakage
Source: Author's estimates. See Appendix Table 7 for base data.				

Table 12. Estimated Provincial Coverage Rates of PhilHealth- Sponsored Program: NHTS and Regular-DOH Membership Schemes, 2011

	PIR/SIR POPULATION BASE APPROACH				FIES POPULATION BASE APPROACH			
Region/Province	NHTS-SP Coverage Rate (%) Q1 Population	Classification	REGULAR-DOH SP Coverage Rate (%) Q2 Population	Classification	NHTS-SP Coverage Rate (%) Q1 Population	Classification	REGULAR-DOH SP Coverage Rate (%) Q2 Population	Classification
NCR								
NCR1st District	1950.68%	Outlying Leakage	55.11%	Moderate to Mild undercoverage	84.08%	Moderate to Mild undercoverage	16.87%	Severe undercoverage
NCR2nd District	968.51%	Outlying Leakage	240.92%	Extreme Leakage	44.98%	Severe undercoverage	39.27%	Severe undercoverage
NCR3rd District	934.83%	Outlying Leakage	220.23%	Extreme Leakage	57.54%	Moderate to Mild undercoverage	40.72%	Severe undercoverage
NCR4th District	1634.45%	Outlying Leakage	545.40%	Outlying Leakage	47.10%	Severe undercoverage	63.62%	Moderate to Mild undercoverage
Cordillera Administrative Region								
Abra	61.65%	Moderate to Mild undercoverage	139.27%	Mild to Moderat Leakage	51.11%	Moderate to Mild undercoverage	95.22%	Full coverage
Apayao	71.83%	Moderate to Mild undercoverage	166.34%	Extreme Leakage	62.31%	Moderate to Mild undercoverage	105.47%	Full coverage
Benguet	293.81%	Extreme Leakage	324.96%	Outlying Leakage	132.47%	Mild to Moderat Leakage	130.36%	Mild to Moderat Leakage
Ifugao	142.83%	Mild to Moderat Leakage	146.69%	Mild to Moderat Leakage	90.45%	Full coverage	108.03%	Full coverage
Kalinga	104.64%	Full coverage	209.84%	Extreme Leakage	58.49%	Moderate to Mild undercoverage	117.00%	Mild to Moderat Leakage
Mountain Province	43.82%	Severe undercoverage	216.92%	Extreme Leakage	51.42%	Moderate to Mild undercoverage	105.50%	Full coverage
I Ilocos Region								
Ilocos Norte	350.75%	Outlying Leakage	336.66%	Outlying Leakage	135.36%	Mild to Moderat Leakage	156.36%	Extreme Leakage
Ilocos Sur	791.58%	Outlying Leakage	157.54%	Extreme Leakage	152.99%	Extreme Leakage	140.82%	Mild to Moderat Leakage
La Union	140.11%	Mild to Moderat Leakage	143.91%	Mild to Moderat Leakage	108.08%	Full coverage	157.11%	Extreme Leakage
Pangasinan	244.44%	Extreme Leakage	82.09%	Moderate to Mild undercoverage	143.72%	Mild to Moderat Leakage	65.96%	Moderate to Mild undercoverage
II Cagayan Valley								
Batanes		No Data		No data	110.78%	Full coverage	122.91%	Mild to Moderat Leakage
Cagayan	170.01%	Extreme Leakage	97.85%	Full coverage	81.55%	Moderate to Mild undercoverage	64.11%	Moderate to Mild undercoverage
Isabela	208.62%	Extreme Leakage	96.66%	Full coverage	65.54%	Moderate to Mild undercoverage	67.95%	Moderate to Mild undercoverage
Nueva Vizcaya	517.78%	Outlying Leakage	210.75%	Extreme Leakage	162.13%	Extreme Leakage	110.58%	Full coverage
Quirino	301.84%	Outlying Leakage	1182.76%	Outlying Leakage	278.72%	Extreme Leakage	725.87%	Outlying Leakage
III Central Luzon								
Aurora	299.35%	Extreme Leakage	221.97%	Extreme Leakage	52.95%	Moderate to Mild undercoverage	191.63%	Extreme Leakage
Bataan	983.33%	Outlying Leakage	140.88%	Mild to Moderat Leakage	90.80%	Full coverage	94.62%	Full coverage
Bulacan	773.93%	Outlying Leakage	199.26%	Extreme Leakage	114.52%	Mild to Moderat Leakage	74.86%	Moderate to Mild undercoverage
Nueva Ecija	112.16%	Mild to Moderat Leakage	64.95%	Moderate to Mild undercoverage	50.60%	Moderate to Mild undercoverage	48.83%	Severe undercoverage
Pampanga	404.62%	Outlying Leakage	245.64%	Extreme Leakage	105.74%	Full coverage	111.34%	Full coverage
Tarlac	171.09%	Extreme Leakage	299.21%	Extreme Leakage	41.38%	Severe undercoverage	192.36%	Extreme Leakage
Zambales	88.48%	Moderate to Mild undercoverage	241.99%	Extreme Leakage	48.34%	Severe undercoverage	82.49%	Moderate to Mild undercoverage

Table 12.Con't…

IV-A CALABARZON								
Batangas	222.11%	Extreme Leakage	185.95%	Extreme Leakage	69.00%	Moderate to Mild undercoverage	113.31%	Mild to Moderat Leakage
Cavite	806.98%	Outlying Leakage	10.41%	Severe undercoverage	171.78%	Extreme Leakage	4.15%	Severe undercoverage
Laguna	553.80%	Outlying Leakage	0.11%	Severe undercoverage	69.46%	Moderate to Mild undercoverage	0.04%	Severe undercoverage
Quezon	255.68%	Extreme Leakage	6.48%	Severe undercoverage	54.40%	Moderate to Mild undercoverage	5.47%	Severe undercoverage
Rizal	274.62%	Extreme Leakage	30.53%	Severe undercoverage	90.03%	Full coverage	12.27%	Severe undercoverage
IV-B MIMAROPA								
Marinduque	181.14%	Extreme Leakage	17.77%	Severe undercoverage	180.84%	Extreme Leakage	16.23%	Severe undercoverage
Occidental Mindoro	214.18%	Extreme Leakage	24.88%	Severe undercoverage	294.17%	Extreme Leakage	32.57%	Severe undercoverage
Oriental Mindoro	268.81%	Extreme Leakage	201.80%	Extreme Leakage	344.53%	Outlying Leakage	195.63%	Extreme Leakage
Palawan	261.26%	Extreme Leakage	198.21%	Extreme Leakage	203.93%	Extreme Leakage	184.48%	Extreme Leakage
Romblon	122.17%	Mild to Moderat Leakage	64.32%	Moderate to Mild undercoverage	139.72%	Mild to Moderat Leakage	64.40%	Moderate to Mild undercoverage
V Bicol								
Albay	123.91%	Mild to Moderat Leakage	249.76%	Extreme Leakage	184.05%	Extreme Leakage	362.63%	Outlying Leakage
Camarines Norte	236.48%	Extreme Leakage	147.40%	Mild to Moderat Leakage	261.11%	Extreme Leakage	220.02%	Extreme Leakage
Camarines Sur	176.38%	Extreme Leakage	42.53%	Severe undercoverage	234.65%	Extreme Leakage	62.90%	Moderate to Mild undercoverage
Catanduanes	177.65%	Extreme Leakage	277.12%	Extreme Leakage	191.67%	Extreme Leakage	261.89%	Extreme Leakage
Masbate	227.17%	Extreme Leakage	55.15%	Moderate to Mild undercoverage	314.77%	Outlying Leakage	74.17%	Moderate to Mild undercoverage
Sorsogon	313.88%	Outlying Leakage	59.54%	Moderate to Mild undercoverage	324.44%	Outlying Leakage	80.95%	Moderate to Mild undercoverage
VI Western Visayas								
Aklan	98.84%	Full coverage	208.29%	Extreme Leakage	97.88%	Full coverage	179.14%	Extreme Leakage
Antique	155.94%	Extreme Leakage	157.49%	Extreme Leakage	123.04%	Mild to Moderat Leakage	140.12%	Mild to Moderat Leakage
Capiz	186.08%	Extreme Leakage	261.19%	Extreme Leakage	165.95%	Extreme Leakage	348.70%	Outlying Leakage
Guimaras	302.05%	Outlying Leakage	542.31%	Outlying Leakage	4447.94%	Outlying Leakage	825.85%	Outlying Leakage
Iloilo	261.41%	Extreme Leakage	123.41%	Mild to Moderat Leakage	239.66%	Extreme Leakage	140.22%	Mild to Moderat Leakage
Negros Occidental	214.60%	Extreme Leakage	88.26%	Moderate to Mild undercoverage	138.45%	Mild to Moderat Leakage	90.36%	Moderate to Mild undercoverage
VII Central Visayas								
Bohol	84.77%	Moderate to Mild undercoverage	151.49%	Extreme Leakage	110.04%	Full coverage	144.27%	Mild to Moderat Leakage
Cebu	99.57%	Full coverage	107.58%	Full coverage	156.86%	Extreme Leakage	113.17%	Mild to Moderat Leakage
Negros Oriental	127.45%	Mild to Moderat Leakage	75.00%	Moderate to Mild undercoverage	108.47%	Full coverage	52.55%	Moderate to Mild undercoverage
Siquijor	104.41%	Full coverage	148.12%	Mild to Moderat Leakage	25.13%	Severe undercoverage	160.71%	Extreme Leakage
VIII Eastern Visayas								
Biliran	161.48%	Extreme Leakage	239.11%	Extreme Leakage	182.69%	Extreme Leakage	369.95%	Outlying Leakage
Eastern Samar	88.65%	Moderate to Mild undercoverage	230.03%	Extreme Leakage	122.83%	Mild to Moderat Leakage	273.93%	Extreme Leakage
Leyte	194.71%	Extreme Leakage	196.55%	Extreme Leakage	218.64%	Extreme Leakage	235.86%	Extreme Leakage
Northern Samar	111.80%	Mild to Moderat Leakage	303.05%	Outlying Leakage	297.83%	Extreme Leakage	297.62%	Extreme Leakage
Samar (Western Samar)	201.93%	Extreme Leakage	171.51%	Extreme Leakage	168.26%	Extreme Leakage	242.64%	Extreme Leakage
Southern Leyte	85.56%	Moderate to Mild undercoverage	163.85%	Extreme Leakage	177.39%	Extreme Leakage	153.59%	Extreme Leakage

Table 12.Con't…

IX Zamboanga Peninzula								
Zamboanga del Norte	84.18%	Moderate to Mild undercoverage	65.28%	Moderate to Mild undercoverage	128.22%	Mild to Moderat Leakage	62.56%	Moderate to Mild undercoverage
Zamboanga del Sur	228.80%	Extreme Leakage	92.76%	Full coverage	301.36%	Outlying Leakage	93.25%	Full coverage
Zamboanga Sibugay	161.46%	Extreme Leakage	55.27%	Moderate to Mild undercoverage	430.69%	Outlying Leakage	47.70%	Severe undercoverage
Isabela City	1925.24%	Outlying Leakage	21.26%	Severe undercoverage	4508.92%	Outlying Leakage	45.60%	Severe undercoverage
X Northern Mindanao								
Bukidnon	86.07%	Moderate to Mild undercoverage	247.99%	Extreme Leakage	148.42%	Extreme Leakage	228.66%	Extreme Leakage
Camiguin	134.73%	Mild to Moderat Leakage	220.17%	Extreme Leakage	220.37%	Extreme Leakage	538.59%	Outlying Leakage
Lanao del Norte	115.60%	Mild to Moderat Leakage	224.18%	Extreme Leakage	155.19%	Extreme Leakage	234.01%	Extreme Leakage
Misamis Occidental	63.84%	Moderate to Mild undercoverage	389.32%	Outlying Leakage	86.91%	Moderate to Mild undercoverage	291.95%	Extreme Leakage
Misamis Oriental	80.97%	Moderate to Mild undercoverage	513.81%	Outlying Leakage	108.77%	Full coverage	525.24%	Outlying Leakage
XI Davao								
Compostela Valley	200.84%	Extreme Leakage	75.77%	Moderate to Mild undercoverage	186.41%	Extreme Leakage	90.32%	Full coverage
Davao del Norte	120.55%	Mild to Moderat Leakage	135.02%	Mild to Moderat Leakage	104.94%	Full coverage	75.17%	Moderate to Mild undercoverage
Davao del Sur	139.69%	Mild to Moderat Leakage	2480.34%	Outlying Leakage	147.58%	Mild to Moderat Leakage	235.23%	Extreme Leakage
Davao Oriental	140.78%	Mild to Moderat Leakage	30.42%	Severe undercoverage	124.96%	Mild to Moderat Leakage	77.32%	Moderate to Mild undercoverage
XII SOCCSKSARGEN								
North Cotabato	166.45%	Extreme Leakage	157.04%	Extreme Leakage	151.86%	Extreme Leakage	157.66%	Extreme Leakage
Sarangani	143.71%	Mild to Moderat Leakage	65.90%	Moderate to Mild undercoverage	163.69%	Extreme Leakage	65.31%	Moderate to Mild undercoverage
South Cotabato	115.01%	Mild to Moderat Leakage	180.46%	Extreme Leakage	124.60%	Mild to Moderat Leakage	163.54%	Extreme Leakage
Sultan Kudarat	211.20%	Extreme Leakage	99.91%	Full coverage	163.77%	Extreme Leakage	110.40%	Full coverage
Cotabato City	310.66%	Outlying Leakage	33.63%	Severe undercoverage	512.72%	Outlying Leakage	38.65%	Severe undercoverage
XIII CARAGA								
Agusan del Norte	140.08%	Mild to Moderat Leakage	96.97%	Full coverage	213.23%	Extreme Leakage	260.37%	Extreme Leakage
Agusan del Sur	101.12%	Full coverage	162.58%	Extreme Leakage	200.65%	Extreme Leakage	174.38%	Extreme Leakage
Dinagat Island	138.53%	Mild to Moderat Leakage	69.59%	Moderate to Mild undercoverage		No data		No data
Surigao del Norte	106.12%	Full coverage	187.77%	Extreme Leakage	190.03%	Extreme Leakage	217.47%	Extreme Leakage
Surigao del Sur	172.03%	Extreme Leakage	137.42%	Mild to Moderat Leakage	238.28%	Extreme Leakage	163.30%	Extreme Leakage
ARMM								
Basilan	1181.57%	Outlying Leakage	43.20%	Severe undercoverage	191.86%	Extreme Leakage	51.32%	Moderate to Mild undercoverage
Lanao del Sur	505.14%	Outlying Leakage	106.54%	Full coverage	351.39%	Outlying Leakage	193.71%	Extreme Leakage
Maguindano	529.21%	Outlying Leakage	46.12%	Severe undercoverage	536.66%	Outlying Leakage	64.85%	Moderate to Mild undercoverage
Sulu	1425.16%	Outlying Leakage	25.55%	Severe undercoverage	975.03%	Outlying Leakage	79.48%	Moderate to Mild undercoverage
Tawi-Tawi	297.96%	Extreme Leakage	37.53%	Severe undercoverage	422.17%	Outlying Leakage	62.57%	Moderate to Mild undercoverage
Source: Author's estimates. See Appendix Table 8 for base data.			PIR = Proverty incidence rate 2009; SIR+ Subsistence Incience Rate; FIES = Family Income and Expenditures Survey 2009					

Table 12.a Lowest and Highest Provincial Coverage Rates by PHI-SP Scheme and by Population Base 2011

Classification	NHTS (PIR/SR)		NHTS(FIES)	
Lowest Coverage Rate	43.82%	Mt. Province	25.13%	Siquijor
Highest Coverate Rate	1950.68%	NCR1st District	4447.94%	Guimaras
	Regular-DOH (PIR/SR)		**Regular-DOH (FIES)**	
Lowest Coverage Rate	0.11%	Laguna	0.04%	Laguna
Highest Coverate Rate	2480.34%	Davao del Sur*	825.85%	Guimaras

* For Davao del Sur, Subsistence rate available is for the province. It might not include that of Davao City, hence population estimates using SIR as base provided low counts compared to that of the FIES-based.

The skewed distribution of regional rates is similarly reflected at the provincial level. In its entirety and decomposed membership schemes, provincial coverage rates lean heavily towards the leakage side than the opposite. The patterns are displayed in Figures 6 and 7.

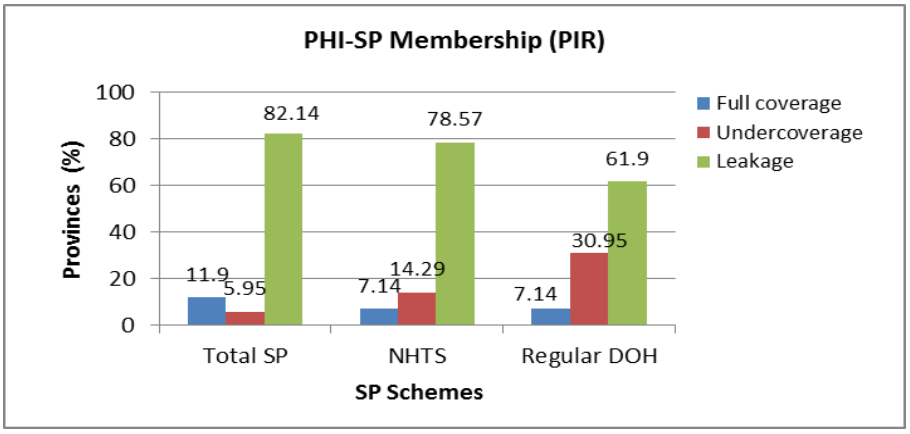


Figure 6. Distribution of Provinces under PHI-SP by coverage rate category (PIR/SIR-based)

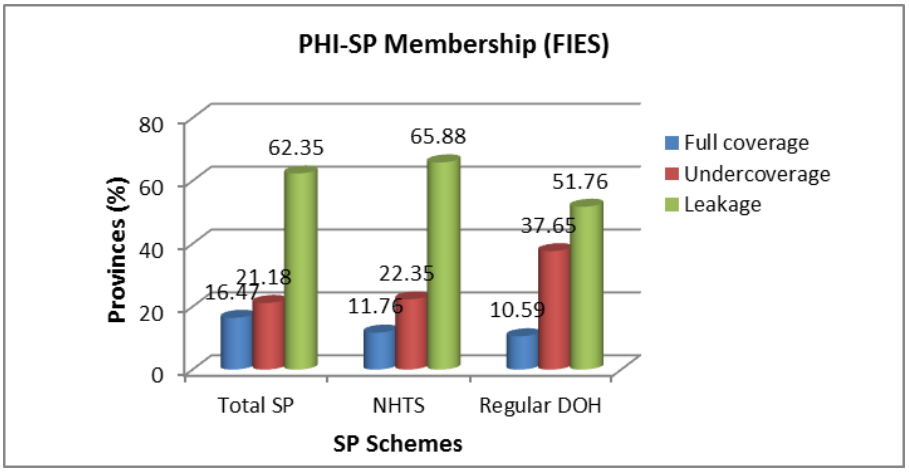


Figure 7. Distribution of Provinces under PHI-SP by coverage rate category (FIES-based)

5.3 Analyses on Variations of Provincial Coverage Rates

Descriptive and multivariate analyses are performed to identify and determine factors that could likely explain variations in the PhilHealth-SP coverage rates between provinces.

5.3.1 Descriptive Analyses

Given Equation (3), a few variables were selected to describe the possible relationships between coverage rate and provincial characteristics. On the demand side, coverage rates were cross-tabulated with the severity of poverty in the province and human development index (HDI). On the supply side, coverage rates were cross-tabulated with the Provincial LGU income classification and the administrative governance index (AGI), a component of Good Governance Index (GGI). The choice of these variables depended on their presumed relevance and importance to the PHI Sponsored Program.

Coverage rates vs severity of poverty

Under the (PIR) approach (Figure 8) and in provinces where poverty severity index is low, i.e., poor population concentrates nearer the poverty line, leakage is found the most. In provinces where poverty/income gaps are wider (higher severity index), full coverage rates appeared predominant. Figure 9 on the other hand displays under-coverage rate to be experienced in many provinces where severity is low but many more provinces with leakages, when severity is highest or poverty is worst.

Figures 8a and 8b present cross tabulation results between provincial coverage rates and severity variables, disaggregated into the NHTS and Regular-SP schemes PIR-based. FIES-based SP coverage rates are demonstrated in Figures 9a and 9b. Some differences in the concentration of provincial coverage rates can be observed between the two versions of population-base.

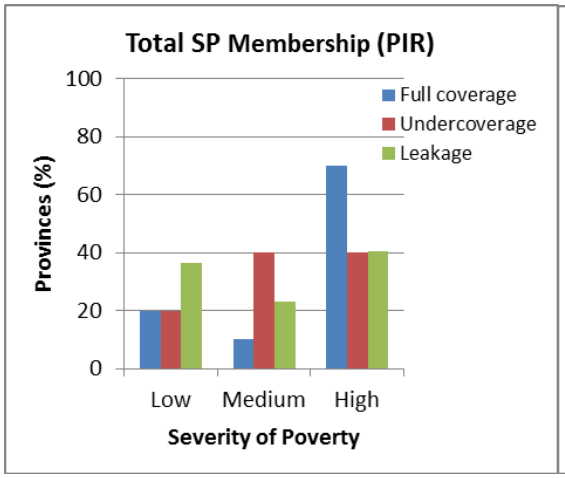


Figure 8. Provincial PHI-SP coverage rates vs. severity of poverty (PIR/SIR-based)

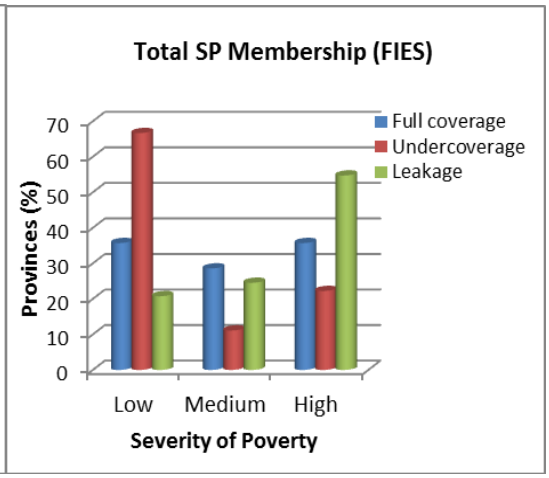


Figure 9. Provincial PHI-SP coverage rates vs. severity of poverty (FIES-based)

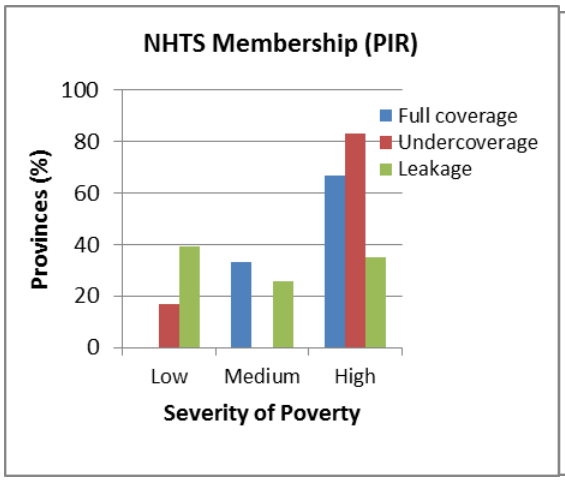


Figure 8a. Provincial PHI-NHTS coverage rates vs. severity of poverty (PIR/SIR-based)

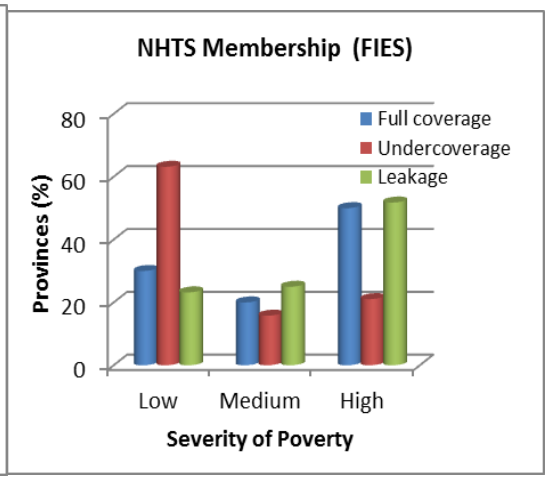


Figure 9a. Provincial PHI- NHTS coverage rates vs. severity of poverty (FIES-based)

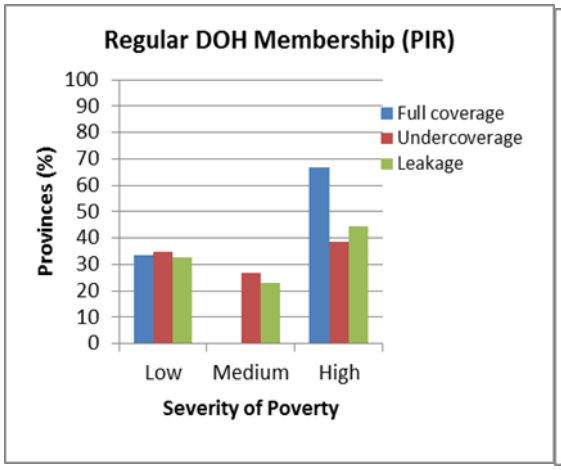


Figure 8b. Provincial PHI-REGULAR DOH coverage rates vs severity of poverty (PIR/SIR-based)

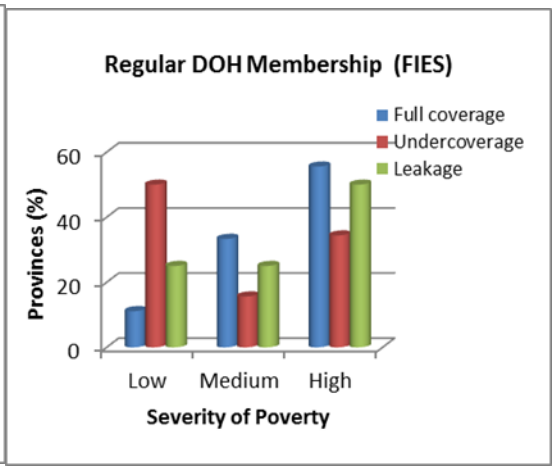


Figure 9b. Provincial PHI-REGULAR DOH coverage rates vs severity of poverty (FIES-based)

Coverage rates vs human development index (HDI)

Following Bautista's (2012) categorization of HDI, the study classified the index into: Low = below 0.500; Medium = 0.50 to 0.799; High = 0.800 and above. In its entirety, SP coverage (full, under-coverage and leakage) appears to be concentrated in provinces with medium-level HDI. Albeit, there is fuller-coverage when looking at PIR-based figure and lesser coverage (UCR) using FIES estimates (Figures 10 and 11). This may be related to the report that majority of the provinces in the Philippines is in the Medium-HDI range.

Examining the coverage rates separately between the sponsorship schemes, high full-coverage level under the NHTS scheme is exhibited relative to the Low-HDI range provinces, even higher than in the medium-ranged provinces (Figure a). Perhaps, this is because the NHTS scheme is intentionally targeted/implemented at low-HDI range provinces more than at medium-MDI range provinces.

Similarly, under the Regular-DOH scheme (FIES-based), full coverage rate is fairly high amongst low-HDI provinces. However, this is not the case when viewed from the PIR-based estimates.

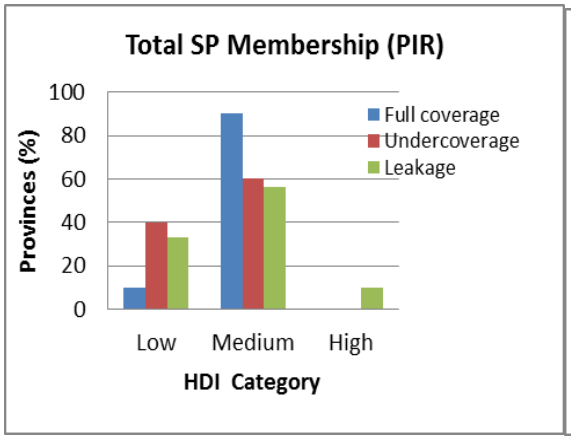


Figure 10. Provincial PHI-SP coverage rates vs. HDI category (PIR/SIR-based)

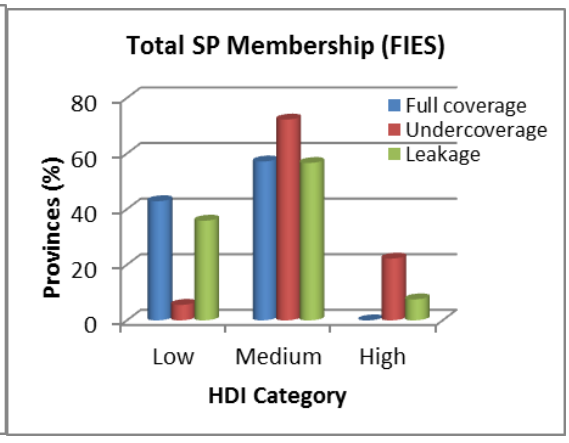


Figure 11. Provincial PHI-SP coverage rates vs. HDI category (FIES-based)

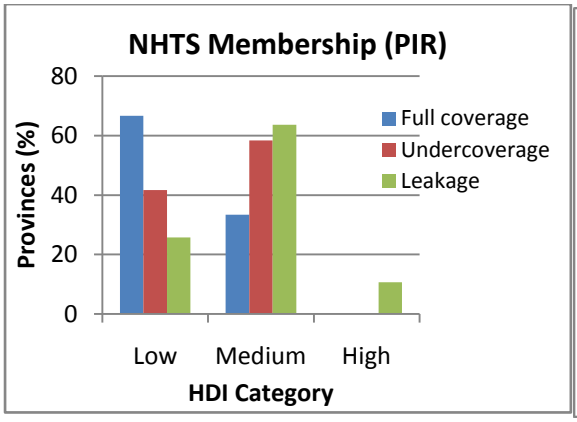


Figure 10a. Provincial PHI-NHTS coverage rates vs. HDI category (PIR/SIR-based)

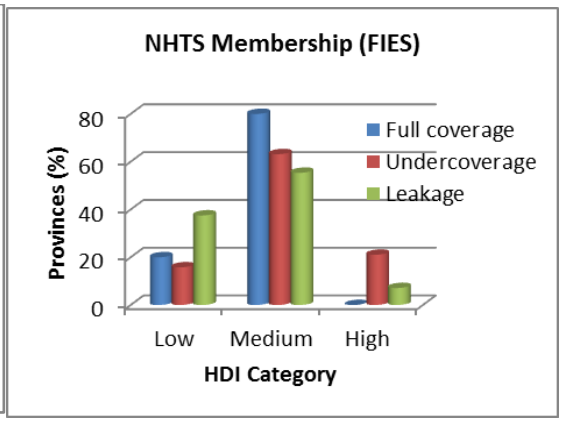


Figure 11a.Provincial PHI-NHTS coverage rates vs. HDI category (FIES-based)

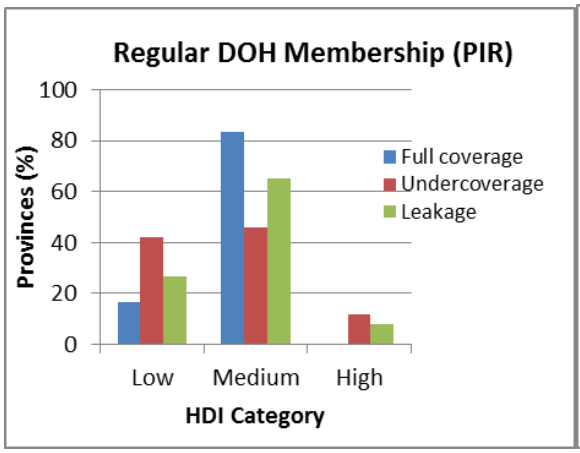


Figure 10b. Provincial PHI-Regular DOH coverage rates vs.HDI category (PIR/SIR-based)

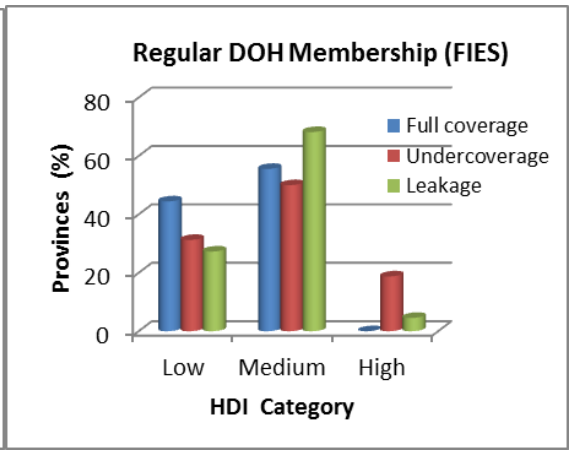


Figure 11b. Provincial PHI-Regular DOH coverage rates vs. HDI category (FIES-based)

Coverage rates vs. Province's income class

Relative to the income class of the Provincial LGU, the PhilHealth-Sponsored Program appears to be widely implemented by the First Class Provinces, where full, under-coverage and leakage rates are highest (Figures 12 and13). Similar patterns can be observed, when analyzed per the sponsorship scheme (Figures 12b, 13a and 13b) except for the NHTS coverage (PIR) –Figure 13a where leakage dominates the first class provinces.

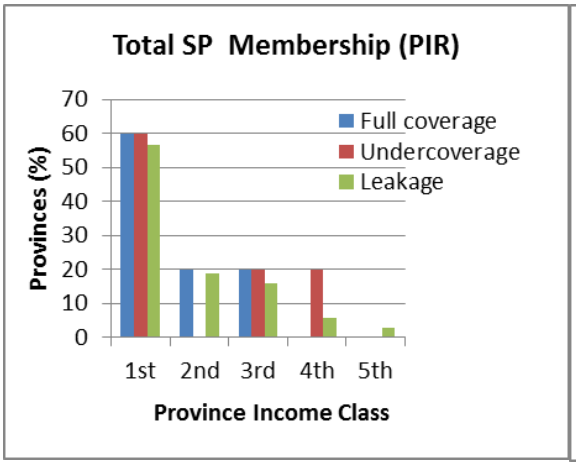


Figure 12.. Provincial PHI-SP coverage rates vs. Province income class (PIR/SIR-based)

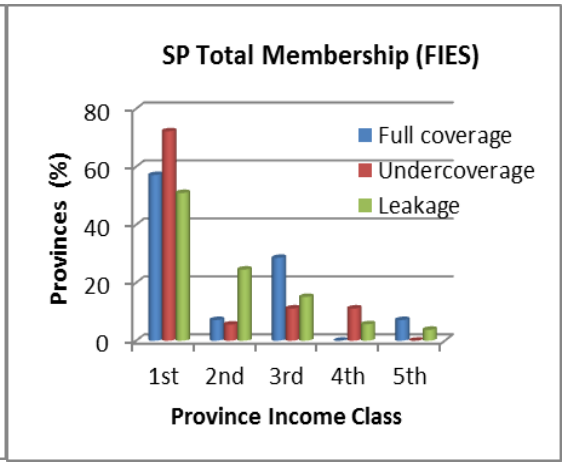


Figure 13. Provincial PHI-SP coverage rates vs. Province income class (FIES-based)

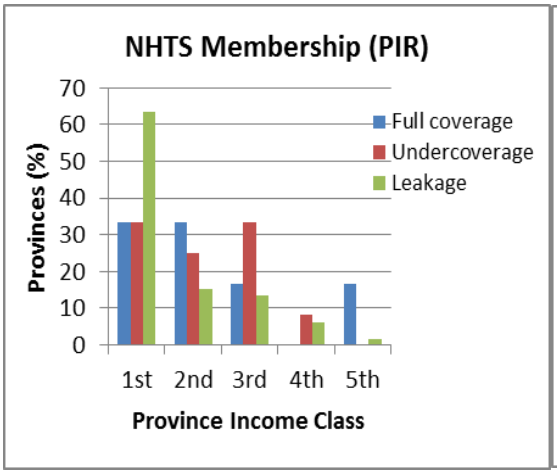


Figure 12a. Provincial PHI-NHTS coverage rates vs. Province income class (PIR/SIR-based)

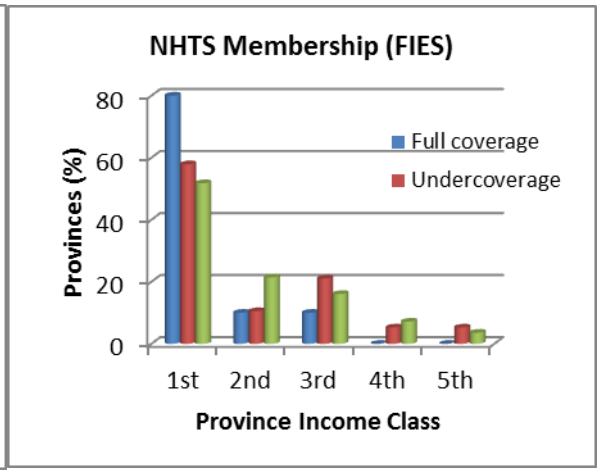


Figure 13a. Provincial PHI-NHTS coverage rates vs. Province income class (FIES-based)

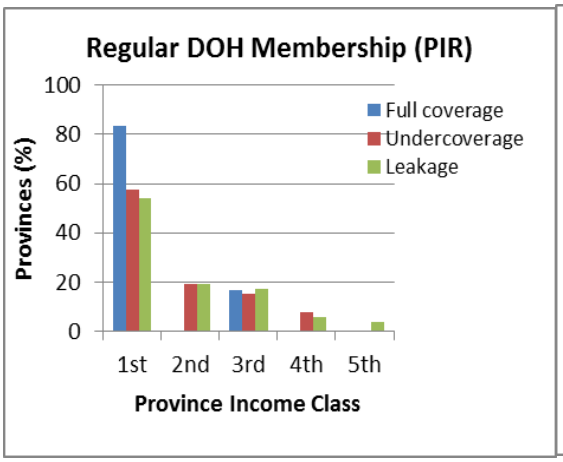


Figure 12b. Provincial PHI-SP coverage rates vs Province income class (PIR/SIR-based)

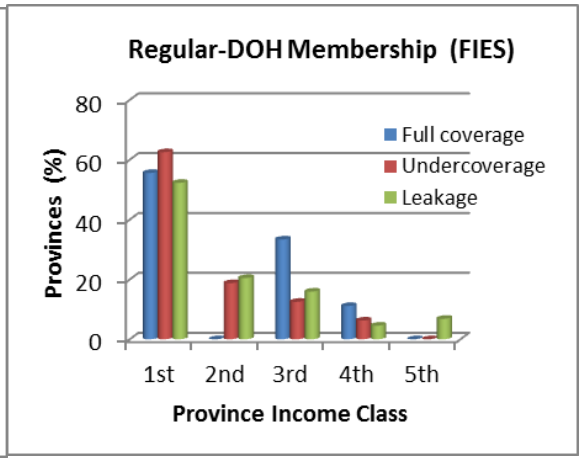


Figure 13b.Provincial PHI-Regular-DOH coverage rates vs Province income class (FIES-based)

Coverage rates vis administrative governance index (AGI)

To reiterate, AGI is a measure of Provincial LGU's efficiency of the delivery of services on health, education and power supply. The LGUs were ranked by NSCB from highest (as Rank 1) to lowest rank, based on the ratio/index obtained. For purposes of this analysis, the ranked LGUs were categorized as follows:

Group 1 - Top 1-15th ranking

Group 2 - Second 16 -30th ranking

Group 3 - Third 31st -45th ranking

Group 4 - Fourth 46th – 60th ranking

Group 5 - Fifth 61st to lowest ranking

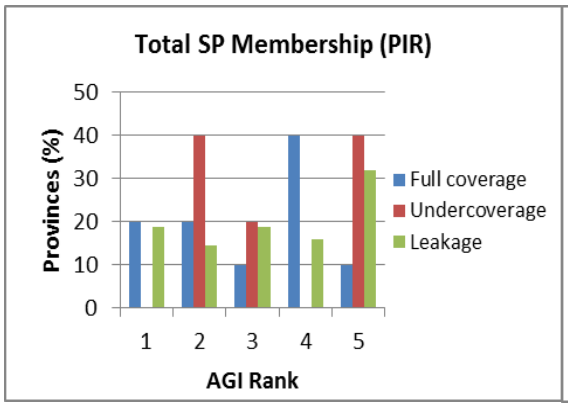


Figure 14. Provincial PHI-SP coverage rates vs. AGI Ranking of LGU (PIR-based)

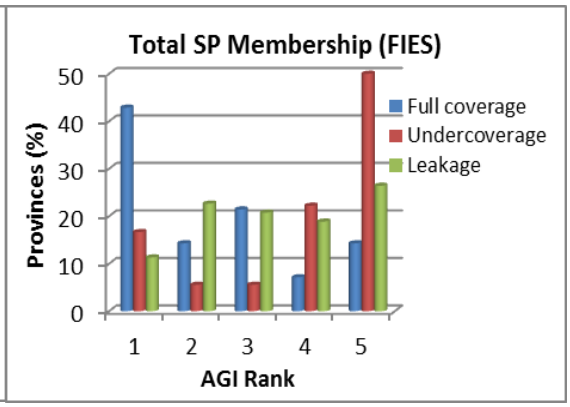


Figure 15. Provincial PHI-SP coverage rates vs. AGI Ranking of LGU (FIES-based)

Data in Fig.14 indicate that under-coverage is most profound in LGUs Groups 2 and 5 while full-coverage is of equal level amongst LGU Group 4 (PIR based). That low-AGI-ranked LGUs would show high UCR level is quite expected – implying that the said group is likely to be less efficient in the delivery of health services. On the other hand, the FIES-based approach (Figure 15) displays high level of full coverage amongst top-AGI-ranked LGUs and higher UCR level amongst the lowest-AGI-ranked provinces, as expected.

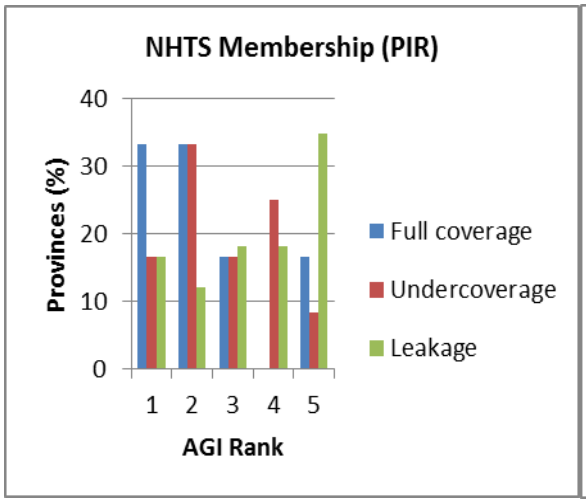


Figure 14a. Provincial NHTS-SP coverage rates vs. AGI Ranking of LGU (PIR-based)

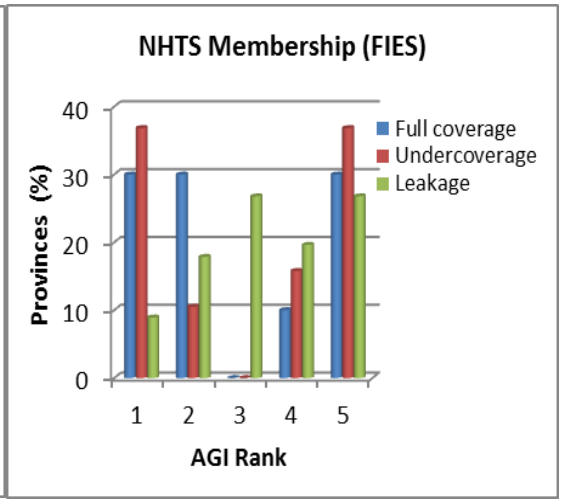


Figure 15a. Provincial NHTS-SP coverage rates vs. AGI Ranking of LGU (FIES-based)

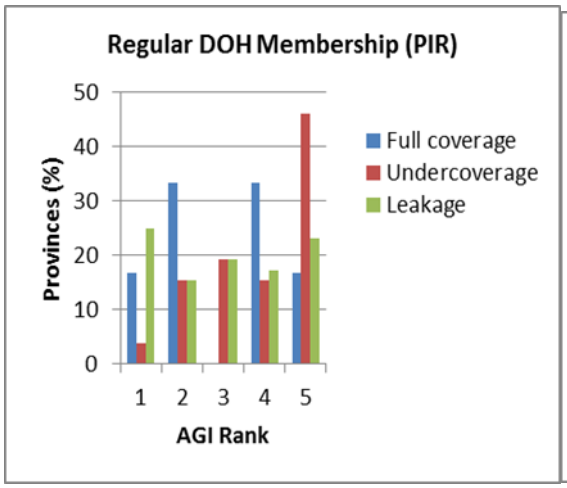


Figure 14b. Provincial REGULAR-SP coverage rates vs. AGI Ranking of LGU (PIR-based)

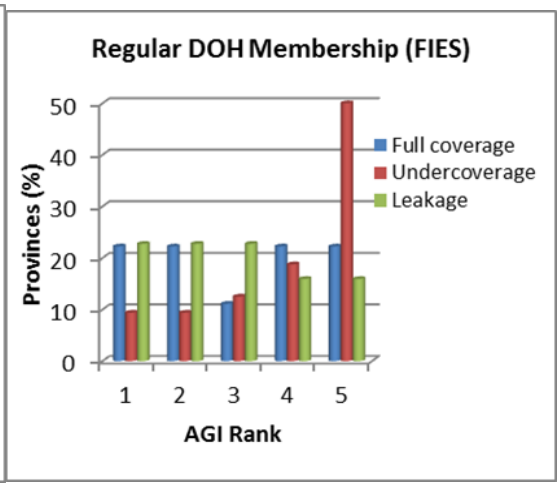


Figure 15b. Provincial Regular-DOH SP coverage rates vs. AGI Ranking of LGU (FIES-based)

When broken down into schemes, Figures 14a suggests that top- AGI-ranking LGUs are characterized with both high NHTS full-coverage rate combined with high under-coverage. The lowest AGI-ranked provinces made up with having extreme leakage rates. Under the Regular-sponsorship scheme (Figure 14b), more than 30% amongst those in Group 2 and 4 have full-coverage but the lowest-ranked Group 5 is dominated by those with severe under-coverage rates. Meanwhile, Figure 15a indicates moderately high NHTS full coverage and under-coverage rates in both the upper level and lowest AGI-ranking provinces. Coverage rates under Regular scheme appear to be evenly

distributed between Groups 1 to four (4) with the lowest group being highly characterized with severe under-coverage.

5.3.2 Multinomial Logit Analyses

The objective of identifying factors that could explain variations in PhilHealth-SP membership coverage rates between and within provinces was addressed in this study by modeling SP enrollment/membership as a multinomial logit (MNL) problem:

$$\Pr(Y_i = j) = \exp(\beta_j x_i) \Big/ \sum_{k=0}^{2} \exp(\beta_k x_i) \qquad j = 0, 1, 2 \qquad (4)$$

where $Y_i = j$ indicates the province " i " having SP membership rate " *j* ", where $j = 0$ is full coverage option, $j = 1$ is under-coverage rate and $j = 2$ is leakage rate. Full coverage served as the comparison group in this equation. β_j represents the regression parameters to be estimated, while x_i is a set of explanatory variables expressed in Eq. 3.. Equation 4 was estimated using maximum likelihood procedure for SP Total membership, SP NHTS and SP Regular-DOH membership schemes[19]. Stata version 12 (Stata 2012) was used for descriptive and multivariate analyses.

a.) Probability of under-coverage or leakage vis full coverage

MNL regressions for Eq. 4 were run separately for the PIR-based and FIES-based coverage rates, i.e., six regression equations in all. Given the results on LR Chi2 test and its significant value on the goodness of fit for each equation, only the estimation results for the FIES-based rates and one MNL model for the total membership PIR/SIR based are presented in the text[20]. For the sake of brevity, under-coverage, full coverage and leakage are termed as UCR, FCR and LKR, respectively.

[19]Multinomial logit (or probit) technique has been applied in measuring access to health care (Ruiz et al, 2007, Hidayat et al, 2004, Mekonnen and Mekonnen 2003, to cite a few). The preference of MNL over logit (0-1) technique is based on the argument that the latter method restricts the analysis to binary options while the former presents real choices, i.e., full coverage or under-coverage or leakage (Green 2008; Jowett et al 2004).

[20]The PIR/SIR MNL regression models disaggregated into schemes failed to produce full results due to iteration-procedural problems. Various regression trial runs, excluding variables suspected to cause concavity or iteration

Tables 13,14 and 15 outline the provincial characteristics, both from the demand and supply-side aspects, which were considered in the MNL models as probable factors explaining variations in the SP membership coverage rates across provinces in its entirety or disaggregated into schemes.

From the SP Total membership MNL regression models (FIES-based –Table 13), the variables found to have statistical significant values (at 99%, 95% and 90% confidence levels) which could likely explain variations between provincial coverage rates (*under-coverage rates* and *leakage* relative to the base-outcome *full coverage*) are the severity of poverty, various age-groups, education index, LGUs income per capita in real terms, LGU's health expenditures per capita, the three Good Governance indices, number of PHI offices in the province, number of accredited health facilities, specifically rural health units/health centers and private hospitals, and the number of health professionals per a thousand population. In addition, the PIR/SIR-based regression model (Table 14) produced statistically significant variables, namely HDI (Human Development Index) and the number of government hospitals, which can likely affect (positively) under-coverage or leakage rates relative to full coverage[21].

Analyzing separately the patterns between NHTS and the Regular schemes , only a handful of the aforementioned variables are able to explain coverage rate variations between and across provinces (Table 15). The income classification of the provincial LGU come into play as another predictor of the likelihood for under-coverage under the NHTS scheme.

problems, failed to generate the expected regression outcomes. Therefore, only the MNL model on total membership was retained.

[21]In all the regression models, variable on female/male ratio was dropped due to iteration problems. In the PIR-based MNL model, severity of poverty variable was replaced by HDI as a whole due to correlation problems. HDI education index produced large errors, hence was also dropped from the equation.

b.) Explanatory variables to coverage rate variations

Severity of poverty

A higher severity poverty index implies a more severe poverty condition, concentrating amongst the poorest population. Regression results suggest that the greater the severity of poverty in the province, the less likely LKR occurs relative to FCR. The negative effect is statistically significant at 5% confidence level. This could mean that the economically worst-off families are less likely to be excluded from the program. On the other hand, the higher the index, the less likely would the poor be under-covered. Put it differently, it is more probable that the poor population, being the target group of the PHI-SP shall be enrolled into the program. Albeit, the variable's effect on UCR is weakly supported by statistical evidence.

Age Groups

All age-group-variables present strong significant and direct positive effects on leakage relative to FCR. Increases in the number of persons in any age-group will most likely tend towards leakage, indicating that more of the unqualified persons being in the program are actually enrolled and covered under the schemes. At the same time, as population in both the productive age (21 to 60 years) and the elderlies (60+ years) grow, the higher the probability of being crowded out and consequently excluded and become under-covered under the SP.

Human Development Index vs. HDI Education Index

In the FIES MNL regression models, the HDI variable produced suspiciously large standard errors, larger than that of HDI Education index. The HDI as a whole was dropped, maintaining the HDI Education index as an alternative variable to measure the knowledge level of the population in the province. HDI was however used as an alternate indicator to that of poverty- severity in the PIR/SIR based regression (Table 14). HDI emerged to positively affect the likelihood of leakage, i.e., the

probability of leakage is greater as HDI (which is a composite of life expectancy, mean years in school and real income indices) gets higher.

Table 13. MNL estimates on probability of Undercoverage and Leakage vs. Full Coverage under the PhilHealth-Sponsored Program, Total SP Membership (FIES-based population)

	Undercoverage				Leakage		
Explanatory variables	Coef.		Std. Error		Coef.		Std. error
Severity of poverty	-2.247		1.616		-1.230	**	0.600
Age group < = 5 years	0.000		0.000		0.000	**	0.000
Age group = 6 to 20 years	0.000		0.000		0.000	*	0.000
Age group 21 to 60 years	0.000	*	0.000		0.000	**	0.000
Age group 60 + years	0.000	**	0.000		0.000	**	0.000
HDI Education index	35.996	*	20.460		37.016	**	19.115
Province income class	-2.147		1.484		0.925		1.060
Real (LGU) income per capita	0.006	*	0.003		0.002		0.002
Health expenditures per capita	0.023	**	0.012		0.004		0.005
LGU Administrative Governance Index (AGI)	-0.203	***	0.077		-0.089	**	0.040
LGU Economic Governance Index (EGI)	-0.140	**	0.068		0.003		0.024
LGU Political Governance Index (PGI)	1.214	**	0.574		1.205	***	0.464
Number of PHIC Office/Centers in prov.	0.630	**	0.322		-0.116		0.180
Number of accredited RHUs/HCs in prov.	0.030		0.259		0.647	***	0.238
Number of accredited govt hospitals in prov.	0.144		0.593		-0.226		0.412
Number of accredited private hospitals in prov.	-0.322		0.309		0.261	*	0.140
Health professionals/1000 popn. Ratio	21.057	**	10.661		-9.608		8.405
Constant	-64.036	*	38.545		-87.845	**	37.424

Full coverage = base outcome
Number of observation = 82
Log likelihood = -22.176867
LR chi2(34) = 109.20
Prob > chi2 = 0.000
Pseudo R2 = 0.7111
Significance level: ***(1%); **(5%); * (10%)

Table 14 . MNL estimates on probability of Undercoverage and Leakage under the PhilHealth-Sponsored Program, Total SP Membership (PIR/SIR-based population)

	Undercoverage				Leakage		
Explanatory variables	Coef.		Std. Error		Coef.		Std. error
Age group < = 5 years	0.000		0.000		0.000	**	0.000
Age group = 6 to 20 years	0.000		0.000		0.000	**	0.000
Age group 21 to 60 years	0.000	**	0.000		0.000	**	0.000
Age group 60 + years	0.000		0.000		0.000		0.000
HDI	21.136		21.152		30.428	*	16.125
Province income class	-1.331		2.165		0.857		1.127
Real (LGU) income per capita	-0.012	***	0.005		-0.008	**	0.004
Health expenditures per capita	-0.009		0.010		-0.008		0.006
LGU Administrative Governance Index (AGI)	0.035		0.067		0.004		0.026
LGU Economic Governance Index (EGI)	0.115	**	0.054		0.130	***	0.050
LGU Political Governance Index (PGI)	-1.084	*	0.652		-0.567		0.355
Number of PHIC Office/Centers in prov.	0.783		0.749		1.006	*	0.570
Number of accredited RHUs/HCs in prov.	0.143		0.394		0.651	**	0.269
Number of accredited govt hospitals in prov.	1.440	**	0.656		0.879		0.595
Number of accredited private hospitals in prov.	0.144		0.361		0.528	**	0.265
Health professionals/1000 popn. Ratio	-14.405		9.328		-9.517	*	4.950
Constant	57.553		49.256		14.653		18.770

Full coverage = base outcome
Number of observation = 82
Log likelihood = -19.145012
LR chi2(32) = 58.84
Prob > chi2 = 0.0026
Pseudo R2 = 0.6058
Significance level: ***(1%); **(5%); * (10%)

Treated separately in the FIES regression models, the positive effect of the HDI-Education index variable on the probability of leakage is expected but the similar positive effect on under-coverage is counter-intuitive. That the likelihood of under-coverage increases as HDI Education improves is rather difficult to explain. The disaggregated analyses on coverage rates under NHTS and Regular –SP schemes showed HDI-Education to have negative effects on both UCR and LKR relative to FCR under the NHTS and on UCR under Regular scheme. The directions of the effects may indicate that improved educational level can smoothen out UCR and LKR movements towards full coverage. These estimates do not bear statistical significance, however.

Provincial LGU Income Classification

The variable - income classification of the Provincial LGU came to matter when its effects on coverage rates under PHI-SP schemes were disaggregated. Under the NHTS sub-program, the LGU's income class generated negative effects on both UCR and LKR, indicating that at a higher income class, the LGU is highly unlikely to under-cover (meaning to exclude the true beneficiaries) or to over-enroll non-qualified-constituents (leakage) into the NHTS lists.

Per Capita Real LGU Income and Health Expenditures

Based on the FIES-based regression results, the positive effects of per capita real LGU income and per capita health expenditures on UCR are unexpected. On the contrary, the PIR/SIR-based MNL estimates showing negative coefficients for per capita real income on UCR and LKR suggest that at higher income, the LGU will probably react the same way as that indicated in the income class variable, i.e., unlikely to undercover or over-extend enrollment of untrue beneficiaries.

Administrative Governance Index (AGI)

Recall that AGI is defined by NSCB as an indicator of LGU's efficiency in the delivery of services on health, education and power supply. Given such definition, the higher the index, the higher the efficiency rate of service delivery, the less likely the UCR and LKR to happen relative to full coverage. This may mean that the LGU's enhanced efficiency in health service delivery shall tend most likely towards achieving full coverage rather than under-coverage or leakage.

Table 15. MNL estimates on probability of Undercoverage and Leakage under the PHI- SP NHTS AND REGULAR-DOH Membership Schemes (FIES-based)

	NHTS MEMBERSHIP						Regular - DOH Membership					
Explanatory variables	Undercoverage			Leakage			Undercoverage			Leakage		
	Coef.		Std. error	Coef.		Std. error	Coef.		Std. error	Coef.		Std. error
Severity of poverty	-0.601		0.515	-0.598		0.427	0.239		0.752	0.349		0.737
Age group < = 5 years	0.000		0.000	0.000		0.000	0.000		0.000	0.000		0.000
Age group = 6 to 20 years	0.000		0.000	0.000		0.000	0.000	*	0.000	0.000		0.000
Age group 21 to 60 years	0.000		0.000	0.000	**	0.000	0.000		0.000	0.000		0.000
Age group 60 + years	0.000		0.000	0.000		0.000	0.000		0.000	0.000		0.000
HDI Education index	-9.125		15.235	-14.786		13.309	-16.561		17.285	2.854		17.458
Province income class	-2.102	**	1.007	-1.759	*	0.917	-1.910		1.534	-2.080		1.542
Real (LGU) income per capita	0.003	*	0.002	0.002		0.002	-0.002		0.002	-0.002		0.002
Health expenditures per capita	-0.002		0.005	-0.001		0.005	0.006		0.006	0.004		0.006
LGU Administrative Governance Index (AGI)	-0.013		0.023	-0.030		0.022	-0.013		0.034	-0.003		0.033
LGU Economic Governance Index (EGI)	-0.010		0.016	-0.001		0.013	-0.019		0.022	0.000		0.021
LGU Political Governance Index (PGI)	-0.081		0.250	0.042		0.224	0.249		0.317	0.173		0.309
Number of PHIC Office/Centers in prov.	0.212		0.133	0.106		0.129	-0.068		0.270	-0.097		0.268
Number of accredited RHUs/HCs in prov.	0.019		0.081	0.106		0.078	-0.089		0.125	-0.064		0.127
Number of accredited govt hospitals in prov.	-0.104		0.282	-0.280		0.280	0.304		0.509	0.670		0.517
Number of accredited private hospitals in pro	0.032		0.093	0.095		0.089	0.015		0.134	0.134		0.140
Health professionals/1000pop. Ratio	0.675		5.152	-3.538		5.195	-21.727	***	8.747	-25.251	***	8.855
Constant	20.161		20.089	21.753		17.402	23.300		23.853	9.575		23.683

Full coverage = base outcome	LR chi2(34) = 59.9	Full coverage = base outcome	LR chi2(34) = 74.01
Number of observation = 82	Prob > chi2 = 0.004	Number of observation = 82	Prob > chi2 = 0.0001
Log likelihood = -42.007193	Pseudo R2 = 0.4162	Log likelihood = -40.805587	Pseudo R2 = 0.4756
Significance level: ***(1%); **(5%); * (10%)		Significance level: ***(1%); **(5%); * (10%)	

Economic Governance Index (EGI)

Meanwhile, EGI is a measure of the LGU's sustainable management of its resources through generation of adequate financial resources and responsiveness to alleviation of poverty. The negative coefficient terms for EGI on under-coverage hints that at higher EGI, the Provincial LGU is more able to manage its financial resources and to respond to poverty alleviation programs such that it shall decrease the likelihood of UCR.

Political Governance Index (PGI)

PGI measures how well the LGU applies the rule of law, the enhancement of people's empowerment and participation in government programs. The statistical strength of the positive effects of the variable PGI on UCR and LKR purports that at higher index, LGU has probably heightened people's empowerment, awareness and participation in the PHI-Sponsored Program . On one hand, there is greater tendency to over-enroll, including non-indigents (leakage). On the other hand, provinces with higher PGIs are very likely to under-cover, thus excluding true indigent-recipients of the program[22].

Presence of PHIC Offices

The presence in the province of the PHI Offices, either regional, local or "business centers", is a measure of PHIC's administrative support to the LGUs, health care providers and the members. Availability of the PHIC's office/s within the locality, enhances local awareness of the PHI programs, facilitates time-and-monetary-saving-transactions between PHIC and clients and provide closer/quicker contacts between the parties. This variable is expected to affect negatively UCR but may lend positively towards the LKR side. The PIR/SIR –based regression estimates support the latter expectations (on LKR) but FIES-based regression results counter the former (on UCR) .

[22] Anecdotal evidences suggest that there can be enrollment of substantial number of "political indigents" in many LGUs, especially during election years (Personal interviews of local officials, various years). This pattern was also noted by Silfverberg (2009) in her study on the impact of PHI on health service utilization using NDHS 2003 data.

The statistically significant estimates allude to the argument that as the number of PHIC's offices in the province increases, the more likely leakage would occur ; just as under-coverage is highly probable. The latter effect is not clearly defensible.

Accessibility variables: RHUs, Hospitals and Health Professionals

Four variables are related to the issues on accessibility to health services/facilities relevant to the Sponsored Program: number of rural health units/centers, number of public and private hospitals and the ratio of health professionals per 1000 population in the province. The numbers of facilities are limited to those accredited by PHIC/DOH. While these variables may not directly influence enrollment behavior of the poor population, they can indirectly motivate both the LGUs and the target groups to enlist/be enlisted to be able to avail of the PHI benefits provided in these facilities. For example, the availment of primary health care benefit packages under the SP are limited mainly to rural health units/centers or the outpatient-care department of public hospitals.

In both FIES and PIR/SIR MNL models, the *number of accredited RHUs/Centers* strongly and positively affects leakage rates, indicating that the more accredited RHUs there are in the province, the greater the probability that leakage would ensue relative to full coverage. This could also mean that the more "non-qualified SP members" are enrolled.

The significant and positive effect of *the number of accredited public hospitals* in the province is observed on UCR – more government hospitals denote higher likelihood for under-coverage (PIR/SIR model) – implying that more of the "true qualified beneficiaries" are excluded. In contrast, the greater number of private hospitals may increase probability for leakage (FIES and PIR/SIR MNL estimates) – the more private hospitals available existing in the locality, the more likely that "non-qualified families" are included in the program.

The ratio of health professionals per a thousand population in the province emerged to be a strong significant explanatory variable to UCR (positive effect –FIES model) as well as to LKR (negative effect – PIR/SIR model). Decomposing coverage rates into schemes, this variable produced highly significant negative effects on both UCR and LKR vis-à-vis FCR,

under the Regular-DOH sub-program (see Table 15). Focusing on the decomposed MNL models, the increase in the health professionals per thousand population ratio would lower the probability of UCR. Similarly, the same lowering effect can be expected on the probability of LKR. This may imply that increasing numbers of health professionals would address under-coverage (exclusion) of true indigent members and leakage (inclusion) of unqualified SP beneficiaries relative to achieving the full coverage level.

6. DISCUSSION

This study aimed to establish the breadth of PhilHealth-Sponsored Program – the Insurance coverage of the targeted poor population. It determined the extent of coverage, i.e., whether it has attained universal (full coverage) or otherwise at the regional and provincial levels. It further identified factors likely to explain variations across geographical locations. The analyses centered on the breadth of SP primarily in terms of total membership (principal members + dependents) and secondarily on membership disaggregated into two schemes , NHTS listing and the Regular-DOH enrollment.

The study used datasets generated from the membership records of PHIC on PhilHealth-Sponsored Program for the year 2011 and population estimates derived from NSCB's published data on Population and Housing 2010 and Family Income and Expenditures Survey 2009.Population coverage rates were categorized generally as full, under-coverage and over-coverage or leakage. Under-coverage was equated to the situation where families who were supposed to be covered by the program were excluded; leakage – when families who were not to be part of the program were included in the enrollment lists. Coverage rates were sub-categorized into severe under-coverage (UCR), moderate to mild UCR, full coverage (FCR), mild to moderate leakage (LKR) and extreme leakage. There were cases of outlying leakage (beyond extreme sub-category). Based on theory and availability of data, a list of factors expected to explain variations in coverage rates between geographical regions and provinces were examined and their effects were analysed, applying descriptive and multinomial logit techniques.

6.1 Findings

6.1.1 On Population Coverage

At the national level, PhilHealth-Sponsored Program has succeeded to achieve in 2011 universal coverage of the targeted poor segments of the country's total population. Full coverage (107%) of the total poor was attained, if based on the FIES lower quintiles population estimates. It exceeded its target, garnering 154% leakage rate, if viewed from the PIR-based calculated poor population. When disaggregated into the two schemes, the Sponsored Regular-DOH Program reached full coverage (FIES-based) or mild to moderate leakage (PIR-based). Meanwhile, the NHTS-SP presented mild to moderate leakage rates, regardless of the population-base applied. The findings on national coverage rates conform with PHIC 's claim for universal coverage under the Sponsored Program by mid-2000s (refer back to Figure 3). Although, attainment as claimed is suspiciously too early. The BDR study of DOH (2010) indicated a lower national coverage rate of 49% in 2008 for the poor. Thailand, one of the few countries in the region which has attained universal coverage, took 27 years before its Low Income Scheme for the poor achieved its goal (Prakongsai et al 2009).

At the local level, data demonstrated a different picture. Universal coverage is uneven and geographical disparities are significantly wide. At both the regional and provincial levels, SP coverage rates are highly skewed to the leakage side, whether in terms of total membership or by scheme. PIR-based regional coverage rates for total membership show a more skewed distribution than that of the FIES-based computed rates. The same can be said of the provincial coverage rates. Leakage appears the most common experience amongst provinces. Although under-coverage of indigent families under the Regular-DOH scheme characterized a third of the eighty-five (85) provinces. The differences in coverage rates between and across regions and provinces can be attributed to the large differences emanating from the NHTS rather than from the Regular-DOH distribution.

These results imply that in 2011 and in majority of the provinces (62% for FIES-based and 82% for PIR-based) where "leakage" seems to be the norm, many families who should

not be qualified to be enrolled into the Sponsored Program were indeed included. Whereas in a few provinces (6% -PIR-based or 21%-FIES-based of 85 provinces), the true and qualified targeted beneficiaries of the program were under-covered or excluded in the lists

At a closer look, there manifests wide disparity between the lowest and the highest regional coverage rates, especially when disaggregated into the schemes. The gaps are even wider at the provincial level. Provinces demonstrating outlying leakages call for deeper scrutiny regarding "true or unqualified" SP membership and their local health care financing policies. For instance, it is publicly known that Makati City (included in NCR 4th District) provides extensive free medical care for the low income groups. Davao City (in Davao del Sur) is another LGU which is quite liberal in extending financial assistance for medical care to those in need, not necessarily just the poorest or the total poor. At the same time, provinces like those in the CALABARZON Region, exhibiting severe under-coverage, should be explored further as to their true conditions, i.e., whether low coverage rates are due to higher economic status of the general population hence poverty incidence or proportion of the poor is significantly low; or is it a matter of deficient program implementation on some aspects, resulting to very low coverage rates.

By disaggregating the analyses on coverage rates between the two schemes, there emerged a pattern that can be interpreted as a form of "substitution effect". By "substitution" here is meant that an LGU exchanges the status of its Regular-SP members into NHTS recipients[23]. The NHTS listing by DSWD began early 2011, separating the fully subsidized members from those partially (or fully) subsidized by the LGUs or other sponsors.

For instance, examining more closely the provincial coverage rates in Table 12would show that the four CALABARZON provinces (Cavite, Laguna, Quezon and Rizal)

[23] The national agency, DSWD, generates the lists of recipients of the Cash Transfer Payments, some of whom become beneficiaries of the PhilHealth Card for a year or until they are delisted from the program. At the start, DSWD national office attempted to generate the lists of recipients independently from the LGUs intervention. Subsequently, due to some practical organizational problems, the agency had to coordinate with the LGUs in identifying the "poorest" in their community for some sort of a quota, i.e., 500 persons per municipality. There are anecdotal evidences that LGUs include in the lists their own-listed Regular members, either to fill in the quota for NHTS or enlistment as a political accommodation (Information was extracted by author's personal interviews with local officials and friends).

experienced extreme or outlying leakage rates under NHTS but severe under-coverage rates under the Regular scheme. Similar conditions can be gleaned at the provinces of Marinduque and Occidental Mindoro (MIMAROPA Region), Camarines Sur, Masbate and Sorsogon (BICOL Region), ZamboangaSibugay and Isabela City (ZAMBOANGA PENINSULA), Sarangani and Cotabato City (SOCCSKSARGEN) and the provinces in ARMM – Basilan, Maguindanao, Sulu and Tawi-Tawi. This "substitution" phenomenon is similar to the argument of Llanto (2007) that there could be possible "migration" of the low-income members from informal sector under the KASAPI strategy (which is member-financed) to the subsidized Sponsorship Program (which is taxed-finance). Only in this case, "migration" is from the LGU-financed Regular scheme to the national government-subsidized sub-program NHTS. This issue is expected to be resolved upon the implementation of the NHI law RA 10606 of 2013. [24]

6.1.2 On Effects of Explanatory Variables on Coverage Rates

The study has identified a number of factors which proved to be intuitively sound in explaining variations in the coverage rates between and across provinces. Some of these variables are long-established as important determinants of individuals/households' behavior towards health insurance enrollment, i.e., age, income, education, health expenditures and availability of health care facilities/professionals (Raghupathy 1996; Celik and Hotchkiss 2000; Simkhada et al 2007; Silfverberg 2012).

The discussion here pivots around the influence of a few explanatory variables which were assumed to be relevant issues in the implementation of the PHI-Sponsorship Program, , i.e., severity of poverty, human development index (HDI), LGUs income classification and governance style represented by three (3) good governance indices, PHIC organizational support in terms of the presence of its office/s in the locality and PHC accredited health care facilities. The importance of these variables has yet to be established more firmly in clarifying variations in coverage rates. Furthermore, the identification of

[24] The recently amended NHI law RA 10606 now assigns premium payments of indigents under NHTS to the national government agency DOH while premium contributions for local government's volunteer workers and other enlisted sponsored members shall be covered by LGUs and other donors' funds. RA 10606 Sec.19.

these factors was exploratory, hence results should be taken in the light of being more indicative rather than deterministic.

The results from the descriptive analyses demonstrate fairly obvious the pro-poor orientation of the national health insurance program in general and the Sponsored Program in particular.

From the demand side, the variables Severity of Poverty Index (SPI in short) and Human Development Index (HDI) were used as measures representing the population characteristics of every province cross-tabulated with the SP coverage rates at the local level.

In provinces characterized with high SPI (i.e., income gaps were widest and poverty condition was worst or most severe), either full coverage (PIR-based) or leakage (FIES-based) was the dominant experience, when taking the SP membership in entirety. Breaking down the membership into schemes, parallel patterns were observed under the NHTS and Regular programs, i.e., combination of FCR and LKR standing out in the same high- SPI group of provinces; with the exception of that under the NHTS PIR-based estimated rates. Disregarding the latter form, the results indicate positive effect of both national and local governments' drive to cover as widely as possible the "poorest of the poor" population, particularly in provinces where poverty situation would manifest itself as most severe.

The HDI measurement however, provided a slightly different picture. Looking at the totals, full coverage or leakage side by side under-coverage were prominent largely in medium-ranged HDI provinces. This is probably more a reflection of the prevailing HDI conditions in most provinces in the country, majority of which is classified as belonging to medium-ranged HDI (Bautista, 2012). Nevertheless, the directions of the national and local governments towards enhancing the capabilities of low-ranged-HDI provinces are apparent under the NHTS and Regular schemes of the program.

From the supply or provider's side, the LGU's income class status clearly made the difference. First- income class provinces were most likely economically able to provide full-

coverage for their indigent/poor constituents. In contrast and as expected, the lower/lowest income class provinces were least capable of subsidizing the needy and the poor. This must have been a major consideration, when the NHI law was recently adjusted in terms of premium payments assignments.

Meanwhile, when measured against the LGU's AGI (administrative governance index) ranking, distribution of provinces per coverage rate category was less clear-cut. Focusing on the FIES-based cross-tabulated results and on total membership, full-coverage occurrence was highest and leakage rates the least amongst top AGI-ranking LGUs. Whereas, under-coverage typified majority of the bottom-AGI-ranked provinces. Such pattern aptly depicts the expectations for highly-ranked provincial LGUs to efficiently deliver health services at the same time recognizing the inabilities or difficulties of the lowly-ranked LGUs to administer local government programs such as the PhilHealth- SP. Moreover, AGI-ranking did not seem to matter when LGUs' are made to participate in the implementation of the nationally-funded SP- NHTS scheme. Both the top and bottom-AGI-ranked groups demonstrated high levels of full coverage and under-coverage , with the latter group (Group 5) presenting equally high leakage rates under the NHTS membership. The coverage patterns under the locally-funded Regular SP scheme were just about the same across AGI-ranked groups, with the exception of a pronounced under-coverage level amongst the bottom group. These results strengthened by that in the multivariate analyses clearly supports the notion that the quality of the LGUs governance would have significant impact on the delivery of health services and consequently in addressing the basic health care needs of poor (Furtado, 2001).

The descriptive relationships between coverage rates and selected provincial characteristics are strongly supported by statistical evidence derived from the multivariate analyses. Several traditional and explored non-traditional variables (as termed in this study) obtained direct and statistically significant effects , indicating their importance as explanatory factors to variations in the coverage rates of the PHI-SP.

Again, focusing the discussion on the FIES-based estimates under total SP membership, given full coverage as the base outcome in the multinomial- logit equations,

the variables which emerged to significantly explain variations in provincial *under-coverage rates* (*UCR)* are the older age-groups, HDI education index, LGUs real income per capita, health expenditures per capita, good governance component indices (AGI, EGI and PGI), number of PHIC offices in province and health professionals per a thousand population. Except for two (AGI and EGI), all these variables presented positive and direct effects on UCR. The positive signs of the coefficients on these variables were unexpected and difficult to interpret. Intuitively, these should decrease the probability of under-coverage relative to full-coverage. The negative signs of the coefficients for AGI and EGI can be interpreted in relation to their effects on leakage rates.

From the same regression equations, the results indicate that variables showing stronger statistical significance in explaining the differences between provincial *leakage rates (LKR)* are the severity of poverty, all age-groups, HDI education index, AGI and PGI, availability factors such as the number of accredited RHUs and private hospitals in the province. Except for the severity of poverty index and AGI which showed negative signs in their coefficients, all other variables exhibited positive effects on leakage rates.

The PIR-based regression estimates produced a few additional important explanatory variables like HDI, accessibility to PHIC office measured by its number in the locality, and availability also of accredited government hospitals. Meanwhile, the disaggregated regression analysis generated one more important variable affecting coverage rates under the NHTS scheme – that is the income class status of the province.

It is noticeable that other than the variables representing population-characteristics such as severity of poverty and HDI, several explanatory factors strongly supported with statistical evidence are supply/providers-side variables. Some underscore the roles of LGUs as implementors cum part-financiers and providers of health services covered by the PHI-SP, i.e., component good governance indices, namely AGI,EGI and PGI.

The negative effect of the *severity of poverty(SPI)* variable on *leakage* imply that as poverty condition becomes more severe in the province, leakage is less likely to occur relative to full coverage. This may mean that the implementors of the PhilHealth-SP,

whether the DSWD or LGU, may react to the situation by ensuring the enrollment of the targeted qualified indigent families into the program.

The negative effects of the LGUs *administrative governance profile (AGI)* on both *under-coverage and leakage* rates implies that as the index gets higher, the more efficient the LGU may have become in delivering health care services (assumed to include implementation of PHI-SP), the less likely that under-coverage or leakage will happen. This may also insinuate that improvement in LGU's AGI ranking may increase the probability of a convergence of the effects towards the universal (full) coverage goal of the program.

The negative effect of *economic governance – EGI on under-coverage* is as expected, i.e., as the economic resource generation capability of the LGU progresses, the more economically able it is to extend services to a wider population, therefore the less likely to exclude the true poor from the program. On the other hand, better financial status of LGUs might also motivate local politicians to over-enlist constituents, resulting to leakage.

The *political governance PGI* measures the LGU's application of the rule of law, enhancement of people's empowerment and participation in government programs. The PGI variable produced highly significant positive effects on *both UCR and LKR* , suggesting that the elevation to a higher PGI would make UCR and LKR highly probable – exclusion of true poor beneficiaries and inclusion of non-qualified constituents. This can be related to what has been referred to as accommodations of "political indigents"[25].

The accessibility factors related to accredited health facilities providing primary health services and hospital care emerged to be important as well. The increase in the number of PHI-DOH accredited *RHUs/centers* will very likely widen *leakage*. This is not really surprising as the RHUs are the providers of the PHI benefit packages specifically the primary health care, catering to the members under the Sponsorship Program. Enrollment in the Sponsored Program entitles members to these benefit packages. On the other hand,

[25] Political indigent is unofficially described as the supporter of local politicians, who may become a beneficiary of government program, whether qualified or not, such as PhilHealth card intended for a target group.

that increasing presence of accredited private hospitals would increase the probability of leakage is an issue about preference for private health care, possibly even amongst the poor (Heller 1982; Thind and Andersen 2003; Hidayat et al 2004; Jowett et al 2004). Such preference value seems to be corroborated by the regression results (PIR-based estimates) wherein the number of PHI accredited government hospitals generated positive effect on under-coverage, implying that true indigents are likely to be excluded from the program despite availability of more public hospital facilities. The effect certainly calls for a closer examination by concerned policy makers

Other supply-side variables found to influence coverage rate variations with statistical strength between 5% and 10% confidence level included LGUs real per capita income, health expenditures per capita and availability of PHIC offices in the provinces. The projected positive effects of these variables on under-coverage are unexpected and cannot be easily and clearly justified.

The Phil-Health Sponsored Program is a key program of the national government to achieve universal health care, aimed to address the poor and indigent population of the country. The program appears to have succeeded in attaining universal population coverage at the national level ahead of its target. However, the findings on prevailing extreme leakage rates raise serious questions on how the program can be made more equitable, efficient and sustainable in the long term (McIntyre 2007) vis a vis the other component programs of the National Health Insurance. With the amendments provided in the new law, it is expected that membership under the Sponsored Program shall be expanded even more. The likelihood of enlarged membership shall have implications on entitlements to PhilHealth benefit packages and eventually on actual utilization of health services. If leakage is not contained, meaning exclusion of the untrue or non-qualified beneficiaries, the potential risk for the “moral hazard effect” of the health insurance (an issue beyond the scope of the study) due to behavior of excess groups shall pose as a future challenge to the national and local government policy-makers.

6.2. Limitations of the Study

Like other empirical studies, this study is not without its caveats. Firstly, the analyses relied on membership data summarized at the provincial level as provided by PHIC. Although aware of some technical issues regarding PHIC's membership registration and database systems specific to SP (raised by the BDR study- DOH 2010), it was not possible for the author (nor for the PHIC data providers) to review extensively individual membership data due to time constraints. Specifically, the membership registration data on SP is basically flawed in terms of non- or- incomplete recording of actual dependents, therefore the multipliers in deriving headcounts of dependents was applied. Moreover, duplication of registration of "common" dependents is highly probable in the absence of automatic checking by the recording system between couples who may be registered both under Regular and NHTS listing. This is because there is yet the lack of family identification and relationship to principal members in the databases (at least for 2011). These weaknesses in effect could very likely bloat the true and actual headcounts at the provincial level, possibly explaining variances in the coverage rate estimates. Until such time that these technical issues are fully addressed by PHIC itself, future analyses shall continue to face the same data limitations in coming up with the true membership count.

Two approaches towards estimating relevant population denominators were resorted to, partially to make the disaggregated analyses be consistent with DSWD's criteria in the identification of NHTS beneficiaries based mainly on family income. Hence FIES proportions to derive population head counts were used. Utilization of the NSCBs published poverty incidence rates in approximating the poor and non-poor population was aimed to make total and decomposed analyses comparable with other similar studies like BDR study of DOH (2010).

The results from the two estimation- bases presented noticeable differences in the population counts in a number of provinces (for example, 4 districts of NCR, Isabela, Quirino, Laguna, Guimaras, Siquijor, Zamboanga Sibugay, Isabela City, Camiguin and Sulu- see Appendix Tables 9 and 9a). Consequently, the differences partly accounted for the disparities in the coverage rates, causing some confusions in the interpretation of results

(see Appendix Tables 10, 10a and 10b). Nonetheless, taken individually and separately, each population-base approach exhibited more similarities than divergences in the direction of coverage rate estimates, i.e., skewed towards leakage than under-coverage. Findings from both techniques merit attention and discussion amongst researchers and policy makers. Albeit caution have been observed when drawing policy issues and recommendations, based on the interpretation of estimates.

Given data constraints, the study suggests important and interesting findings on the breadth of PhilHealth-SP – targeted poor population coverage in total membership and source of sponsorship. Research and policy inferences are drawn from the results demonstrated in the descriptive and multivariate analyses on variations of coverage across provinces.

7. RESEARCH ISSUES AND POLICY RECOMMENDATIONS

7.1 Future Research Issues

This research study is limited to one PhilHealth program -- the Sponsored Program. The main objective was narrowed down to analyzing the breadth of the program – that is the extent of the health insurance coverage over the targeted poor population across geographical locations of the country. The findings of the study have led to related policy issues and concerns that may warrant further research. Four of these are worthy to note.

a.) The present study presented partial analyses, hence assessment of the program's success in attaining universal coverage is yet incomplete. A follow-through study examining the impact of the SP's depth- entitlements and benefit packages – as well as the height – extent of financial protection extended to the target population - shall complete the analysis and review of the achievements of the Sponsored Program relative to the over-all objectives of the National Health Insurance.

b.) With the prevailing condition of leakage to the level of being extreme in many parts of the country (as implied by the findings) and the recent amendments of the

law (NHI RA 10606 of 2013) , population target under the SP shall potentially expand. A study which shall look into the financial viability and sustainability of the program in the long run is perhaps timely at this point in time.

c.) A third research issue of interest is to anticipate the potential risk for "moral hazard effect" of health insurance (defined in the literature as a strong incentive to consume more and "better" health care and a disincentive to maintain healthy life) to take place. The "moral hazard" issue occurring amongst the poorest and the poor may not be as disturbing as it is if caused by the behavior emanating from non-poor and unqualified persons included into the program.

d.) In relation to the first research concern, a challenging study would be to investigate the impact of PhilHealth-SP on the member's utilization of health care services and facilities; and ultimately, the health insurance direct effect on member's health status - which is the end-goals of the MDGs. The analysis must be at individual or household level. There is yet a scanty literature on this field, in developed and developing countries alike.

Specific issues on methods

A few specific issues related to research methodology has surfaced in this work. An essential concern for researchers may be the choice of datasets which would be critical in the final analysis. While it may be convenient or expedient to rely on summarized data, there is greater value in checking and cleaning datasets (on the premise that time and logistics would allow), especially when adjustments need to be done to arrive closer to the true population or membership counts.

Often times, empirical studies in developing countries are limited by the availability of appropriate data or measures to test theories. Other times, it can be a matter of overlooking existing (published) information that can be employed as good indicators to what is being tested. The use of HDI and Good Governance Indices (AGI, EGI, PGI) for example, while less treaded and empirically tested, provided markedly and statistically

significant influence in explaining variations in the coverage rates based on the multivariate analyses. Not all effects may be in accordance with theoretical expectations. Nonetheless, such results should encourage further research work.

The merit of an empirical study is its ability to contribute to existing knowledge, relating theory to practice, whether results would conform or contradict hypotheses. If theoretically well-founded, research findings may provide evidence-based arguments for policy-makers in proposing appropriate and relevant policies to address issues like subsidized health care financing like the PHI-Sponsored Program.

7.2 Policy Recommendations

Taking into account the caveats mentioned earlier, this study posits a few policy recommendations.

Firstly, addressing the technological weakness of the database systems is a serious policy-concern for PHIC. While the flaws are being slowly tackled (step by step) by the national office, the implementation of changes in the registration data system at the regional or local health offices seems to take place at a slower pace. Thus establishing true membership headcount estimates would require much longer time, in effect delaying detailed analyses based on more accurate data.

In relation to this concern is the appropriate accounting (or the absence of it), of dependents under the Sponsorship Program. It was learned that on the very basic membership application form, recipients (principal members) of PhilHealth cards, both from the DSWD's NHTS list and the LGU's Regular schemes do not fully fill-up the said forms regarding dependents' names and ages. It may be apt to enforce upon LGUs this requirement from their listed beneficiaries (including dependents profile) upon submission of lists to PHI Local Health Offices. Continuing the use of multipliers will misrepresent true total membership counts and claims for "universal population coverage" shall be misleading.

Though assumed to be indicative, "substitution" between the Regular and NHTS membership could be inferred, even in economically better-off provinces. This pattern calls for a closer examination. In the first place, NHTS listing criteria in the selection of the program's beneficiaries may have to be reviewed and firmed up in order to efficiently identify the true beneficiaries. In coordination with the LGUs, NHTS lists shall have to be compared with that of the Regular lists of the LGUs, to minimize duplication of membership, at least in the listing of common dependents.

While this "substitution" phenomenon may be acceptable in the case of the relatively "poor" provinces (3rd to 5th income class), it seems less rational to find extreme leakages in "rich" provincial LGUS under the NHTS scheme. Perhaps, there is a need for national government to reset priorities in the channeling of subsidies, taking into consideration the income classification of the LGUs, not merely at the provincial but at the municipal level as well (low-income municipalities can still exist in high-income provinces). For instance, quota on number of recipients of NHTS PhilHealth cards may be set higher for low-income LGUs while increased funding support from Health Facility Enhancement Program may be provided to the high-income class LGUs for the improvement and accreditation of more RHUs and public hospitals. This would be in line with the full implementation of the Universal Health Care Primary Care Benefit I (PCB1) Package.

The significant effects of the LGUs governance style measured by the three governance indices, certainly indicate that effective implementation of national programs like PHI-SP, specifically NHTS, can become dependent upon the LGUs profile, economically, administratively and politically. Though narrowly tested yet, these indicators warrant more in-depth analyses. Nonetheless, the implications of the findings in this study underscore the importance of LGUs multi-roles as promoter, financier and direct provider of health services to its constituents, particularly the poor and vulnerable segments of its population.

Finally, policy-makers from relevant national and local government agencies may consider the challenge to undertake more in-depth and relevant research studies (enumerated above) which could provide new empirical evidences important in supporting and strengthening policy-and decision-making processes.

REFERENCES

Banzuela EPC. 2005. Dr. Banzuela's PhilHealth Primer for the Med Boards. UP Manila: National Institute of Health. Downloaded July 2013. from www.medskul.com.

Bautista, MCR. 2012. The 2009 Provincial Development Index. Paper Presented at NSCB-HDN Dissemination Forum on the 2009 Subnational Human Development Index. Shangrila Hotel, Manila, December 10, 2012.2009.

Celik Y, Hotchkiss DR. 2000. The socio-economic determinants of maternal health care utilisation in Turkey. *Social Science & Medicine* 50: 1797–1806.

Department of Finance- Bureau of Local Government Finance Statement of Receipts and Expenditures 2010.Accessed via internet. Downloaded from official website: www.blgf.gov.ph. May 2013

Department of Finance- Bureau of Local Government Finance LGU Income Class Downloaded from official website: www.blgf.gov.ph. May 2013

Department of Health (DOH) 2010a.DOH Administrative Order AO-2010-0036. Aquino Health Agenda: Achieving Universal Health Care for All Filipinos. Issued on December 16, 2010. Manila: DOH Office of the Secretary

Department of Health (2010b). PhilHealth Benefit Delivery Review: A Consolidated Report on aReview of PhilHealth Performance in Implementing the National Health Insurance Program. *HSRA Technical Reports.* Manila, RP- DOH 2010 (DOH HSRA Technical Report No. ____).

Department of Health (DOH) 2011. Department Order DO-2011-0188. Kalusugan Pangkalahatan – Execution Plan and Implementation Arrangements. Issued on August 3, 2011. Manila: DOH Office of the Secretary.

Ensor T and Cooper S., 2004. Overcoming barriers to health service access: influencing the demand side. *Health Policy and Planning* 19(2):69-79.

Foster J. Greer J and Thorbecke E. 2010.The FGT Poverty Measures – Twenty Five Later. Institute for International Economic Policy Working Paper Series (IIEP-WP-2010-14).Elliot School of International Affairs. The George Washington University. Accessed via internet, downloaded May 2013.

Furtado, X. Decentralization and Public Health in the Philippines. *Development* 44:1. Pp. 108-116. London: SAGE Publications.

Greene WH. 2008. *Econometric analysis.*6th ed., New Jersey: Pearson Education, Inc.

Heller PS.,1982. A model of the demand for medical and health services in Peninsular Malaysia. *Social Science and Medicine* 16:267-284.

Hidayat B, Thabrany H, Dong H, Sauerborn R. 2004. The effects of mandatory health insurance on equity in access to outpatient care in Indonesia. *Health Policy and Planning,* 19: 322–335.

Jowett M, Deolalikar A, Martinsson P.2004. Health insurance and treatment seeking behaviour: evidence from a low-income country. *Health Economic* 13: 845-857.

Jowett M and Hsiao W. 2005. The Philippines: Extending coverage beyond the formal sector. Social Health Insurance for developing nations: a case study. Paper presented at the 6th IHEA World Congress: Explorations in Health Economics. Copenhagen, Denmark. July 5-11, 2007.

Lavado, R. 2007. Education externalities and utilization of maternal and child care services. Unpublished PhD dissertation paper. Hitotsubashi University Asian Public Policy Program. Tokyo: Hitotsubashi University.

Llanto, G. 2007. Protecting the vulnerable through social health insurance: PhilHealth's KASAPI as a strategy. Philippine Institute for Development Studies Policy Notes No. 2007-03. Downloaded

Mekonnen Y, Mekonnen A. 2003. Factors influencing the use of maternal healthcare services In Ethiopia*. Journal of Health, Population, and Nutrition* 21: 374–382.

McIntyre D. 2007.*Learning from Experience: Health care financing in low and middle-income countries. Global Forum for Health Research*. Geneva.

Morduch J. 1995. Income smoothing and consumption smoothing. *Journal of Economic Perspectives* **9**: 103–14.

National Statistical Coordination Board 2010.Family Income and Expenditure Survey 2009. Raw data was obtained from PIDS, NEDA sa Makati.

National Statistical Coordination Board, 2012a. The 2012 Philippine Statistical Yearbook. Makati: NSCB. Definition of severity of poverty - p. Appendix -12; data on SP – Table 2.9b, pp. 2-24-25.

National Statistical Coordination Board Official 2012b. The 2012 Philippine Statistical Yearbook .Definition of HDI extracted from p. A-17; data on HDI per province from official website: www. nscb.gov.ph/hdi/2009. Downloaded May 2013.

National Statistical Coordination Board, 2012c. *The 2012 Philippine Statistical Yearbook*. Makati: NSCB. Definition and data on Good Governance Indices – pp. 16-24.

National Statistical Coordination Board, 2012d. *The 2012 Philippine Statistical Yearbook*. Makati: NSCB. Population and Housing. Tables 1.1, 1.2, 1.8,1.10.

National Statistics Office (NSO) [Philippines], and ORC- Macro. 2004. *National Demographic and Health Survey 2003.* Calverton, Maryland: National Statistics Office and ORC-Macro.

National Statistics Office (NSO) [Philippines], and ICF Macro. 2009. *National Demographic And Health Survey 2008.* Calverton, Maryland: National Statistics Office and ICF Macro.

Obermann K., Jowett M., Alcantara MO., Banzon E., Bodart C. 2006. Social Health Insurance in a developing country: The case of the Philippines. *Social Science and Medicine* 62: 3177-3185.

Obermann K., Jowett MR., Taleon JD, Mercado MC. 2008. Lessons for health care reform from the less developed world: the case of the Philippines*. European Journal of Health Economics* 9: 343-349.

Philippine Institute for Development Studies (PIDS), NEDA sa Makati. 2012. DOH-PIDS Health Research Management Program – Concept Note. *Internal Concept Paper* issued 15 September 2012.

Philippine Health Insurance Corporation. 2004 Implementing Rules and Regulations of the National Health Insurance Act of 1995 (RA 7875 as amended by RA 9241). Approved as per PhilHealth Board Resolution Nos. 661 & 692 s,2004. Pasig City: PHIC. Downloaded from www.phlhealth.gov.ph June 2013.

Philippine Health Insurance Corporation. PhilHealth Programs, Stats and Charts, various years. Downloaded from www.phlhealth.gov.ph.Sept-Oct 2004, August 2006; March 2013.

Philippine Health Insurance Office. Corporate Planning Department-Evaluation and Statistics Division. Pasig, MMA. Information obtained directly from office in 2004.

Philippine Health Insurance Office. Corporate Planning Department . Pasig, Metro Manila. Meeting with Jakerde Claro, February 2013, who provided data on PHI-SP membership and number of PHIC accredited health facilities on March and May 2013, respectively.

Prakongsai P., Limwattananon S and Tangcharoensathien V. 2009. The Equity Impact of the Universal Coverage Policy: Lessons from Thailand. In D. Chernichovsky and K.Hanson (eds*) Innovations in Health System Finance in Developing and Transitional Economies*. Bingley UK: Emerald Group Publishing Limited.

Raghupathy S. 1996. Education and the use of maternal health care in Thailand. *Social Science and Medicine* 43*:* 459–471.

Republic of the Philippines, 1995. National Health Insurance Act of 1995, Republic Act N0.7875. Manila: House of Congress.

Republic of the Philippines. 2004 National Health Insurance Act of 2004, RA 9241 (An Act Amending RA 7875). Manila: House of Congress.

Republic of the Philippines, 2013. National Health Insurance Act of 2013, Republic Act No.10606 An Act Amending RA 7875 Otherwise Known as the NHI Act of 1995. Manila: House of Congress.

Ruiz F., Amaya L. &Venegas S. 2007. Progressive segmented health insurance: Colombian Health reform and access to health services. *Health Economics.* 16:3-18

Schneider P. 2004. Why should the poor insure? Theories of decision-making in the context of health Insurance. *Health Policy and Planning* 19(6): 349-355. Oxford University Press.

Schell CO, Reilly M, Rosling H, Peterson S, Ekström AM (2007). Socioeconomic determinants of infant mortality: A worldwide study of 152 low-, middle-, and high-income countries. *Scandinavian Journal of Public Health* 2007; 35: 288-297.

Silfverberg R. 2009. *National Health Insurance Programs and their Impact on Health Service Utilization the Philippine Experience.* Licentiate Dissertation Thesis on Public Health and Health Sciences, Faculty of Medicine, Lund University, Sweden. Lund: Media-Tryck.

Silfverberg DV. 2012. Determinants of Enrolment into the Philippine Health Insurance Voluntary Schemes and the Impact pf PHI Membership on Health Care Utilization. Unpublished Thesis for a Master of Science Degree on Development Economics. Faculty of Economics and Business, University of Amsterdam, Netherlands.

Simkhada B., Teijlingen ER, Porter M & Simkhada P. Factors affecting the utilization of antenatal care in developing countries: a systematic review of the literature. *Journal of Advanced Nursing.* 61:3, pp. 244-260

Stata Corporation. 2011. *Stata Statistical Software. Version 12*. College Station. Texas: Stata Corporation.

Thind A, Andersen R., 2003 Respiratory illness in the Dominican Republic: what are the predictors for health services utilization of young children? *Social Science and Medicine* 56: 1173-1182.

Tungodden, B. 2005. Poverty measurement: the critical comparison value. *Social Choice Welfare* 25:75-84. Springer-Verlag. Published online 23 Novermber 2005.Accessed via internet, downloaded May 2013.

Wagstaff A. 2000. *Research on equity, poverty, and health: lessons for the developing world*. Washington, DC: World Bank, Human Development Network.

World Bank. 2000. *World Development Report 2000/2001. Attacking Poverty*. Washington, DC: The World Bank.

APPENDICES

Appendix Table 1. Original Listing of PHI- SP Members and Dependents by Scheme, PHI Regional Office and Province, 2011

PhilHealth Regional Office	Province	SP Members		SP Dependents		ALL SP MEMBERS AND DEPENDENTS
		NHTS	Regular	NHTS	Regular	
NCR	PASIG CITY	12,381	3,380	43,447	10,444	69,652
	LAS PIÑAS CITY	8,190	1,674	29,258	5,173	44,295
	MAKATI CITY	4,705	81,099	15,080	250,596	351,480
	MUNTINLUPA CITY	7,753	2,384	24,585	7,367	42,089
	PARAÑAQUE CITY	9,418	6,880	32,149	21,259	69,706
	PASAY CITY	7,262	5,828	22,957	18,009	54,056
	PATEROS	1,963	1,396	5,717	4,314	13,390
	TAGUIG CITY	9,985	2,684	33,290	8,294	54,253
	MANILA	47,461	11,850	146,761	36,617	242,689
	CALOOCAN CITY	26,868	19,265	92,436	59,529	198,098
	MALABON CITY	16,675	1,501	51,353	4,638	74,167
	NAVOTAS	15,866	28,150	52,170	86,984	183,170
	VALENZUELA CITY	13,846	13,367	45,641	41,304	114,158
	MANDALUYONG CITY	3,941	1,916	12,863	5,920	24,640
	MARIKINA CITY	5,393	13,221	13,045	40,853	72,512
	QUEZON CITY	42,040	50,007	135,623	154,522	382,192
	SAN JUAN	1,639	2,020	4,928	6,242	14,829
	SUB-TOTAL NCR (EXCL. RIZAL)	235,386	246,622	761,303	762,062	2,005,373
	RIZAL	38,383	13,460	139,518	41,591	232,952
Total		**273,769**	**260,082**	**900,821**	**803,653**	2,238,325
CAR	ABRA	11,142	24,046	20,889	48,092	104,169
	APAYAO	7,979	11,084	13,134	22,168	54,365
	BENGUET	10,328	29,587	20,179	59,174	119,268
	BAGUIO CITY	2,912	2,882	4,338	5,764	15,896
	IFUGAO	7,313	18,060	20,139	36,120	81,632
	KALINGA	8,725	20,882	15,486	41,764	86,857
	MOUNTAIN PROVINCE	4,432	23,219	12,659	46,438	86,748
Total		**52,831**	**129,760**	**106,824**	**259,520**	**548,935**
PRO I	BATANES	130	611	437	1,589	2,767
	ILOCOS NORTE	21,673	43,606	64,290	113,376	242,945
	ILOCOS SUR	30,663	42,436	94,955	110,758	278,812
	LA UNION	34,497	50,750	109,065	132,458	326,770
	PANGASINAN	126,657	106,855	446,231	278,892	958,635
Total		**213,620**	**244,258**	**714,978**	**637,513**	**1,810,369**
PRO II	CAGAYAN	27,855	38,567	107,648	113,001	287,071
	ISABELA	39,021	57,207	144,266	167,617	408,111
	NUEVA VIZCAYA	11,694	13,848	47,043	40,575	113,160
	QUIRINO	6,126	37,742	22,803	110,584	177,255
Total		**84,696**	**147,364**	**321,760**	**431,777**	**985,597**
PRO III-A	BATAAN	11,620	24,847	36,889	70,069	143,425
	PAMPANGA	37,988	114,962	119,325	324,193	596,468
	TARLAC	28,244	144,779	94,427	408,277	675,727
	ZAMBALES	15,392	44,267	47,425	124,833	231,917
Total		**93,244**	**328,855**	**298,066**	**927,371**	**1,647,536**
PRO III-B	AURORA	6,752	22,250	26,560	62,745	118,307
	BULACAN	56,536	92,608	197,019	261,155	607,318
	NUEVA ECIJA	76,471	56,884	241,617	160,413	535,385
Total		**139,759**	**171,742**	**465,196**	**484,312**	**1,261,009**

Appendix Table 1.Con't…

PRO IV-A	CAVITE	49,519	5,189	164,969	13,491	233,168
	LAGUNA	46,584	56	153,227	144	200,011
	QUEZON	110,625	8,393	385,629	21,570	526,217
Total		**206,728**	**13,638**	**703,825**	**35,050**	**959,241**
PRO IV-B	BATANGAS	73,542	158,632	255,494	415,616	903,284
	MARINDUQUE	12,106	2,280	48,454	5,974	68,814
	OCCIDENTAL MINDORO	30,611	6,813	115,425	17,850	170,699
	ORIENTAL MINDORO	62,729	86,771	221,415	227,340	598,255
	PALAWAN	74,218	90,549	277,139	237,238	679,144
	ROMBLON	16,611	16,176	65,546	42,381	140,714
Total		**269,817**	**361,221**	**983,473**	**946,399**	**2,560,910**
PRO V	ALBAY	66,147	185,207	242,705	551,917	1,045,976
	CAMARINES NORTE	35,225	61,256	124,536	182,543	403,560
	CAMARINES SUR	122,873	55,961	488,530	166,764	834,128
	CATANDUANES	10,799	28,909	41,830	86,149	167,687
	MASBATE	96,366	36,305	353,133	108,189	593,993
	SORSOGON	70,097	31,489	242,039	93,837	437,462
Total		**401,507**	**399,127**	**1,492,773**	**1,189,398**	**3,482,805**
PRO VI	AKLAN	28,759	69,319	104,444	173,298	375,820
	ANTIQUE	34,537	50,718	129,182	126,795	341,232
	CAPIZ	36,029	87,156	136,034	217,890	477,109
	GUIMARAS	9,696	31,000	32,202	77,500	150,398
	ILOILO	110,187	144,886	402,122	362,215	1,019,410
	NEGROS OCCIDENTAL	124,263	167,671	487,032	419,178	1,198,144
Total		**343,471**	**550,750**	**1,291,016**	**1,376,875**	**3,562,112**
PRO VII	BOHOL	61,259	122,912	212,081	315,884	712,136
	CEBU	130,877	206,964	454,135	531,897	1,323,873
	NEGROS ORIENTAL	80,175	56,789	275,302	145,948	558,214
	SIQUIJOR	1,898	12,451	4,674	31,999	51,022
Total		**274,209**	**399,116**	**946,192**	**1,025,728**	**2,645,245**
PRO VIII	BILIRAN	6,293	23,911	24,970	66,712	121,886
	EASTERN SAMAR	26,505	57,607	97,393	160,724	342,229
	LEYTE	107,861	195,973	363,676	546,765	1,214,275
	NORTHERN SAMAR	39,631	114,007	143,665	318,080	615,383
	SAMAR	51,971	98,976	181,773	276,143	608,863
	SOUTHERN LEYTE	17,608	36,343	59,862	101,397	215,210
Total		**249,869**	**526,817**	**871,339**	**1,469,819**	**3,117,844**
PRO IX	ZAMBOANGA DEL NORTE	83,388	44,178	234,452	106,027	468,045
	ZAMBOANGA DEL SUR	94,277	43,668	285,746	104,803	528,494
	ZAMBOANGA CITY	49,951	34,691	181,709	83,258	349,609
	ZAMBOANGA SIBUGAY	61,318	22,055	196,297	52,932	332,602
Total		**288,934**	**144,592**	**898,204**	**347,021**	**1,678,751**
PRO X	BUKIDNON	52,722	186,057	194,834	465,143	898,756
	CAMIGUIN	3,805	16,983	10,795	42,458	74,041
	LANAO DEL NORTE	59,255	137,263	196,359	343,158	736,035
	MISAMIS OCCIDENTAL	24,306	132,367	67,402	330,918	554,993
	MISAMIS ORIENTAL	46,448	288,889	147,734	722,223	1,205,294
Total		**186,536**	**761,559**	**617,124**	**1,903,898**	**3,469,117**
PRO XI	COMPOSTELA VALLEY	46,476	39,120	145,184	100,147	330,927
	DAVAO DEL NORTE	49,755	33,381	153,367	85,455	321,958
	DAVAO DEL SUR	80,520	44,096	250,789	112,886	488,291
	DAVAO CITY	16,088	21,572	59,340	55,224	152,224
	DAVAO ORIENTAL	39,981	38,732	136,261	99,154	314,128
Total		**232,820**	**176,901**	**744,941**	**452,867**	**1,607,529**

Appendix Table 1.Con't…

PRO XII	NORTH COTABATO	75,601	101,250	253,165	263,250	693,266
	SARANGGANI	38,341	27,419	127,047	71,289	264,096
	SOUTH COTABATO	56,991	101,945	182,323	265,057	606,316
	SULTAN KUDARAT	52,501	64,803	170,864	168,488	456,656
	MAGUINDANAO (COTABATO CITY, SULTAN MASTURA)	17,682	4,885	56,600	12,701	91,868
Total		**241,116**	**300,302**	**789,999**	**780,785**	**2,112,202**
CARAGA	AGUSAN DEL NORTE	35,363	65,422	116,300	189,070	406,155
	AGUSAN DEL SUR	56,639	61,217	186,617	176,917	481,390
	DINAGAT ISLANDS	11,501	5,186	33,657	14,988	65,332
	SURIGAO DEL NORTE	36,451	58,140	108,045	168,025	370,661
	SURIGAO DEL SUR	47,657	49,469	152,227	142,965	392,318
Total		**187,611**	**239,434**	**596,846**	**691,964**	**1,715,855**
PRO ARMM	BASILAN	20,737	9,628	81,968	24,840	137,173
	ISABELA CITY	10,023	1,263	34,506	3,259	49,051
	LANAO DEL SUR	107,782	90,919	493,657	234,571	926,929
	MAGUINDANAO	213,553	42,761	759,019	110,323	**1,125,656**
	SULU	121,252	21,201	433,875	54,699	631,027
	TAWI-TAWI	28,553	10,006	111,890	25,815	176,264
Total		**501,900**	**175,778**	**1,914,915**	**453,507**	3,046,100
Grand Total		**4,242,437**	**5,331,296**	**14,658,292**	**14,217,458**	**38,449,483**

Source: Philippine Health Insurance Corp. Corporate Planning Department. Sent March 7, 2013

Appendix Table 2 . Projected Population for 2011 based on 2010 Census Population Estimates by Region and Province

Region and Province	2010 (May 1)	Annual growth rate (Medium assumption	2011 Projected Population
PHILIPPINES	92337852	1.9	94092271
NCR	11,855,975	1.78	12067011
NCR First District:			
City of Manila	1,652,171	0.44	**1659441**
NCR Second District:			**4,116,239**
Mandaluyong City	328,699	1.67	334188
Marikina City	424,150	0.81	427586
Pasig City	392,869	2.86	404105
Quezon City	2,761,720	2.42	2828554
San Juan	121,430	0.31	121806
NCR Third District:			**2,715,420**
Calookan City	1,489,040	2.37	1524330
Malabon	353,337	0.42	354821
Navotas	249,131	0.78	251074
Valenzuela City	575,356	1.71	585195

Appendix Table 2.Con't…

NCR Fourth District:			**3,577,570**
Las Pinas City	552,573	1.78	562409
Makati City	529,039	1.16	535176
Muntinlupa City	459,941	1.95	468910
Parañaque City	588,126	2.72	604123
Pasay City	669,773	1.02	676605
Pateros	64,147	1.12	64865
Taguig	644,473	3.26	665483
Cordillera Administrative Region	1,616,867	1.70	**1644613**
Abra	234,733	1.14	237409
Apayao	112,636	1.49	114314
Benguet (incl. Baguio City)	403,944	2.04	738380
Baguio City	*318,676*	*2.36*	
Ifugao	191,078	1.69	194307
Kalinga	201,613	1.48	204597
Mt. Province	154,187	0.92	155606
I Ilocos	4,748,372	1.23	**4806777**
Ilocos Norte	568,017	1.00	573697
Ilocos Sur	658,587	1.03	665370
La Union	741,906	1.21	750883
Pangasinan	2,779,862	1.34	2817112
II Cagayan Valley	3,229,163	1.39	**3274048**
Batanes	16,604	0.08	16617
Cagayan	1,124,773	1.25	1138833
Isabela	1,489,645	1.47	1511543
Nueva Vizcaya	421,355	1.39	427212
Quirino	176,786	1.75	179880
III Central Luzon	10,137,737	2.14	**10354685**
Aurora	201,233	1.48	204211
Bataan	687,482	2.11	701988
Bulacan	2,924,433	2.73	3004270
Nueva Ecija	1,955,373	1.65	1987637
Pampanga (incl. Angeles City)	2,014,019	2.21	2391848
Angeles City	*326,336*	*2.14*	
Tarlac	1,273,240	1.76	1295649
Zambales (incl.Olangapo City)	534,443	2.11	769795
Olongapo City	*221,178*	*1.31*	
IV-A CALABARZON	12,609,803	3.07	12996924
Batangas	2,377,395	2.24	2430649
Cavite	3,090,691	4.12	3218027
Laguna	2,669,847	3.11	2752879
Quezon (incl. Lucena City)	1,740,638	1.61	2020746
Lucena City	*246392*	*2.31*	
Rizal	2,484,840	3.82	2579761

Appendix Table 2.Con't…

IV-B MIMAROPA	2,744,671	1.79	**2793801**
Marinduque	227,828	0.47	228899
Occidental Mindoro	452,971	1.76	460943
Oriental Mindoro	785,602	1.43	796836
Palawan (incl. Puerto Princessa City)	771,667	2.66	1016470
Puerto Princesa City	*222673*	*0.72*	
Romblon	283,930	3.24	293129
V Bicol	5,420,411	1.46	**5499549**
Albay	1,233,432	1.23	1248603
Camarines Norte	542,915	1.44	550733
Camarines Sur	1,822,371	1.62	1851893
Catanduanes	246,300	1.35	249625
Masbate	834,650	1.66	848505
Sorsogon	740,743	1.31	750447
VI Western Visayas	7,102,438	1.35	**7198321**
Aklan	535,725	1.73	544993
Antique	546,031	1.45	553948
Capiz	719,685	0.96	726594
Guimaras	162,943	1.42	165257
Iloilo (incl. Iloilo City)	1,805,576	1.48	2264476
Iloilo City	*424,619*	*1.78*	
Negros Occidental	2,396,039	1.49	2949446
Bacolod City	*511,820*	*1.15*	
VII Central Visayas	6,800,180	1.77	**6920543**
Bohol	1,255,128	0.97	1267303
Cebu (incl. Cebu, Lapu-Lapu and Mandaue Cities)	2,619,362	1.94	4247679
Cebu City	*866,171*	*2.46*	
Lapu-Lapu City	*350,467*	*1.31*	
Mandaue City	*331,320*	*1.10*	
Negros Oriental	1,286,666	1.88	1310855
Siquijor	91,066	4.91	95537
VIII Eastern Visayas	4,101,322	1.28	**4153819**
Biliran	161,760	1.43	164073
Eastern Samar	428,877	1.33	434581
Leyte (incl. Tacloban City)	1,789,158	1.04	1807765
Northern Samar	589,013	1.64	**598673**
Samar (Western Samar)	733,377	1.35	743278
Southern Leyte	399,137	1.03	403248

Appendix Table 2.Con't…

IX Zamboanga Peninzula	3,407,353	1.87	3471071
Zamboanga del Norte	957,997	2.97	986450
Zamboanga del Sur	959,685	1.53	1794653
Zamboanga City	*807,129*	*1.63*	
Zamboanga Sibugay	584,685	1.39	592812
City of Isabela	97,857	2.98	100773
X Northern Mindanao	4,297,323	2.06	**4385848**
Bukidnon	1,299,192	2.05	1325825
Camiguin	83,807	1.22	84829
Lanao del Norte (incl. Iligan City)	607,917	2.54	954863
Iligan City	*322,821*	*2.69*	
Misamis Occidental	567,642	1.25	574738
Misamis Oriental (incl. Cagayan de Oro City)	813,856	1.55	1440902
Cagayan De Oro City	*602088*	*2.05*	
XI Davao Region	4,468,563	1.97	**4556594**
Compostela Valley	687,195	1.71	698946
Davao del Norte	945,764	2.43	968746
Davao del Sur (incl. Davao City)	868,690	1.36	2351540
Davao City	*1449296*	*1.50*	
Davao Oriental	517,618	2.36	529834
XII SOCCSKSARGEN	4,109,571	2.46	**4210666**
Cotabato City	271,786	2.71	279151
North Cotabato	1,226,508	5.19	1290164
Saranggani	498,904	2.49	511327
South Cotabato	827,200	1.97	1394765
Gen. Santos City	*538,086*	*2.45*	
Sultan Kudarat	747,087	1.82	760684
XIII Caraga	2,429,224	1.49	**2465419**
Agusan del Norte (incl. Butuan City)	332,487	1.53	650752
Butuan City	*309709*	*1.12*	666133
Agusan del Sur	656,418	1.48	666133
Dinagat Islands	126,803	1.61	128845
Surigao del Norte	442,588	1.72	450201
Surigao del Sur	561,219	1.68	570648
Autonomous Region in Muslim Mindanao	3,256,140	1.51	3305308
Basilan (excl. Isabela City)	293,322	1.22	296901
Lanao del Sur	933,260	1.55	947726
Maguindanao (excl. Cotabato City)	944,718	1.66	960400
Sulu	718,290	1.49	728993
Tawi-Tawi	366,550	1.29	371278

Source: NSCB (2012) Philippine Statistical Yearbook; Author's own estimates.

Note: In the projection of the 2011 population, major cities which have separate annual growth rates from that of the provinces they belong (in italics), projections were individually done firstly for the city and the resulting number is added to that of the relevant province in deriving the final population for the particular province.

Appendix Table 3. Projected 2011 Population and Poor Population Estimates, Q1 and Q2 Population by PIR and FIES Bases per Region

Region	Projected Population 2011	Poverty incidence rates among Population (%) 2009	Subsistence Rate among Poor Population (%)= Poorest 2009	Est. Above Susbsistence (Poorer) Rate among Population (%)	Poor Population - PIR/SR -BASED			FIES 2009 PROPORTIONS			Poor Population - FIES BASED		
					Est.Magnitude of Poor Population 2011	Est Magnitude of Subsistence Population 2011 (Poorest =Q1)**	Est. Magnitude of Above Subsistence Population 2011 (Poorer= Q2)***	% POOR	Perc Q1	Perc Q2	Est. Total Poor 2011	Q1 POPN 2011	Q2 POPN 2011
PHILIPPINES	**94092271**	**26.5**	10.8	15.70%	**24,934,452**	**10,165,532**	**14,768,920**	**0.3833**	**0.1703**	**0.2131**	**36065567**	**16023914**	**20051063**
National Capital Region	12068671	4.0	0.6	3.38%	482747	74,385	408,362	0.3408	0.1509	0.1899	4112483	1821134	2291349
Cordillera Administrative Region	1644354	22.9	10.8	12.14%	376557	176,952	199,605	0.3629	0.1452	0.2176	596687	238805	357882
I Ilocos	4806777	23.3	7.9	15.40%	1119979	379,888	740,091	0.3300	0.1405	0.1895	1586471	675490	910981
II Cagayan Valley	3274048	18.8	5.8	13.02%	615521	189,251	426,270	0.3444	0.1501	0.1943	1127740	491464	636277
III Central Luzon	10354684	15.3	5.0	10.26%	1584267	521,562	1,062,705	0.3418	0.1536	0.1882	3539275	1590900	1948374
IV-CALABARZON	12996923	13.9	3.7	10.23%	1806572	477,575	1,328,997	0.3517	0.1589	0.1929	4571650	2064781	2506868
IV-B MIMAROPA	2793801	35	14.8	20.24%	977830	412,275	565,555	0.3437	0.1419	0.2018	960347	396422	563925
V Bicol	5499549	45.1	17.8	27.29%	2480296	979,293	1,501,003	0.3311	0.1371	0.1940	1821030	753982	1067048
VI Western Visayas	7198321	31.2	11.2	19.97%	2245876	808,328	1,437,548	0.3271	0.1395	0.1875	2354537	1004525	1350012
VII Central Visayas	6920543	35.5	17.1	18.36%	2456793	1,186,173	1,270,620	0.3361	0.1395	0.1967	2326173	965144	1361029
VIII Eastern Visayas	4153819	41.4	19.0	22.39%	1719681	789,784	929,897	0.3326	0.1395	0.1931	1381365	579268	802096
IX Zamboanga Peninzula	3471071	43.1	23.5	19.56%	1496032	817,223	678,809	0.6510	0.1505	0.1985	2259714	522462	688895
X Northern Mindanao	4385848	39.6	20.7	18.91%	1736796	907,303	829,493	0.3412	0.1444	0.1968	1496468	633511	862956
XI Davao Region	4556594	31.3	14.8	16.49%	1426214	674,850	751,364	0.3512	0.1561	0.1951	1600128	711168	888960
XII SOCCSKSARGEN	4210667	35.7	15.6	20.09%	1503208	657,440	845,768	0.3610	0.1580	0.2030	1520098	665301	854797
XIII Caraga	2465419	47.8	25.3	22.52%	1178470	623,285	555,185	0.3446	0.1497	0.1949	849655	369027	480629
Autonomous Region in Muslim Mindanao	3305308	45.9	11.5	34.36%	1517136	381,483	1,135,653	0.3225	0.1420	0.1805	1065817	469315	596502

Sources: NSCB. Philippine Statistical Yearbook 2012; Family Income and Expenditure Survey 2009

**Population x subsistence rate/100= Subsistence (poorest) population = Q1

***- Poor population - subsistence population = poorer population = Q2

Appendix Table 4. Estimated Magnitude of Subsistence Poorest , Above Subsistence Poor, Q1 and Q2 Population by Province 2011

Region and Province	Projected Population 2011	POOR POPULATION (PIR/SR -based)						POOR POPULATION (FIES-based)			POOR POPULATION (FIES-based)		
		Poverty Incidence Rate 2009 (PIR)	Subsistence Rate 2009 (PIR/SR)	Est. Above Subsistence Rate *	Est.Magnitude of Total Poor Population 2011	Est. Magnitude of Subsistence (Poorest) Population 2011	Est. Magnitude of Above Subsistence (Poorer) Population 2011	Percent Poor	Perc. Q1	Perc. Q2	Est. Poor Population	Est. Q1 Population	Est. Q2 Population
PHILIPPINES	94,092,271	26.5	10.8	15.7%	24,934,452	10,165,532	14,754,571	0.3833	0.1703	0.2131	36,065,567	16,023,914	20,051,063
NCR													
NCR First District*	1,659,441	5.9	0.6	5.3%	97,907	9,957	87,950	0.3123	0.1392	0.1731	518,243	230,994	287,249
NCR Second District:	4,116,239	3.6	0.7	2.9%	148,185	28,425	119,760	0.3271	0.1487	0.1785	1,346,422	612,085	734,749
NCR Third District:	2,715,420	5.5	1.2	4.3%	149,348	33,680	115,668	0.4319	0.2015	0.2304	1,172,790	547,157	625,633
NCR Fourth District:	3,577,571	2.5	0.4	2.1%	89,439	12,990	76,449	0.3093	0.126	0.1832	1,106,543	450,774	655,411
Cordillera Administrative Region													
Abra	237,409	43.7	21.9	21.8%	103,748	51,952	51,796	0.5831	0.264	0.3191	138,433	62,676	75,757
Apayao	114,314	43.2	25.7	17.5%	49,384	29,394	19,990	0.5721	0.2964	0.2758	65,399	33,883	31,528
Benguet (incl. Bagui City)	738,381	5.8	1.7	4.1%	42,826	12,851	29,975	0.1398	0.0386	0.1012	103,226	28,501	74,724
Ifugao	194,307	28.9	9.9	19.0%	56,155	19,220	36,935	0.4144	0.1562	0.2581	80,521	30,351	50,151
Kalinga	204,597	25.9	11.3	14.6%	52,991	23,137	29,854	0.464	0.2023	0.2617	94,933	41,390	53,543
Mt. Province	155,606	45.7	25.1	20.6%	71,112	39,001	32,111	0.6379	0.2136	0.4243	99,261	33,237	66,024
I Ilocos													
Ilocos Norte	573,697	12.4	4.3	8.1%	71,138	24,508	46,630	0.2857	0.1107	0.175	163,905	63,508	100,397
Ilocos Sur	665,370	17.0	2.4	14.6%	113,113	15,869	97,244	0.2869	0.1234	0.1635	190,895	82,107	108,788
La Union	750,883	30.6	13.6	17.0%	229,770	102,465	127,305	0.3321	0.1769	0.1553	249,368	132,831	116,612
Pangasinan	2,817,112	25.0	8.3	16.7%	704,278	234,365	469,913	0.3491	0.1415	0.2076	983,454	398,621	584,832
II Cagayan Valley													
Batanes	16,617	-	-	0.0%	NA		0	0.0308	0.0308	0.1077	2,301	512	1,790
Cagayan	1,138,833	20.6	7.0	13.6%	234,600	79,701	154,899	0.3535	0.1459	0.2076	402,577	166,156	236,422
Isabela	1,511,543	21.2	5.8	15.4%	320,447	87,856	232,591	0.404	0.185	0.2189	610,663	279,635	330,877
Nueva Vizcaya	427,212	8.7	2.7	6.0%	37,167	11,344	25,823	0.2	0.0848	0.1152	85,442	36,228	49,215
Quirino	179,880	12.3	5.3	7.0%	22,125	9,584	12,541	0.1713	0.0577	0.1136	30,813	10,379	20,434
III Central Luzon													
Aurora	204,211	24.2	5.4	18.8%	49,419	11,128	38,291	0.5253	0.3081	0.2172	107,272	62,917	44,355
Bataan	701,988	10.3	0.7	9.6%	72,305	4,933	67,372	0.2189	0.0761	0.1429	153,665	53,421	100,314
Bulacan	3,004,270	7.0	1.1	5.9%	210,299	32,762	177,537	0.231	0.0737	0.1573	693,986	221,415	472,572
Nueva Ecija	1,987,637	31.1	14.3	16.8%	618,155	283,591	334,564	0.5402	0.3163	0.2239	1,073,722	628,690	445,032
Pampanga (incl. Angeles City)	2,391,849	9.1	1.6	7.5%	217,658	38,879	178,779	0.2271	0.0622	0.1649	543,189	148,773	394,416
Tarlac	1,295,649	19.8	5.5	14.3%	256,538	71,700	184,838	0.4507	0.2288	0.2219	583,949	296,444	287,505
Zambales (incl. Olangapo City)	769,795	18.3	9.2	9.1%	140,872	70,992	69,880	0.4352	0.1688	0.2663	335,015	129,941	204,996

Appendix Table 4.Con't…

IV-A CALABARZON													
Batangas	2,430,649	18.8	6.1	12.7%	456,962	148,144	308,818	0.4046	0.1962	0.2085	983,441	476,893	506,790
Cavite	3,218,028	6.4	0.8	5.6%	205,954	26,579	179,375	0.1787	0.0388	0.1399	575,062	124,859	450,202
Laguna	2,752,879	8.0	1.3	6.7%	220,230	36,080	184,150	0.3002	0.1045	0.1957	826,414	287,676	538,738
Quezon (incl. Lucena City)	2,020,746	32.5	9.6	22.9%	656,743	194,091	462,652	0.7222	0.4514	0.2709	1,459,383	912,165	547,420
Rizal	2,579,761	9.5	2.5	7.0%	245,077	64,782	180,295	0.2505	0.0766	0.1739	646,230	197,610	448,620
IV-B MIMAROPA													
Marinduque	228,899	34.9	14.6	20.3%	79,886	33,432	46,454	0.3684	0.1463	0.2221	84,326	33,488	50,838
Occidental Mindoro	460,943	36.3	14.8	21.5%	167,322	68,184	99,138	0.2719	0.1077	0.1643	125,330	49,644	75,733
Oriental Mindoro	796,836	32.8	13.3	19.5%	261,362	105,704	155,658	0.305	0.1035	0.2015	243,035	82,473	160,562
Palawan (incl. Puerto Princesa City)	1,016,469	29.5	13.2	16.3%	299,858	134,487	165,371	0.3443	0.1695	0.1748	349,971	172,292	177,679
Romblon	293,129	54.0	22.9	31.1%	158,290	67,246	91,044	0.5109	0.2006	0.3102	149,760	58,802	90,929
V Bicol													
Albay	1,248,603	43.6	20.0	23.6%	544,391	249,255	295,136	0.2973	0.1344	0.1628	371,210	167,812	203,273
Camarines Norte	550,733	42.3	12.3	30.0%	232,960	67,559	165,401	0.3123	0.1111	0.2012	171,994	61,186	110,807
Camarines Sur	1,851,893	47.0	18.7	28.3%	870,390	346,648	523,742	0.3319	0.1407	0.1912	614,643	260,561	354,082
Catanduanes	249,625	28.5	11.9	16.6%	71,143	29,625	41,518	0.286	0.11	0.176	71,393	27,459	43,934
Masbate	848,505	54.2	23.3	30.9%	459,890	197,868	262,022	0.3979	0.1683	0.2296	337,620	142,803	194,817
Sorsogon	750,447	41.3	13.3	28.0%	309,935	99,446	210,489	0.3345	0.1282	0.2063	251,025	96,207	154,817
VI Western Visayas													
Aklan	544,993	46.1	24.7	21.4%	251,242	134,764	116,478	0.4982	0.2497	0.2485	271,516	136,085	135,431
Antique	553,948	39.3	19.0	20.3%	217,702	104,986	112,716	0.4689	0.2402	0.2287	259,746	133,058	126,688
Capiz	726,594	28.8	12.7	16.1%	209,259	92,468	116,791	0.263	0.1427	0.1204	191,094	103,685	87,482
Guimaras	165,257	20.5	8.4	12.1%	33,878	13,871	20,007	0.0852	0.0057	0.0795	14,080	942	13,138
Iloilo (incl. Iloilo City)	2,264,475	26.8	8.7	18.1%	606,879	195,977	410,902	0.2541	0.0944	0.1597	575,403	213,767	361,637
Negros Occidental (incl. Bacolod City)	2,949,446	32.2	9.7	22.5%	949,722	284,847	664,875	0.3699	0.1497	0.2202	1,091,000	441,532	649,468
VII Central Visayas													
Bohol	1,267,303	48.3	25.4	22.9%	612,107	322,457	289,650	0.436	0.196	0.24	552,544	248,391	304,153
Cebu (incl. Cebu, Lapu-Lapu and Mandaue cities)	4,247,680	30.0	13.8	16.2%	1,274,304	587,529	686,775	0.2415	0.0878	0.1537	1,025,814	372,946	652,868
Negros Oriental	1,310,855	41.9	21.3	20.6%	549,248	278,921	270,327	0.5443	0.25	0.2943	713,498	327,714	385,785
Siquijor	95,537	38	6.6	31.4%	36,304	6,295	30,009	0.5632	0.2737	0.2895	53,806	26,148	27,658
VIII Eastern Visayas													
Biliran	164,073	34.9	11.8	23.1%	57,261	19,361	37,900	0.2536	0.1043	0.1493	41,609	17,113	24,496
Eastern Samar	434,581	54.0	32.2	21.8%	234,674	139,762	94,912	0.4155	0.2321	0.1834	180,568	100,866	79,702
Leyte	1,807,765	34.3	13.4	20.9%	620,063	242,173	377,890	0.2936	0.1193	0.1742	530,760	215,666	314,913
Northern Samar	598,673	51.2	27.4	23.8%	306,521	163,943	142,578	0.3454	0.1028	0.2425	206,782	61,544	145,178
Samar (Western Samar)	743,278	45.0	15.6	29.4%	334,475	115,756	218,719	0.3649	0.1869	0.208	271,222	138,919	154,602
Southern Leyte	403,248	43.3	22.5	20.8%	174,606	90,542	84,064	0.3306	0.1083	0.2224	133,314	43,672	89,682

Appendix Table 4.Con't…

IX Zamboanga Peninzula													
Zamboanga del Norte	986,450	61.6	38.3	23.3%	607,653	377,574	230,079	0.4946	0.2513	0.2434	487,898	247,895	240,102
Zamboanga del Sur (incl. Zamboanga City)	592,812	30.9	14.9	48.4%	554,548	267,345	287,203	0.2723	0.1131	0.1592	488,684	202,975	285,709
Zamboanga Sibugay	592,812	49.8	26.9	22.9%	295,220	159,552	135,668	0.3661	0.1009	0.2652	217,028	59,815	157,214
Isabela City	100,773	23.4	2.3	21.1%	23,581	2,313	21,268	0.1082	0.0098	0.0984	10,904	988	9,916
X Northern Mindanao													
Bukidnon	1,325,825	41.5	21.7	19.8%	550,217	287,627	262,590	0.3406	0.1258	0.2148	451,576	166,789	284,787
Camiguin	84,829	44.6	12.8	31.8%	37,834	10,837	26,997	0.2082	0.0781	0.1301	17,661	6,625	11,036
Lanao del Norte (incl. Iligan City)	954,863	45.6	23.2	22.4%	435,418	221,122	214,296	0.3875	0.1725	0.215	370,009	164,714	205,296
Misamis Occidental	574,738	45.7	25.0	20.7%	262,655	143,655	119,000	0.4597	0.1836	0.2761	264,207	105,522	158,685
Misamis Oriental (incl. Cagayan de Oro City)	1,440,902	30.3	16.6	13.7%	436,593	239,807	196,786	0.2575	0.1239	0.1336	371,032	178,528	192,505
XI Davao Region													
Compostela Valley	698,946	36.7	13.7	26.3%	256,513	95,427	183,795	0.3677	0.1471	0.2206	257,002	102,815	154,187
Davao del Norte	968,746	33.9	17.4	9.1%	328,405	168,496	88,017	0.363	0.1998	0.1632	351,655	193,555	158,099
Davao del Sur (incl. Davao City)	2,351,539	24.6	12.4	1.6%	578,479	291,161	37,244	0.2843	0.1172	0.167	668,543	275,600	392,707
Davao Oriental	529,834	52.7	23.6	85.6%	279,222	125,191	453,288	0.6028	0.2662	0.3366	319,384	141,042	178,342
XII SOCCSKSARGEN													
Cotabato City	279,151	27.3	15.3	83.1%	76,208	197,512	232,113	0.2148	0.0519	0.163	59,962	14,488	45,502
North Cotabato	1,290,164	33.3	22.5	11.6%	429,625	115,083	149,784	0.347	0.1678	0.1792	447,687	216,490	231,197
Saranggani	511,327	51.8	14.9	39.8%	264,867	208,083	203,373	0.4932	0.1976	0.2956	252,186	101,038	151,148
South Cotabato (incl. Gen.Santos City)	1,394,765	29.5	13.9	16.7%	411,456	105,758	233,507	0.2987	0.1377	0.1609	416,616	192,059	224,418
Sultan Kudarat	760,684	44.6	8.6	6.9%	339,265	23,911	52,297	0.4571	0.1793	0.2778	347,709	136,391	211,318
XIII Caraga													
Agusan del Norte (incl. Butuan City)	652,022	34.9	16.6	40.3%	227,112	108,269	262,442	0.2596	0.1093	0.1502	168,935	71,127	97,743
Agusan del Sur	666,133	58.1	36.1	22.0%	387,023	240,552	146,471	0.387	0.182	0.205	257,793	121,236	136,557
Dinagat Islands	128,845	None	25.3	22.5%	NA	32,598	28,990	None			NA		
Surigao del Norte	450,201	57.0	30.2	26.8%	256,615	136,165	120,449	0.3999	0.1689	0.231	180,035	76,039	103,996
Surigao del Sur	570,648	44.9	20.4	24.5%	256,221	116,188	140,033	0.3535	0.147	0.2065	201,724	83,885	117,839
Autonomous Region in Muslim Mindanao													
Basilan (excl. Isabela City)	296,901	29.8	2.9	26.9%	88,476	8,692	79,784	0.4065	0.1803	0.2262	120,690	53,531	67,159
Lanao del Sur	947,725	44.8	12.6	32.2%	424,581	119,063	305,518	0.3578	0.1806	0.1773	339,096	171,159	168,032
Maguindanao (excl. Cotabato City)	960,400	53.7	19.1	34.6%	515,735	183,778	331,957	0.4345	0.1887	0.2458	417,294	181,227	236,066
Sulu	728,992	46.1	5.3	40.8%	336,065	38,952	297,113	0.2091	0.0781	0.131	152,432	56,934	95,498
Tawi-Tawi	371,278	38.4	12.7	25.7%	142,571	47,135	95,436	0.2438	0.0896	0.1542	90,518	33,267	57,251

Source: NSCB 2009 Family Income and Expenditures Survey; Author's estimates.

* Subsistence rate - no data available. Used the regional rate instead.

Appendix Table 5. Estimated Coverage Rates for Sponsored Program, Total Membership by Population Base by Region 2011

Region	Total SP Membership 2011	Est. Poor Population 2011 (PIR-based)	SP Coverage Ratio PIR-based	Est. Poor Population (FIES-based)	SP Coverage Ratio FIES-based	SP Coverage Rate (%) PIR-based	SP Coverage Rate (%) FIES-based
PHILIPPINES	**38,449,483**	**24,934,452**	1.54	**36065567**	1.07	**154.20%**	**106.61%**
National Capital Region	2005376	482747	4.15	4112483	0.49	415.41%	48.76%
Cordillera Administrative Region	548935	376557	1.46	596687	0.92	145.78%	92.00%
I Ilocos	1810369	1119979	1.62	1586471	1.14	161.64%	114.11%
II Cagayan Valley	985597	615521	1.60	1127740	0.87	160.12%	87.40%
III Central Luzon	2646814	1584267	1.67	3539275	0.75	167.07%	74.78%
IV-CALABARZON	1466178	1806572	0.81	4571650	0.32	81.16%	32.07%
IV-B MIMAROPA	1657626	977830	1.70	960347	1.73	169.52%	172.61%
V Bicol	3482805	2480296	1.40	1821030	1.91	140.42%	191.25%
VI Western Visayas	3562112	2245876	1.59	2354537	1.51	158.61%	151.29%
VII Central Visayas	2645245	2456793	1.08	2326173	1.14	107.67%	113.72%
VIII Eastern Visayas	3117844	1719681	1.81	1381365	2.26	181.30%	225.71%
IX Zamboanga Peninzula	1727801	1496032	1.15	2259714	0.76	115.49%	76.46%
X Northern Mindanao	3469117	1736796	2.00	1496468	2.32	199.74%	231.82%
XI Davao Region	1607529	1426214	1.13	1600128	1.00	112.71%	100.46%
XII SOCCSKSARGEN	2112202	1503208	1.41	1520098	1.39	140.51%	138.95%
XIII Caraga	1715855	1178470	1.46	849655	2.02	145.60%	201.95%
Autonomous Region in Muslim Mindanao	2997050	1517136	1.98	1065817	2.81	197.55%	281.20%

Source: Author's own estimates.

Appendix Table 6. Estimated Coverage Rates of PHI-SP Membership by Scheme vs Q1 and Q2 Poor Population by Region 2011

Region	NHTS-SP Membership 2011	Est. Q1 Poor Population 2011 (PIR/SR-based)	Est. Q1 Poor Population 2011 (FIES-based)	NHTS-SP Coverage Ratio (PIR/SR)	NHTS-SP Coverage Ratio (FIES)		REGULAR-DOH SP Membership 2011	Est. 2 Poorer Population 2011 (PIR/SR-based)	Est. Q2 Poor Population 2011 (FIES-based)	REGULAR-DOH SP Coverage Ratio (PIR/SR)	REGULAR-DOH SP Coverage Ratio (FIES)		NHTS-SP Coverage Ratio (PIR/SR)	NHTS-SP Coverage Rate (%) (FIES)		REGULAR-DOH SP Coverage Ratio (PIR/SR)	REGULAR-DOH SP Coverage Rate (%) (FIES)
PHILIPPINES	18,900,729	10,165,532	16023914	1.86	1.18		19,548,754	14,754,571	20051063	1.32	0.97		135.90%	117.95%		132.49%	97.49%
National Capital Region	996,689	74,385	1821134	13.40	0.55		1,008,687	408,362	2291349	2.47	0.44		561.11%	54.73%		247.01%	44.02%
Cordillera Administrative Region	159,655	176,952	238805	0.90	0.67		389,280	199,605	357882	1.95	1.09		179.30%	66.86%		195.03%	108.77%
I Ilocos	928,598	379,888	675490	2.44	1.37		881,771	740,091	910981	1.19	0.97		123.09%	137.47%		119.14%	96.79%
II Cagayan Valley	406,456	189,251	491464	2.15	0.83		579,141	426,270	636277	1.36	0.91		149.27%	82.70%		135.86%	91.02%
III Central Luzon	996,265	521,562	1590900	1.91	0.63		1,827,286	1,062,705	1948374	1.72	0.94		183.34%	62.62%		171.95%	93.79%
IV-CALABARZON	1,417,490	477,575	2064781	2.97	0.69		48,688	1,328,997	2506868	0.04	0.02		188.63%	68.65%		3.66%	1.94%
IV-B MIMAROPA	924,254	412,275	396422	2.24	2.33		733,372	565,555	563925	1.30	1.30		99.71%	233.15%		129.67%	130.05%
V Bicol	1,894,280	979,293	753982	1.93	2.51		1,588,525	1,501,003	1067048	1.06	1.49		71.09%	251.24%		105.83%	148.87%
VI Western Visayas	1,634,487	808,328	1004525	2.02	1.63		1,927,625	1,437,548	1350012	1.34	1.43		93.91%	162.71%		134.09%	142.79%
VII Central Visayas	1,220,401	1,186,173	965144	1.03	1.26		1,424,844	1,270,620	1361029	1.12	1.05		107.12%	126.45%		112.14%	104.69%
VIII Eastern Visayas	1,121,208	789,784	579268	1.42	1.94		1,996,636	929,897	802096	2.15	2.49		86.26%	193.56%		214.72%	248.93%
IX Zamboanga Peninzula	1,231,667	817,223	522462	1.51	2.36		496,134	678,809	688895	0.73	0.72		101.49%	235.74%		73.09%	72.02%
X Northern Mindanao	803,660	907,303	633511	0.89	1.27		2,665,457	829,493	862956	3.21	3.09		104.03%	126.86%		321.34%	308.88%
XI Davao Region	977,761	674,850	711168	1.45	1.37		629,768	751,364	888960	0.84	0.71		118.31%	137.49%		83.82%	70.84%
XII SOCCSKSARGEN	1,031,115	657,440	665301	1.57	1.55		1,081,087	845,768	854797	1.28	1.26		101.07%	154.98%		127.82%	126.47%
XIII Caraga	784,457	623,285	369027	1.26	2.13		931,398	555,185	480629	1.68	1.94		86.57%	212.57%		167.76%	193.79%
Autonomous Region in Muslim Mindanao	2,372,286	381,483	469315	6.22	5.05		624,764	1,135,653	596502	0.55	1.05		52.53%	505.48%		55.01%	104.74%

Source: Author's own estimates.

Appendix Table 7. Estimated Provincial Coverage Rates for Sponsored Program, Total Membership by Population Base 2011

Region/Province	Total SP Membership 2011	Est. Poor Population 2011 PIR-based	SP Coverage Ratio PIR-based	Est. Poor Population 2011 FIES-based	SP Coverage Ratio FIES-based	SP Coverage Rate (%) PIR-based	SP Coverage Rate (%) FIES-based
NCR	**2005376**						
NCR1st District	242689	97907	2.48	518243	0.47	247.88%	47%
NCR2nd District	563825	148185	3.80	1346422	0.42	380.49%	41.88%
NCR3rd District	569593	149348	3.81	1172790	0.49	381.39%	48.57%
NCR4th District	629269	89439	7.04	1106543	0.57	703.57%	56.87%
Cordillera Administrative Region	**548,935**						
ABRA	104,169	103748	1.00	138433	0.75	100.41%	75.25%
APAYAO	54,365	49384	1.10	65399	0.83	110.09%	83.13%
BENGUET	135,164	42826	3.16	103226	1.31	315.61%	130.94%
IFUGAO	81,632	56155	1.45	80521	1.01	145.37%	101.38%
KALINGA	86,857	52991	1.64	94933	0.91	163.91%	91.49%
MOUNTAIN PROVINCE	86,748	71112	1.22	99261	0.87	121.99%	87.39%
I Ilocos Region	**1,810,369**						
ILOCOS NORTE	242,945	71138	3.42	163905	1.48	341.51%	148.22%
ILOCOS SUR	278,812	113113	2.46	190895	1.46	246.49%	146.06%
LA UNION	326,770	229770	1.42	249368	1.31	142.22%	131.04%
PANGASINAN	958,635	704278	1.36	983454	0.97	136.12%	97.48%
II Cagayan Valley	**985,597**						
BATANES	2,767		NA	2301	1.20		120.21%
CAGAYAN	287,071	234600	1.22	402577	0.71	122.37%	71.31%
ISABELA	408,111	320447	1.27	610663	0.67	127.36%	66.83%
NUEVA VIZCAYA	113,160	37167	3.04	85442	1.32	304.46%	132.44%
QUIRINO	177,255	22125	8.01	30813	5.75	801.15%	575.25%
III Central Luzon	**2,646,814**						
AURORA	118,307	49419	2.39	107272	1.10	239.40%	110.29%
BATAAN	143,425	72305	1.98	153665	0.93	198.36%	93.34%
BULACAN	607,318	210299	2.89	693986	0.88	288.79%	87.51%
NUEVA ECIJA	535,385	618155	0.87	1073722	0.50	86.61%	49.86%
PAMPANGA	596,468	217658	2.74	543189	1.10	274.04%	109.81%
TARLAC	675,727	256538	2.63	583949	1.16	263.40%	115.72%
ZAMBALES	231,917	140872	1.65	335015	0.69	164.63%	69.23%
IV-A CALABARZON	**2,095,633**						
BATANGAS	903,284	456962	1.98	983441	0.92	197.67%	91.85%
CAVITE	233,168	205954	1.13	575062	0.41	113.21%	40.55%
LAGUNA	200,011	220230	0.91	826414	0.24	90.82%	24.20%
QUEZON	526,217	656743	0.80	1459383	0.36	80.13%	36.06%
RIZAL	232,952	245077	0.95	646230	0.36	95.05%	36.05%
IV-B MIMAROPA	**1,657,626**						
MARINDUQUE	68,814	79886	0.86	84326	0.82	86.14%	81.60%
OCCIDENTAL MINDORO	170,699	167322	1.02	125330	1.36	102.02%	136.20%
ORIENTAL MINDORO	598,255	261362	2.29	243035	2.46	228.90%	246.16%
PALAWAN	679,144	299858	2.26	349971	1.94	226.49%	194.06%
ROMBLON	140,714	158290	0.89	149760	0.94	88.90%	93.96%
V Bicol	**3,482,805**						
ALBAY	1,045,976	544391	1.92	371210	2.82	192.14%	281.77%
CAMARINES NORTE	403,560	232960	1.73	171994	2.35	173.23%	234.64%
CAMARINES SUR	834,128	870390	0.96	614643	1.36	95.83%	135.71%
CATANDUANES	167,687	71143	2.36	71393	2.35	235.70%	234.88%
MASBATE	593,993	459890	1.29	337620	1.76	129.16%	175.94%
SORSOGON	437,462	309935	1.41	251025	1.74	141.15%	174.27%

Appendix Table 7.Con't…

VI Western Visayas	**3,562,112**								
AKLAN	375,820	251242	1.50		271516	1.38		149.58%	138.42%
ANTIQUE	341,232	217702	1.57		259746	1.31		156.74%	131.37%
CAPIZ	477,109	209259	2.28		191094	2.50		228.00%	249.67%
GUIMARAS	150,398	33878	4.44		14080	10.68		443.94%	1068.18%
ILOILO	1,019,410	606879	1.68		575403	1.77		167.98%	177.16%
NEGROS OCCIDENTAL	1,198,144	949722	1.26		1091000	1.10		126.16%	109.82%
VII Central Visayas	**2,645,245**								
BOHOL	712,136	612107	1.16		552544	1.29		116.34%	128.88%
CEBU	1,323,873	1274304	1.04		1025814	1.29		103.89%	129.06%
NEGROS ORIENTAL	558,214	549248	1.02		713498	0.78		101.63%	78.24%
SIQUIJOR	51,022	36304	1.41		53806	0.95		140.54%	94.83%
VIII Eastern Visayas	**3,117,844**								
BILIRAN	121,886	57261	2.13		41609	2.93		212.86%	292.93%
EASTERN SAMAR	342,229	234674	1.46		180568	1.90		145.83%	189.53%
LEYTE	1,214,275	620063	1.96		530760	2.29		195.83%	228.78%
NORTHERN SAMAR	615,383	306521	2.01		206782	2.98		200.76%	297.60%
SAMAR (WESTERN SAMAR)	608,863	334475	1.82		271222	2.24		182.04%	224.49%
SOUTHERN LEYTE	215,210	174606	1.23		133314	1.61		123.25%	161.43%
IX Zamboanga Peninzula	**1,727,801**								
ZAMBOANGA DEL NORTE	468,045	607653	0.77		487898	0.96		77.03%	95.93%
ZAMBOANGA DEL SUR	878,103	554548	1.58		488684	1.80		158.35%	179.69%
ZAMBOANGA SIBUGAY	332,602	295220	1.13		217028	1.53		112.66%	153.25%
ISABELA CITY	49,051	23581	2.08		10904	4.50		208.01%	449.85%
X Northern Mindanao	**3,469,117**								
BUKIDNON	898,756	550217	1.63		451576	1.99		163.35%	199.03%
CAMIGUIN	74,041	37834	1.96		17661	4.19		195.70%	419.22%
LANAO DEL NORTE	736,035	435418	1.69		370009	1.99		169.04%	198.92%
MISAMIS OCCIDENTAL	554,993	262655	2.11		264207	2.10		211.30%	210.06%
MISAMIS ORIENTAL	1,205,294	436593	2.76		371032	3.25		276.07%	324.85%
XI Davao	**1,607,529**								
COMPOSTELA VALLEY	330,927	256513	1.29		257002	1.29		129.01%	128.76%
DAVAO DEL NORTE	321,958	328405	0.98		351655	0.92		98.04%	91.56%
DAVAO DEL SUR	1,330,515	578479	2.30		668543	1.99		230.00%	199.02%
DAVAO ORIENTAL	314,128	279222	1.13		319384	0.98		112.50%	98.35%
XII SOCCSKSARGEN	**2,112,202**								
NORTH COTABATO	693,266	429625	1.61		447687	1.55		161.37%	154.86%
SARANGGANI	264,096	264867	1.00		252186	1.05		99.71%	104.72%
SOUTH COTABATO	606,316	411456	1.47		252186	2.40		147.36%	240.42%
SULTAN KUDARAT	456,656	339265	1.35		347709	1.31		134.60%	131.33%
COTABATO CITY, SULTAN MASTURA	91,868	76208	1.21		59962	1.53		120.55%	153.21%
XIII CARAGA	**1,715,855**								
AGUSAN DEL NORTE	406,155	227112	1.79		168935	2.40		178.83%	240.42%
AGUSAN DEL SUR	481,390	387023	1.24		257793	1.87		124.38%	186.73%
DINAGAT ISLANDS	65,332		NA						
SURIGAO DEL NORTE	370,661	256615	1.44		180035	2.06		144.44%	205.88%
SURIGAO DEL SUR	392,318	256221	1.53		201724	1.94		153.12%	194.48%
ARMM	**2,997,050**								
BASILAN	137,173	88476	1.55		120690	1.14		155.04%	113.66%
LANAO DEL SUR	926,929	424581	2.18		339096	2.73		218.32%	273.35%
MAGUINDANAO	1,125,656	515735	2.18		417294	2.70		218.26%	269.75%
SULU	631,027	336065	1.88		152432	4.14		187.77%	413.97%
TAWI-TAWI	176264.5	142571	1.24		90518	1.95		123.63%	194.73%
Source: PHIC Corporate Planning Dept. for PHI-SP data; Author's own estimates.									

Appendix Table 8. Estimated Coverage Rates of PHI-SP Membership by Scheme vs Q1 and Q2 Poor Population 2011

Region/Province	NHTS-SP Membership 2011	Est. Q1 population 2011 (PIR/SR-based)	Est. Q1 Poor Population 2011 (FIES-based)	NHTS-SP Coverage Ratio (PIR/SR-based)	NHTS-SP Coverage Ratio (FIES-based)	REGULAR-DOH SP Membership 2011	Est. Q2 population 2011 (PIR/SR-based)	Est. Q2 Poor Population 2011 (FIES-based)	REGULAR-DOH SP Coverage Ratio (PIR/SR-based)	REGULAR-DOH SP Coverage Ratio (FIES-based)		NHTS-SP Coverage Rate (PIR/SR)	NHTS-SP Coverage Rate (FIES-based)	REGULAR-DOH SP Coverage Rate (PIR/SR)	REGULAR - DOH SP COVERAGE RATE (FIES)
NCR															
NCR1st District	194222	9,957	230,994	19.51	0.84	48467	87,950	287249	0.55	0.17		1950.68%	84.08%	55.11%	16.87%
NCR2nd District	275300	28,425	612,085	9.69	0.45	288525	119,760	734749	2.41	0.39		968.51%	44.98%	240.92%	39.27%
NCR3rd District	314855	33,680	547,157	9.35	0.58	254738	115,668	625633	2.20	0.41		934.83%	57.54%	220.23%	40.72%
NCR4th District	212312	12,990	450,774	16.34	0.47	416957	76,449	655411	5.45	0.64		1634.45%	47.10%	545.40%	63.62%
Cordillera Administrative Region															
ABRA	32,031	51,952	62,676	0.62	0.51	72,138	51,796	75757	1.39	0.95		61.65%	51.11%	139.27%	95.22%
APAYAO	21,113	29,394	33,883	0.72	0.62	33,252	19,990	31528	1.66	1.05		71.83%	62.31%	166.34%	105.47%
BENGUET	37,757	12,851	28,501	2.94	1.32	97,407	29,975	74724	3.25	1.30		293.81%	132.47%	324.96%	130.36%
IFUGAO	27,452	19,220	30,351	1.43	0.90	54,180	36,935	50151	1.47	1.08		142.83%	90.45%	146.69%	108.03%
KALINGA	24,211	23,137	41,390	1.05	0.58	62,646	29,854	53543	2.10	1.17		104.64%	58.49%	209.84%	117.00%
MOUNTAIN PROVINCE	17,091	39,001	33,237	0.44	0.51	69,657	32,111	66024	2.17	1.06		43.82%	51.42%	216.92%	105.50%
I Ilocos Region															
ILOCOS NORTE	85,963	24,508	63,508	3.51	1.35	156,982	46,630	100397	3.37	1.56		350.75%	135.36%	336.66%	156.36%
ILOCOS SUR	125,618	15,869	82,107	7.92	1.53	153,194	97,244	108788	1.58	1.41		791.58%	152.99%	157.54%	140.82%
LA UNION	143,562	102,465	132,831	1.40	1.08	183,208	127,305	116612	1.44	1.57		140.11%	108.08%	143.91%	157.11%
PANGASINAN	572,888	234,365	398,621	2.44	1.44	385,747	469,913	584832	0.82	0.66		244.44%	143.72%	82.09%	65.96%
II Cagayan Valley															
BATANES	567		512		1.11	2,200	0	1790		1.23			110.78%		122.91%
CAGAYAN	135,503	79,701	166,156	1.70	0.82	151,568	154,899	236422	0.98	0.64		170.01%	81.55%	97.85%	64.11%
ISABELA	183,287	87,856	279,635	2.09	0.66	224,824	232,591	330877	0.97	0.68		208.62%	65.54%	96.66%	67.95%
NUEVA VIZCAYA	58,737	11,344	36,228	5.18	1.62	54,423	25,823	49215	2.11	1.11		517.78%	162.13%	210.75%	110.58%
QUIRINO	28,929	9,584	10,379	3.02	2.79	148,326	12,541	20434	11.83	7.26		301.84%	278.72%	1182.76%	725.87%
III Central Luzon															
AURORA	33,312	11,128	62,917	2.99	0.53	84,995	38,291	44355	2.22	1.92		299.35%	52.95%	221.97%	191.63%
BATAAN	48,509	4,933	53,421	9.83	0.91	94,916	67,372	100314	1.41	0.95		983.33%	90.80%	140.88%	94.62%
BULACAN	253,555	32,762	221,415	7.74	1.15	353,763	177,537	472572	1.99	0.75		773.93%	114.52%	199.26%	74.86%
NUEVA ECIJA	318,088	283,591	628,690	1.12	0.51	217,297	334,564	445032	0.65	0.49		112.16%	50.60%	64.95%	48.83%
PAMPANGA	157,313	38,879	148,773	4.05	1.06	439,155	178,779	394416	2.46	1.11		404.62%	105.74%	245.64%	111.34%
TARLAC	122,671	71,700	296,444	1.71	0.41	553,056	184,838	287505	2.99	1.92		171.09%	41.38%	299.21%	192.36%
ZAMBALES	62,817	70,992	129,941	0.88	0.48	169,100	69,880	204996	2.42	0.82		88.48%	48.34%	241.99%	82.49%

Appendix Table 8.Con't…

IV-A CALABARZON															
BATANGAS	329,036	148,144	476,893	2.22	0.69	574,248	308,818	506790	1.86	1.13		222.11%	69.00%	185.95%	113.31%
CAVITE	214,488	26,579	124,859	8.07	1.72	18,680	179,375	450202	0.10	0.04		806.98%	171.78%	10.41%	4.15%
LAGUNA	199,811	36,080	287,676	5.54	0.69	200	184,150	538738	0.00	0.00		553.80%	69.46%	0.11%	0.04%
QUEZON	496,254	194,091	912,165	2.56	0.54	29,963	462,652	547420	0.06	0.05		255.68%	54.40%	6.48%	5.47%
RIZAL	177,901	64,782	197,610	2.75	0.90	55,051	180,295	448620	0.31	0.12		274.62%	90.03%	30.53%	12.27%
IV-B MIMAROPA															
MARINDUQUE	60,560	33,432	33,488	1.81	1.81	8,254	46,454	50838	0.18	0.16		181.14%	180.84%	17.77%	16.23%
OCCIDENTAL MINDORO	146,036	68,184	49,644	2.14	2.94	24,663	99,138	75733	0.25	0.33		214.18%	294.17%	24.88%	32.57%
ORIENTAL MINDORO	284,144	105,704	82,473	2.69	3.45	314,111	155,658	160562	2.02	1.96		268.81%	344.53%	201.80%	195.63%
PALAWAN	351,357	134,487	172,292	2.61	2.04	327,787	165,371	177679	1.98	1.84		261.26%	203.93%	198.21%	184.48%
ROMBLON	82,157	67,246	58,802	1.22	1.40	58,557	91,044	90929	0.64	0.64		122.17%	139.72%	64.32%	64.40%
V Bicol															
ALBAY	308,852	249,255	167,812	1.24	1.84	737,124	295,136	203273	2.50	3.63		123.91%	184.05%	249.76%	362.63%
CAMARINES NORTE	159,761	67,559	61,186	2.36	2.61	243,799	165,401	110807	1.47	2.20		236.48%	261.11%	147.40%	220.02%
CAMARINES SUR	611,403	346,648	260,561	1.76	2.35	222,725	523,742	354082	0.43	0.63		176.38%	234.65%	42.53%	62.90%
CATANDUANES	52,629	29,625	27,459	1.78	1.92	115,058	41,518	43934	2.77	2.62		177.65%	191.67%	277.12%	261.89%
MASBATE	449,499	197,868	142,803	2.27	3.15	144,494	262,022	194817	0.55	0.74		227.17%	314.77%	55.15%	74.17%
SORSOGON	312,136	99,446	96,207	3.14	3.24	125,326	210,489	154817	0.60	0.81		313.88%	324.44%	59.54%	80.95%
VI Western Visayas															
AKLAN	133,203	134,764	136,085	0.99	0.98	242,617	116,478	135431	2.08	1.79		98.84%	97.88%	208.29%	179.14%
ANTIQUE	163,719	104,986	133,058	1.56	1.23	177,513	112,716	126688	1.57	1.40		155.94%	123.04%	157.49%	140.12%
CAPIZ	172,063	92,468	103,685	1.86	1.66	305,046	116,791	87482	2.61	3.49		186.08%	165.95%	261.19%	348.70%
GUIMARAS	41,898	13,871	942	3.02	44.48	108,500	20,007	13138	5.42	8.26		302.05%	4447.94%	542.31%	825.85%
ILOILO	512,309	195,977	213,767	2.61	2.40	507,101	410,902	361637	1.23	1.40		261.41%	239.66%	123.41%	140.22%
NEGROS OCCIDENTAL	611,295	284,847	441,532	2.15	1.38	586,849	664,875	649468	0.88	0.90		214.60%	138.45%	88.26%	90.36%
VII Central Visayas															
BOHOL	273,340	322,457	248,391	0.85	1.10	438,796	289,650	304153	1.51	1.44		84.77%	110.04%	151.49%	144.27%
CEBU	585,012	587,529	372,946	1.00	1.57	738,861	686,775	652868	1.08	1.13		99.57%	156.86%	107.58%	113.17%
NEGROS ORIENTAL	355,477	278,921	327,714	1.27	1.08	202,737	270,327	385785	0.75	0.53		127.45%	108.47%	75.00%	52.55%
SIQUIJOR	6,572	6,295	26,148	1.04	0.25	44,450	30,009	27658	1.48	1.61		104.41%	25.13%	148.12%	160.71%
VIII Eastern Visayas															
BILIRAN	31,263	19,361	17,113	1.61	1.83	90,623	37,900	24496	2.39	3.70		161.48%	182.69%	239.11%	369.95%
EASTERN SAMAR	123,898	139,762	100,866	0.89	1.23	218,331	94,912	79702	2.30	2.74		88.65%	122.83%	230.03%	273.93%
LEYTE	471,537	242,173	215,666	1.95	2.19	742,738	377,890	314913	1.97	2.36		194.71%	218.64%	196.55%	235.86%
NORTHERN SAMAR	183,296	163,943	61,544	1.12	2.98	432,087	142,578	145178	3.03	2.98		111.80%	297.83%	303.05%	297.62%
SAMAR (WESTERN SAMAR)	233,744	115,756	138,919	2.02	1.68	375,119	218,719	154602	1.72	2.43		201.93%	168.26%	171.51%	242.64%
SOUTHERN LEYTE	77,470	90,542	43,672	0.86	1.77	137,740	84,064	89682	1.64	1.54		85.56%	177.39%	163.85%	153.59%

Appendix Table 8.Con't…

IX Zamboanga Peninzula															
ZAMBOANGA DEL NORTE	317,840	377,574	247,895	0.84	1.28	150,205	230,079	240102	0.65	0.63		84.18%	128.22%	65.28%	62.56%
ZAMBOANGA DEL SUR	611,683	267,345	202,975	2.29	3.01	266,420	287,203	285709	0.93	0.93		228.80%	301.36%	92.76%	93.25%
ZAMBOANGA SIBUGAY	257,615	159,552	59,815	1.61	4.31	74,987	135,668	157214	0.55	0.48		161.46%	430.69%	55.27%	47.70%
ISABELA CITY	44,529	2,313	988	19.25	45.09	4,522	21,268	9916	0.21	0.46		1925.24%	4508.92%	21.26%	45.60%
X Northern Mindanao															
BUKIDNON	247,556	287,627	166,789	0.86	1.48	651,200	262,590	284787	2.48	2.29		86.07%	148.42%	247.99%	228.66%
CAMIGUIN	14,600	10,837	6,625	1.35	2.20	59,441	26,997	11036	2.20	5.39		134.73%	220.37%	220.17%	538.59%
LANAO DEL NORTE	255,614	221,122	164,714	1.16	1.55	480,421	214,296	205296	2.24	2.34		115.60%	155.19%	224.18%	234.01%
MISAMIS OCCIDENTAL	91,708	143,655	105,522	0.64	0.87	463,285	119,000	158685	3.89	2.92		63.84%	86.91%	389.32%	291.95%
MISAMIS ORIENTAL	194,182	239,807	178,528	0.81	1.09	1,011,112	196,786	192505	5.14	5.25		80.97%	108.77%	513.81%	525.24%
XI Davao															
COMPOSTELA VALLEY	191,660	95,427	102,815	2.01	1.86	139,267	183,795	154187	0.76	0.90		200.84%	186.41%	75.77%	90.32%
DAVAO DEL NORTE	203,122	168,496	193,555	1.21	1.05	118,836	88,017	158099	1.35	0.75		120.55%	104.94%	135.02%	75.17%
DAVAO DEL SUR	406,737	291,161	275,600	1.40	1.48	923,778	37,244	392707	24.80	2.35		139.69%	147.58%	2480.34%	235.23%
DAVAO ORIENTAL	176,242	125,191	141,042	1.41	1.25	137,886	453,288	178342	0.30	0.77		140.78%	124.96%	30.42%	77.32%
XII SOCCSKSARGEN															
NORTH COTABATO	328,766	197,512	216,490	1.66	1.52	364,500	232,113	231197	1.57	1.58		166.45%	151.86%	157.04%	157.66%
SARANGGANI	165,388	115,083	101,038	1.44	1.64	98,708	149,784	151148	0.66	0.65		143.71%	163.69%	65.90%	65.31%
SOUTH COTABATO	239,314	208,083	192,059	1.15	1.25	367,002	203,373	224418	1.80	1.64		115.01%	124.60%	180.46%	163.54%
SULTAN KUDARAT	223,365	105,758	136,391	2.11	1.64	233,291	233,507	211318	1.00	1.10		211.20%	163.77%	99.91%	110.40%
COTABATO CITY, SULTAN MASTURA	74,282	23,911	14,488	3.11	5.13	17,586	52,297	45502	0.34	0.39		310.66%	512.72%	33.63%	38.65%
XIII CARAGA															
AGUSAN DEL NORTE	151,663	108,269	71,127	1.40	2.13	254,492	262,442	97743	0.97	2.60		140.08%	213.23%	96.97%	260.37%
AGUSAN DEL SUR	243,256	240,552	121,236	1.01	2.01	238,134	146,471	136557	1.63	1.74		101.12%	200.65%	162.58%	174.38%
DINAGAT ISLANDS	45,158	32,598		1.39	NA	20,174	28,990		0.70	NA		138.53%	NA	69.59%	NA
SURIGAO DEL NORTE	144,496	136,165	76,039	1.06	1.90	226,165	120,449	103996	1.88	2.17		106.12%	190.03%	187.77%	217.47%
SURIGAO DEL SUR	199,884	116,188	83,885	1.72	2.38	192,434	140,033	117839	1.37	1.63		172.03%	238.28%	137.42%	163.30%
ARMM															
BASILAN	102,705	8,692	53,531	11.82	1.92	34,468	79,784	67159	0.43	0.51		1181.57%	191.86%	43.20%	51.32%
LANAO DEL SUR	601,439	119,063	171,159	5.05	3.51	325,490	305,518	168032	1.07	1.94		505.14%	351.39%	106.54%	193.71%
MAGUINDANAO	972,572	183,778	181,227	5.29	5.37	153,084	331,957	236066	0.46	0.65		529.21%	536.66%	46.12%	64.85%
SULU	555,127	38,952	56,934	14.25	9.75	75,900	297,113	95498	0.26	0.79		1425.16%	975.03%	25.55%	79.48%
TAWI-TAWI	140,443	47,135	33,267	2.98	4.22	35,821	95,436	57251	0.38	0.63		297.96%	422.17%	37.53%	62.57%
Source: PHIC Corporate Planning Dept. for PHI-SP data; Author's own estimates.															

Appendix Table 9. Comparison between Poverty/Subsistence Incidence Rates and FIES Proportions based on Income, Selected Provinces 2009

Region and Province	PIR - SIR Based			FIES Proportions		
	Poverty incidence rate 2009	Subsistence Rate 2009	Above Subsistence rate *	% Total Poor (Q1+Q2)	% Q1	%Q2
PHILIPPINES	26.5	10.8	15.7%	0.3833	0.1703	0.2131
NCR First District	5.9	0.6	5.3%	0.3123	0.1392	0.1731
NCR Second District:	3.6	0.7	2.9%	0.3271	0.1487	0.1785
NCR Third District:	5.5	1.2	4.3%	0.4319	0.2015	0.2304
NCR Fourth District:	2.5	0.4	2.1%	0.3093	0.126	0.1832
Isabela	21.2	5.81	15.4%	0.404	0.185	0.2189
Quirino	12.3	5.3	7.0%	0.1713	0.0577	0.1136
Laguna	8	1.3	6.7%	0.3002	0.1045	0.1957
Guimaras	20.5	8.4	12.1%	0.0852	0.0057	0.0795
Siquijor	38	6.6	31.4%	0.5632	0.2737	0.2895
Zamboanga Sibugay	49.8	26.9	22.9%	0.3661	0.1009	0.2652
Isabela City	23.4	2.3	21.1%	0.1082	0.0098	0.0984
Camiguin	44.6	12.8	31.8%	0.2082	0.0781	0.1301
Sulu	46.1	5.3	40.8%	0.2091	0.0781	0.131

Appendix 9a. Comparison of Population Estimates by Population base (PIR/SIR and FIES) 2011

Region and Province	Est.Magnitude of Poor Population (PIR/SIR based)			Est.Magnitude of Poor Population (FIES- based)		
	Total Poor Population	Subsistence (Poorest) Population	Above Subsistence (Poorer) Population	Total Poor	Q1 Population	Q2 Population
PHILIPPINES	24,934,452	10,165,532	14,754,571	36,065,567	16,023,914	20,051,063
NCR First District	97,907	9,957	87,950	518,243	230,994	287,249
NCR Second District:	148,185	28,425	119,760	518,243	230,994	287,249
NCR Third District:	149,348	33,680	115,668	1,346,422	612,085	734,749
NCR Fourth District:	89,439	12,990	76,449	1,172,790	547,157	625,633
Isabela	320,447	87,856	232,591	610,663	279,635	330,877
Quirino	22,125	9,584	12,541	30,813	10,379	20,434
Laguna	220,230	36,080	184,150	826,414	287,676	538,738
Guimaras	33,878	13,871	20,007	14,080	942	13,138
Siquijor	36,304	6,295	30,009	53,806	26,148	27,658
Zamboanga Sibugay	295,220	159,552	135,668	217,028	59,815	157,214
Isabela City	23,581	2,313	21,268	10,904	988	9,916
Camiguin	37,834	10,837	26,997	17,661	6,625	11,036
Sulu	336,065	38,952	297,113	152,432	56,934	95,498

Appendix Table 10. Selected Provinces with contrasting coverage rates under Total SP Membership, between PIR/SIR and FIES approaches

Province	PHI-SP Total (PIR/SR)		PHI-SP Total (FIES)	
NCR1st District	247.88%	Extreme Leakage	46.83%	Severe undercoverage
NCR2nd District	380.49%	Outlying Leakage	41.88%	Severe undercoverage
NCR3rd District	381.39%	Outlying Leakage	48.57%	Severe undercoverage
NCR4th District	703.57%	Outlying Leakage	56.87%	Moderate to Mild undercoverage
Isabela	127.36%	Mild to Moderate Leakage	66.83%	Moderate to Mild undercoverage
Laguna	90.82%	Full coverage	24.20%	Severe undercoverage
Quirino	801.15%	Outlying Leakage	575.25%	Outlying Leakage
Guimaras	443.94%	Outlying Leakage	1068.18%	Outlying Leakage
Siquijor	140.54%	Mild to Moderate Leakage	94.83%	Full coverage
Zamboanga Sibugay	112.66%	Mild to Moderate Leakage	153.25%	Extreme Leakage
Isabela City	208.01%	Extreme Leakage	449.85%	Outlying Leakage
Camiguin	195.70%	Extreme Leakage	419.22%	Outlying Leakage
Sulu	187.77%	Extreme Leakage	413.97%	Outlying Leakage

Appendix Table 10a. Selected Provinces with contrasting coverage rates under NHTS- SP Membership, between PIR/SIR and FIES approaches

Province	NHTS-SP (PIR/SR)		NHTS-SP (FIES)	
NCR1st District	1950.68%	Outlying Leakage	84.08%	Moderate to Mild undercoverage
NCR2nd District	968.51%	Outlying Leakage	44.98%	Severe undercoverage
NCR3rd District	934.83%	Outlying Leakage	57.54%	Moderate to Mild undercoverage
NCR4th District	1634.45%	Outlying Leakage	47.10%	Severe undercoverage
Isabela Province	208.62%	Extreme Leakage	65.54%	Moderate to Mild undercoverage
Quirino	301.84%	Outlying Leakage	278.72%	Extreme Leakage
Laguna	553.80%	Outlying Leakage	69.46%	Moderate to Mild undercoverage
Guimaras	302.05%	Outlying Leakage	4447.94%	Outlying Leakage
Siquijor	104.41%	Full coverage	25.13%	Severe undercoverage
Isabela City	1925.24%	Outlying Leakage	4508.92%	Outlying Leakage
Camiguin	134.73%	Mild to Moderat Leakage	220.37%	Extreme Leakage
Sulu	1425.16%	Outlying Leakage	975.03%	Outlying Leakage

Appendix Table 10b. Selected Provinces with contrasting coverage rates under REGULAR- SP Membership, between PIR/SIR and FIES approaches

Province	REGULAR-SP (PIR/SR)		REGULAR-SP (FIES)	
NCR2nd District	240.92%	Extreme Leakage	39.27%	Severe undercoverage
NCR3rd District	220.23%	Extreme Leakage	40.72%	Severe undercoverage
NCR4th District	545.40%	Outlying Leakage	63.62%	Moderate to Mild undercoverage
Isablea	96.66%	Full coverage	67.95%	Moderate to Mild undercoverage
Quirino	1182.76%	Outlying Leakage	725.87%	Outlying Leakage
Laaguna	0.11%	Severe undercoverage	0.04%	Severe undercoverage
Guimaras	542.31%	Outlying Leakage	825.85%	Outlying Leakage
Siquijor	148.12%	Mild to Moderat Leakage	160.71%	Extreme Leakage
Isabela City	21.26%	Severe undercoverage	45.60%	Severe undercoverage
Camiguin	220.17%	Extreme Leakage	538.59%	Outlying Leakage
Sulu	216.92%	Extreme Leakage	105.50%	Full coverage