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Analysis of the Employed Program of the Philippine Health Insurance Corporation

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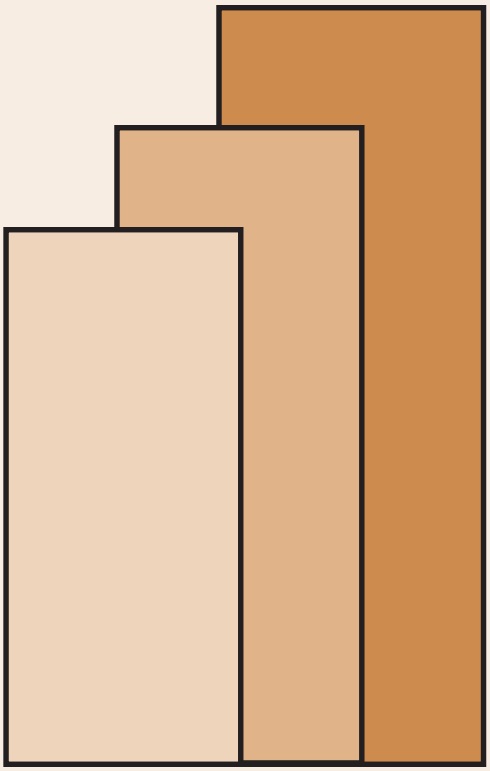

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Health System Research Management Project

Analysis of the Employed Program of the Philippine Health Insurance Corporation

FINAL REPORT

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Abstract

The Employed Program of the Philippine Health Insurance (PhilHealth) caters to those in the formal sector. Included are those in the government and private sectors with a formal employer-employee relationship. Coverage levels for both the government and private sectors are promising with regional averages of 74% and 71%, respectively; and provincial averages of 80% and 75%, respectively. For the private sector, certain sectors were found to be more prone to undercoverage. For the government sector, no clear pattern was found to explain the causes of variation between provinces. This is likely due to the absence of casual and contractual employees in the model. The findings for both sectors are possible propositions on how targeting should be implemented to address the gaps that exist in what is supposed to be a mandatory scheme.

Keywords: Health care financing, universal coverage, formal sector, employed program, social health insurance

CONTENTS

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Acronyms

ARMM	Autonomous Region of Muslim Mindanao
CAR	Cordillera Administrative Region
DOLE	Department of Labor and Employment
EP	Employed Program
FIES	Family Income and Expenditure Survey
GDP	Gross Domestic Product
GGI	Good Governance Index
IPP	Individually Paying Program
LFS	Labor Force Survey
NCR	National Capital Region
NSO	National Statistics Office
OLR	Ordered Logit Regression
OLS	Ordinary Least Squares
PhilHealth	Philippine Health Insurance
PHIC	Philippine Health Insurance Corporation

SUMMARY

The social health insurance scheme of the Philippines, known as the Philippine Health Insurance (PhilHealth), was enacted in 1995. PhilHealth has five schemes, one of which is the Employed Program (EP), which is the focus of this study. This study was conducted prior to the National Health Insurance Act of 2013 (RA 10606). Under the new act, the Employed Program has been renamed as "Members in the Formal Economy".

The Employed Program covers people in the government and private sectors with a formal employer-employee relationship. The Employed Program is a mandatory scheme. This should then ensure, theoretically speaking, full coverage of the formal sector.

For a mandatory program such as the EP, the decision to enroll usually rests on the employer. The EP has been further classified into two categories – those in the government sector and those in the private sector. The analysis of this program has thus been divided accordingly. Coverage rates were determined by province and certain provincial characteristics for both the private sector and the government sector were used to analyze the variation between provinces.

Coverage rates were estimated using membership count data from the Philippine Health Insurance Corporation (PHIC) and the merged 2010 Labor Force Survey and 2009 Family Income and Expenditure Survey datasets. Provincial characteristics were then identified and proxied by data largely taken from the National Statistics Office. These provincial characteristics were then used as independent variables in an Ordered Logistic Regression (OLR) in order to identify which ones led to the province more likely having undercoverage, full coverage or leakage.

Both the private and government sectors have not achieved full coverage but the figures observed are promising. The regional average for the private employed program is at 71% while the provincial average is at 75%. For the government employed program, the regional average lies at 74% and the provincial average at 80%.

A more effective way of analyzing the differences in enrolment patterns of the mandatory program would be to look at it at the establishment level. This is the level at which the decision to enroll is made. Nonetheless, the provincial level analysis has given some indicators as to what areas might be worth looking into for achieving full coverage in the Employed Program.

For the private sector, the size of the establishment (in terms of number of employees) comes out as significant, with more employees hired by medium-sized establishment leading to a higher likelihood of the province having under-coverage.

Certain sectors were also found to be more prone to under-coverage. These findings are possible propositions on how targeting should be implemented.

For the government sector, no clear pattern was found based on the model presented. The model, which was based on the availability of data that could be used as proxies, explained very little of the variation between provinces. The absence of casual and contractual employees in the model is most likely a big contributing factor to the lack of results. These particular groups should be addressed in order to improve the coverage rates of the government employed program.

INTRODUCTION

Background on the National Health Insurance Program

The National Health Insurance Act (R.A. 7875) was promulgated in 1995. The national health insurance program "seeks to provide universal health insurance coverage and ensure affordable, acceptable, available, accessible, and quality health care services for all citizens of the Philippines" (PHIC, 2012). The Philippine Health Insurance (PhilHealth) replaced the Medicare Program and expanded coverage from government to private employees to include individuals in the informal sector.

PhilHealth is divided into the following schemes:

a. **Employed Program**. This covers people in the government and private sectors with a formal employer-employee relationship.
b. **Individually Paying Program.** This refers to people who opt to pay for their own membership. This generally includes the self-employed, self-earning and those in occupations without a formal employer-employee relationship.
c. **Sponsored Program.** This covers the "lowest 25% of the Philippine population" and families targeted by the Department of Social Welfare and Development (DSWD) under the National Household Targeting System for Poverty Reduction (PHIC, 2013).
d. **Lifetime.** This encompasses individuals 60 years and over who were previously covered by any of the four schemes and have accumulated 120 premium monthly contributions.
e. **Overseas Workers.** This refers to active land-based Overseas Filipino Workers (OFW).

This study focuses on the Employed Program (EP), which covers both the government and private sectors. The national health insurance scheme allows members to enlist any number of dependents. Qualified dependents include the legal spouse, parents over 60 years of age and children below 21 years of age who are unmarried and unemployed. Children over the age of 21 suffering from disabilities that render them completely reliant on the member are also included in the scheme. Dependents are collectively allowed 45 days of coverage per calendar year.

Mandatory Health Insurance

Countries that have achieved universal health coverage such as South Korea, Germany and Thailand have all started with mandatory health insurance before expansion into the informal sector. Theoretically speaking, compulsory health insurance is preferred to voluntary health insurance since it circumvents the problem of adverse selection (Kwon, 2008). However, health insurance enrolment can only be enforced if there exists a legal mechanism or structure that allows for compulsory enrolment. Such a mechanism exists in the formal sector in the form of established employer-employee relationship or formal agreement in the form of an employment contract.

The Medicare program that existed in the Philippines prior to 1995 was a form of mandatory health insurance that covered employees in both the government and private sectors. PHIC took over the responsibilities of Medicare and expanded to the informal sector as well.

Those covered in the Employed Program are people in the government and private sectors with a formal employer-employee relationship. The monthly premium contribution is up to 3% of the monthly basic salary with a Php 50,000 cap. The contribution table can be found in Appendix A. This premium is jointly shouldered by the employer and employee and remitted by the former on a monthly basis.

REVIEW OF LITERATURE

Mandatory Health Insurance: Experiences from other Countries

There are two main methods of health financing used to achieve universal health coverage. First requires a system based on general tax revenue. The second is through social health insurance. In principle, the latter involves mandatory enrolment among all populations (Carrin, et.al., 2005).

The entire process of Germany's SHI experience started in 1883. After the introduction of two laws, the expansion of SHI was facilitated by the acknowledgement of existing voluntary funds by the local government units. Enrolment into these funds was made voluntary. Later on, the expansion was furthered by a systematic inclusion of "different socioprofessional groups" in the mandatory health insurance (Carrin, et.al.,2005).

Japan's experience started with community health insurance schemes and subsequently replicated it on a national scale. Similar to Germany, they expanded by establishing laws for different groups of workers, making health insurance compulsory (Carrin, et.al., 2005).

Indonesia has two main mandatory health insurance schemes. One covers civil servants and pensioners of civil servants while the other covers employees of businesses with 10 or more employees (Hidayat, et.al., 2004). In an equity study, Hidayat, et.al. (2004) noted that the mandatory health insurance in Indonesia had positive impacts on access to outpatient care. The authors argued that the expansion of mandatory health insurance to the entire population would increase access to health care substantially. Thailand underwent a similar expansion requiring businesses from 20 or more employees to 10 or more employees to enroll into the SHI (Sakunphanit, 2008).

Similarly, in Vietnam, Ekman, et.al. (2008:256) notes that the country's SHI scheme has had significant beneficial effects on "health care utilization, household spending on care, and on health outcomes". The SHI scheme in Vietnam is employment-based covering those working in the public and private formal sectors. The scheme is financed by a payroll tax wherein the employer contributes 2% and the employee contributes 1%.

Some Issues with Employer-Sponsored Insurance

Sullivan, et.al. (1992) conducted a study on employer-sponsored health insurance in the United States. Although the health insurance system in the United States is different from that of the Philippines, a couple of parallels can be drawn.

One of the issues noted by Sullivan et.al. (1992) was the decline in enrolment for employer-sponsored insurance due to fiscal constraints imposed on firms by a recent recession. Fiscal constraints can be a reason why some firms in the Philippines choose to hire their employees as 'contractuals'. By doing so, they avoid having to enroll their employees into the health insurance program as well as other social security benefits which are otherwise required by law.

The same study found that employers did not offer health insurance to their employees as they have access through different sources such as trade associations and union health plans (Sullivan et.al., 1992). In the Philippines, the national health insurance is the most widely used insurance. However, the distinction between programs could allow for brokering. One of two things could happen. First, the employee might come in having already enrolled in the voluntary program. If the employee does not demand coverage from the employer, the latter could choose to not transfer the employee's membership to the "employed program". Second, if the employee has no health insurance, the employer could negotiate with the employee to enroll to the voluntary program if the salary bracket of the employee requires a higher premium than in the voluntary program.

METHODOLOGY

The main objective of this study is to assess the coverage levels of the mandatory scheme and determine the causes of variation between provinces.
The level of coverage was computed using the following formula:

$$EP\ Coverage = \frac{Number\ \ of\ \ EP\ members}{Number\ \ of\ \ formal\ \ wrokers} \qquad (1)$$

The coverage levels were computed separately for the private and the government sectors. Two steps were employed in order to assess the level of coverage per province. First, the number of people employed in the formal sector (private and government) was estimated from the merged 2010 Labor Force Survey (LFS) and 2009 Family Income and Expenditure Survey (FIES). Estimates were done on national, regional and provincial levels. Second, the coverage rates were computed by employing Eq. (1) using data provided by PHIC as a numerator.

Estimation of the Formal Sector

Using the merged LFS-FIES dataset, the steps taken to arrive at the given estimates are as follows:

1. The total population of the country was taken from the 2010 Census released by the National Statistics Office (NSO).
2. Given that only individuals 15 years and older are legally allowed to work, those aged 14 years and below were removed from the population sample.
3. The proportions of employed, unemployed and those who are not part of the labor force[1] were estimated. Using the estimated proportion of employed individuals, the total number of employed people was obtained using the population derived in step 2.
4. The proportion of individuals classified as non-poor was estimated by clustering the third to fifth income quintiles. This proportion was subsequently used to estimate the total number of employed non-poor population.
5. The class of workers listed in the dataset comprised of:
    (0) Private Household
    (1) Private Establishment
    (2) Government / Government Corporation
    (3) Self-Employed
    (4) Employer
    (5) Family owned business (with pay)
    (6) Family owned business (without pay)

[1] Individuals who are not willing or able to work are not counted as part of the labor force.

Individuals counted in the formal government sector are those belonging to group (2) and those in the formal private sector are those belonging to group (1). Using the proportions generated, the total number of employed non-poor was estimated for the formal sector.

Two estimates are provided for both the private and government sectors. The first is a direct estimate of the data while the second estimate uses the jackknife method to get the proportions. The LFS-FIES dataset has been stratified by region, which indicates that 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 jackknife method addresses this issue by replicating the sample for each province. This method is used as a form of robustness check. The population estimates for the country, regions and provinces are found in Appendix B.

After deriving the population for the formal sector, the coverage rate per province was estimated. Using Eq. (1) provides a ratio between 0 and infinity. The ratio is interpreted as follows:

1. If 0<Ratio<1, there is under-coverage.
    a. If Ratio<=0.5, the province is classified as having severe under-coverage.
    b. If 0.5<Ratio<=0.75, the province is classified as having moderate under-coverage.
    c. If 0.75<Ratio<=.9, the province is classified as having mild under-coverage.
2. If Ratio=1, full coverage has been achieved.
    If 0.9<Ratio<1.1, the province is classified as having full coverage. A 10% margin on both sides has been set to allow for error in estimates.

3. If Ratio>1.1, leakage exists.
    a. If 1.1<Ratio<=1.25, the province is classified as having mild leakage.
    b. If 1.25<Ratio<=1.5, the province is classified as having moderate leakage.
    c. If Ratio>1.5, the province is classified as having severe leakage.

Determination of Factors Leading to Under-Coverage and Leakage

In order to assess the difference in levels of coverage between the provinces, an ordered logistic regression (OLR) was employed. OLR is similar to a logistic regression model except that it considers the event and all other events that are ordered before it.

The OLR is modeled as follows:

$$C_{ij} = \Pr(y_i \leq j) = \sum_{k=1}^{j} \Pr(y_i = k)$$

where C_{ij} is the cumulative probability that the province is in the j_{th} category or higher. The cumulative probability can be converted into a cumulative logit.

$$logit(C_{ij}) = \log(\frac{C_{ij}}{1 - C_{ij}})$$

The OLR model then becomes

$$logit(C_{ij}) = \propto_i - \beta \boldsymbol{X_i}$$

which models the cumulative logit as a linear function of the independent variables.

The ordered categories are as follows:

(1) Severe Under-coverage
(2) Moderate Under-coverage
(3) Mild Under-coverage
(4) Full coverage
(5) Leakage

The OLR is run on identified provincial level characteristics. It must be noted that for mandatory health insurance, the decision to enroll lies with the employer and not the individual. The provincial level characteristics used are different for the EP for the private sector and for the EP for the government sector.

The vector of provincial level characteristics for the private sector are:

1. Sectoral Employment: Percent of employed population in agriculture, sales, services, manual work, processing/manufacturing, mining, skilled work, and education/academe
2. Nature of Employment: Percent of employed population with permanent job, short term job
3. Union coverage
4. Union-Employees Ratio
5. Enterprise Size: Number of employees in micro, small, medium and large enterprises

The vector of provincial level characteristics for the government sector are:

1. Good Governance Index
2. Real Local GDP per capita
3. Income Class

A linear regression was also estimated using the same vector of variables but restricted to the provinces with under-coverage. For this particular regression, the actual ratios were used as a dependent variable. This second regression was employed due to the highly skewed nature of the coverage rates generated, with approximately 77% of the provinces being categorized under under-coverage.

DESCRIPTION OF VARIABLES

The vectors of variables chosen are different for the private EP and government EP. All variables are on the provincial level.

Private Employed Program

Sectoral Employment. Certain sectors may be comprised of firms that are more easily monitored by government agencies. Said sectors would be then more likely to enroll their employees into all security benefits enlisted by law.

Nature of Employment. This variable refers to the permanency of employment. Firms that offer short-term employment may be less likely to enroll their employees into the national health insurance scheme.

Union Coverage and Union-Employee Ratio. These union-related factors serve as a proxy for the strength of employees' positions in the sector. It can be argued that the stronger the position of the employees, at least collectively, the more likely they are to insist on provision of social security benefits among other things.

Enterprise Size. Refers to the number of employees employed in micro, small, medium and large enterprises. Certain enterprise sizes may be more likely to enroll their employees into social security benefits. Large enterprises, for instance, already have benefits of employees costed as these are included in the packages they offer on hiring.

Government Employed Program

Good Governance Index. This variable serves as a proxy for the level of governance in the province. Governance in this index has been defined by the National Statistical Coordination Board as "the manner in which power is exercised in the management of the country's economic and social resources for development" (NSCB, 2013).

Real Local GDP per capita and Income Class. Local GDP pertains to the income of the province generated locally (i.e. Internal Revenue Allotment from the national government is excluded). The local income of the province per capita will serve as a proxy of the ability of local government to generate income and thus, to cover expenses. The income class of the province will serve as a similar proxy as the local GDP per capita.

RESULTS AND DISCUSSION

Coverage Rates for Employed Program

The coverage rates were obtained for the national, regional and provincial levels.

Table 1. National Coverage for Private Employed Program

	Coverage Rate	Remarks
Philippines	97.8%	Full coverage

Table 2. Regional Coverage Rates for Private Employed Program

Region	Coverage Rate	Remarks
I - Ilocos Region	66.75%	Moderate undercoverage
II - Cagayan Valley	48.48%	Severe undercoverage
III - Central Luzon	77.06%	Mild undercoverage
IVA - Calabarzon	111.90%	Mild leakage
IVB - Mimaropa	49%	Severe undercoverage
V - Bicol Region	51.64%	Moderate undercoverage
VI - Western Visayas	69.31%	Moderate undercoverage
VII - Central Visayas	105%	Full coverage
VIII - Eastern Visayas	59.70%	Moderate undercoverage
IX - Zamboanga Peninsula	57.40%	Moderate undercoverage
X - Northern Mindanao	68%	Moderate undercoverage
XI - Davao	76.20%	Mild undercoverage
XII - Socksargen	54.47%	Moderate undercoverage
NCR	143.90%	Moderate leakage
CAR	81.90%	Mild undercoverage
ARMM	31.40%	Severe undercoverage

Caraga	61.90%	Moderate undercoverage

Table 3. Provincial Coverage Rates for Private Employed Program

Province	No Jackknife		Jackknife	
	Coverage Rate	Remarks	Coverage Rate	Remarks
REGION I				
Ilocos Norte	59.79%	Moderate undercoverage	60.00%	Moderate undercoverage
Ilocos Sur	53.20%	Moderate undercoverage	53.18%	Moderate undercoverage
La Union	97.73%	Full coverage	96.11%	Full coverage
Pangasinan	64.64%	Moderate undercoverage	64.67%	Moderate undercoverage
REGION II				
Batanes				
Cagayan	62.25%	Moderate undercoverage	61.94%	Moderate undercoverage
Isabela	47.12%	Severe undercoverage	47.21%	Severe undercoverage
Nueva Vizcaya	41.58%	Severe undercoverage	41.36%	Severe undercoverage
Quirino	19.68%	Severe undercoverage	19.95%	Severe undercoverage
REGION III				
Aurora	63.60%	Moderate undercoverage	62.55%	Moderate undercoverage
Bataan	92.07%	Full coverage	89.61%	Mild undercoverage
Bulacan	71.80%	Moderate undercoverage	72.86%	Moderate undercoverage
Nueva Ecija	61.29%	Moderate undercoverage	61.23%	Moderate undercoverage
Pampanga	69.82%	Moderate undercoverage	69.39%	Moderate undercoverage
Tarlac	93.45%	Full coverage	93.07%	Full coverage
Zambales	130.28%	Moderate leakage	130.49%	Moderate leakage
REGION IVA				
Batangas	112.23%	Mild leakage	112.64%	Mild leakage

Cavite	103.13%	Full coverage	103.01%	Full coverage
Laguna	124.10%	Mild leakage	122.58%	Mild leakage
Quezon	142.31%	Moderate leakage	139.96%	Moderate leakage
Rizal	99.05%	Full coverage	96.78%	Full coverage
REGION IVB				
Marinduque	64.14%	Moderate undercoverage	65.05%	Moderate undercoverage
Occidental Mindoro	21.37%	Severe undercoverage	21.47%	Severe undercoverage
Oriental Mindoro	52.70%	Moderate undercoverage	53.70%	Moderate undercoverage
Palawan	60.36%	Moderate undercoverage	59.47%	Moderate undercoverage
Romblon	58.61%	Mild undercoverage	58.08%	Moderate undercoverage
REGION V				
Albay	59.37%	Moderate undercoverage	59.86%	Moderate undercoverage
Camarines Norte	39.07%	Severe undercoverage	38.83%	Severe undercoverage
Camarines Sur	51.16%	Moderate undercoverage	50.96%	Moderate undercoverage
Catanduanes	60.58%	Moderate undercoverage	57.49%	Moderate undercoverage
Masbate	36.43%	Severe undercoverage	36.78%	Severe undercoverage
Sorsogon	51.56%	Moderate undercoverage	50.76%	Severe undercoverage
REGION VI				
Aklan	84.08%	Mild undercoverage	84.41%	Mild undercoverage
Antique	104.36%	Full coverage	106.65%	Full coverage
Capiz	48.09%	Severe undercoverage	47.89%	Severe undercoverage
Guimaras	63.97%	Moderate undercoverage	64.46%	Moderate undercoverage
Iloilo	33.13%	Severe undercoverage	32.91%	Severe undercoverage
Negros Occidental	79.34%	Mild undercoverage	78.93%	Mild undercoverage
REGION VII				
Bohol	94.64%	Full coverage	95.01%	Full coverage
Cebu	110.87%	Mild leakage	108.38%	Full coverage

Negros Oriental	82.41%	Mild undercoverage	82.99%	Mild undercoverage
Siquijor	59.07%	Moderate undercoverage	58.46%	Moderate undercoverage
REGION VIII				
Biliran	52.36%	Moderate undercoverage	50.98%	Moderate undercoverage
Eastern Samar	42.07%	Severe undercoverage	41.41%	Severe undercoverage
Leyte	68.80%	Moderate undercoverage	69.35%	Moderate undercoverage
Northern Samar	67.58%	Moderate undercoverage	66.29%	Moderate undercoverage
Samar (Western)	32.39%	Severe undercoverage	32.22%	Severe undercoverage
Southern Leyte	76.62%	Mild undercoverage	76.06%	Mild undercoverage
REGION IX				
Isabela City	42.16%	Severe undercoverage	45.93%	Severe undercoverage
Zamboanga del Norte	71.19%	Moderate undercoverage	70.85%	Moderate undercoverage
Zamboanga del Sur	58.28%	Moderate undercoverage	57.33%	Moderate undercoverage
ZamboangaSibugay	35.99%	Severe undercoverage	37.12%	Severe undercoverage
REGION X				
Bukidnon	47.79%	Severe undercoverage	47.85%	Severe undercoverage
Camiguin	66.58%	Moderate undercoverage	67.03%	Moderate undercoverage
Lanao del Norte	65.59%	Moderate undercoverage	65.95%	Moderate undercoverage
Misamis Occidental	89.33%	Mild undercoverage	88.32%	Mild undercoverage
Misamis Oriental	76.63%	Moderate undercoverage	75.31%	Moderate undercoverage
REGION XI				
Compostela Valley	46.92%	Severe undercoverage	46.62%	Severe undercoverage
Davao del Norte	75.41%	Moderate undercoverage	74.72%	Moderate undercoverage
Davao del Sur	84.23%	Mild undercoverage	82.69%	Mild undercoverage

Davao Oriental	59.44%	Moderate undercoverage	59.25%	Moderate undercoverage
REGION XII				
Cotabato City	34.58%	Severe undercoverage	37.52%	Severe undercoverage
North Cotabato	32.02%	Severe undercoverage	29.98%	Severe undercoverage
Sarangani	38.34%	Severe undercoverage	38.70%	Severe undercoverage
South Cotabato	89.43%	Mild undercoverage	88.30%	Mild undercoverage
Sultan Kudarat	24.40%	Severe undercoverage	24.54%	Severe undercoverage
ARMM				
Basilan	16.34%	Severe undercoverage	15.98%	Severe undercoverage
Lanao del Sur	61.94%	Moderate undercoverage	57.45%	Moderate undercoverage
Maguindanao	44.77%	Severe undercoverage	42.48%	Severe undercoverage
Sulu	233.17%	Severe leakage	207.89%	Severe leakage
Tawi-Tawi	290.85%	Severe leakage	257.23%	Severe leakage
CARAGA				
Agusan del Norte	75.23%	Mild undercoverage	73.62%	Moderate undercoverage
Agusan del Sur	42.71%	Severe undercoverage	42.34%	Severe undercoverage
Surigao del Norte	129.76%	Moderate leakage	131.12%	Moderate leakage
Surigao del Sur	44.41%	Severe undercoverage	45.07%	Severe undercoverage
CAR				
Abra	80.41%	Mild undercoverage	80.54%	Mild undercoverage
Apayao	51.21%	Moderate undercoverage	51.27%	Moderate undercoverage
Benguet	84.79%	Mild undercoverage	83.52%	Mild undercoverage
Ifugao	42.26%	Severe undercoverage	43.47%	Severe undercoverage
Kalinga	53.15%	Moderate undercoverage	51.08%	Moderate undercoverage
Mountain Province	121.76%	Mild leakage	120.30%	Mild leakage
NCR				

First District NCR	146.76%	Moderate leakage	147.20%	Moderate leakage
Second District NCR	146.91%	Moderate leakage	147.17%	Moderate leakage
Third District NCR	197.65%	Severe leakage	199.48%	Severe leakage
Fourth District NCR	105.46%	Full coverage	104.99%	Full coverage

For the Private Employed Program, up to 63% of provinces are classified as having severe to moderate under-coverage. Two provinces, Quirino and Basilan, have coverage rates below 20%. These rates are far from satisfactory given the mandatory nature of the program. Two provinces, Sulu and Tawi-Tawi, have notable leakages, with coverage rates over 200%. Both provinces have high numbers of micro enterprises. These coverage rates might then be explained by respondents to LFS incorrectly classifying themselves under informal sector categories instead of under formal private establishments. If this is the case, the coverage rates for the informal sector[2] for these two provinces are expected to improve.

Table 4. National Coverage Rate for Government Employed Program

	Coverage Rate	Remarks
Philippines	75.70%	Mild Undercoverage

Table 5. Regional Coverage Rates for Government Employed Program

Region	Coverage Rate	Remarks
I - Ilocos Region	87.06%	Mild undercoverage
II - Cagayan Valley	79.76%	Mild undercoverage
III - Central Luzon	83.51%	Mild undercoverage
IVA - Calabarzon	81.70%	Mild undercoverage
IVB - Mimaropa	59.68%	Moderate undercoverage
V - Bicol Region	70.38%	Moderate undercoverage
VI - Western Visayas	74.96%	Moderate undercoverage
VII - Central Visayas	60.78%	Moderate undercoverage
VIII - Eastern Visayas	76.59%	Mild undercoverage
IX - Zamboanga Peninsula	67.54%	Moderate undercoverage
X - Northern Mindanao	61.90%	Moderate undercoverage

[2] Coverage rates for the Individually Paying Program, which covers the informal sector, are provided in a separate report.

XI - Davao	66.16%	Moderate undercoverage
XII - Socksargen	74.25%	Moderate undercoverage
NCR	97.10%	Full coverage
CAR	90.78%	Full coverage
ARMM	54.28%	Moderate undercoverage
Caraga	71.85%	Moderate undercoverage

Table 6. Provincial Coverage Rates for Government Employed Program

Province	No Jackknife		Jackknife	
	Coverage Rate	Remarks	Coverage Rate	Remarks
REGION I				
Ilocos Norte	112.17%	Mild leakage	112.31%	Mild leakage
Ilocos Sur	72.13%	Moderate undercoverage	72.22%	Moderate undercoverage
La Union	118.53%	Mild leakage	118.55%	Mild leakage
Pangasinan	78.81%	Mild undercoverage	77.77%	Moderate undercoverage
REGION II				
Batanes	59.80%	Moderate undercoverage	59.80%	Moderate undercoverage
Cagayan	74.77%	Moderate undercoverage	74.92%	Moderate undercoverage
Isabela	85.75%	Mild undercoverage	84.45%	Mild undercoverage
Nueva Vizcaya	111.72%	Mild leakage	113.67%	Mild leakage
Quirino	63.24%	Moderate undercoverage	65.04%	Moderate undercoverage
REGION III				
Aurora	85.86%	Mild undercoverage	83.41%	Mild undercoverage
Bataan	64.55%	Moderate undercoverage	64.63%	Moderate undercoverage
Bulacan	81.43%	Mild undercoverage	82.33%	Mild undercoverage
Nueva Ecija	83.56%	Mild undercoverage	84.66%	Mild undercoverage
Pampanga	92.16%	Full coverage	90.79%	Full coverage

Tarlac	86.33%	Mild undercoverage	83.46%	Mild undercoverage
Zambales	85.09%	Mild undercoverage	91.34%	Mild undercoverage
REGION IVA				
Batangas	81.74%	Mild undercoverage	80.73%	Mild undercoverage
Cavite	64.28%	Moderate undercoverage	64.27%	Moderate undercoverage
Laguna	80.81%	Mild undercoverage	82.92%	Mild undercoverage
Quezon	147.90%	Moderate leakage	144.41%	Moderate leakage
Rizal	80.56%	Mild undercoverage	79.38%	Mild undercoverage
REGION IVB				
Marinduque	64.07%	Moderate undercoverage	63.46%	Moderate undercoverage
Occidental Mindoro	55.20%	Moderate undercoverage	55.67%	Moderate undercoverage
Oriental Mindoro	58.33%	Moderate undercoverage	60.53%	Moderate undercoverage
Palawan	60.85%	Moderate undercoverage	59.67%	Moderate undercoverage
Romblon	65.19%	Moderate undercoverage	66.16%	Moderate undercoverage
REGION V				
Albay	65.18%	Moderate undercoverage	63.91%	Moderate undercoverage
Camarines Norte	78.23%	Mild undercoverage	79.25%	Mild undercoverage
Camarines Sur	66.09%	Moderate undercoverage	65.45%	Moderate undercoverage
Catanduanes	63.50%	Moderate undercoverage	63.78%	Moderate undercoverage
Masbate	124.22%	Mild leakage	124.29%	Mild leakage
Sorsogon	62.99%	Moderate undercoverage	62.99%	Moderate undercoverage
REGION VI				
Aklan	97.98%	Full coverage	99.24%	Full coverage
Antique	88.45%	Mild undercoverage	88.19%	Mild undercoverage
Capiz	80.01%	Mild undercoverage	79.79%	Mild undercoverage

Guimaras	56.98%	Moderate undercoverage	58.69%	Moderate undercoverage
Iloilo	47.81%	Severe undercoverage	46.70%	Severe undercoverage
Negros Occidental	61.74%	Moderate undercoverage	62.59%	Moderate undercoverage
REGION VII				
Bohol	56.06%	Moderate undercoverage	57.49%	Moderate undercoverage
Cebu	65.31%	Moderate undercoverage	65.65%	Moderate undercoverage
Negros Oriental	51.66%	Moderate undercoverage	51.00%	Moderate undercoverage
Siquijor	85.10%	Mild undercoverage	87.90%	Mild undercoverage
REGION VIII				
Biliran	46.94%	Severe undercoverage	47.58%	Severe undercoverage
Eastern Samar	105.68%	Full coverage	104.38%	Full coverage
Leyte	88.31%	Mild undercoverage	90.48%	Full coverage
Northern Samar	57.63%	Moderate undercoverage	56.62%	Moderate undercoverage
Samar (Western)	68.50%	Moderate undercoverage	68.52%	Moderate undercoverage
Southern Leyte	76.34%	Mild undercoverage	74.95%	Moderate undercoverage
REGION IX				
Isabela City	66.50%	Moderate undercoverage	68.95%	Moderate undercoverage
Zamboanga del Norte	77.02%	Mild undercoverage	78.61%	Mild undercoverage
Zamboanga del Sur	73.91%	Mild undercoverage	75.05%	Moderate undercoverage
ZamboangaSibugay	36.59%	Severe undercoverage	37.82%	Severe undercoverage
REGION X				
Bukidnon	58.69%	Moderate undercoverage	57.92%	Moderate undercoverage
Camiguin	76.36%	Mild undercoverage	75.40%	Moderate undercoverage
Lanao del Norte	55.96%	Moderate undercoverage	55.83%	Moderate undercoverage

Misamis Occidental	96.51%	Full coverage	94.80%	Full coverage
Misamis Oriental	57.67%	Moderate undercoverage	58.23%	Moderate undercoverage
REGION XI				
Compostela Valley	61.82%	Moderate undercoverage	63.27%	Moderate undercoverage
Davao del Norte	68.97%	Moderate undercoverage	65.50%	Moderate undercoverage
Davao del Sur	62.35%	Moderate undercoverage	60.99%	Moderate undercoverage
Davao Oriental	84.52%	Mild undercoverage	87.57%	Mild undercoverage
REGION XII				
Cotabato City	57.28%	Moderate undercoverage	61.02%	Moderate undercoverage
North Cotabato	97.35%	Full coverage	95.37%	Full coverage
Sarangani	59.41%	Moderate undercoverage	60.43%	Moderate undercoverage
South Cotabato	64.79%	Moderate undercoverage	59.65%	Moderate undercoverage
Sultan Kudarat	80.55%	Mild undercoverage	81.76%	Mild undercoverage
ARMM				
Basilan	43.02%	Severe undercoverage	40.56%	Severe undercoverage
Lanao del Sur	62.12%	Moderate undercoverage	58.40%	Moderate undercoverage
Maguindanao	141.59%	Moderate leakage	128.81%	Moderate leakage
Sulu	138.59%	Moderate leakage	124.90%	Mild leakage
Tawi-Tawi	96.00%	Full coverage	90.74%	Full coverage
CARAGA				
Agusan del Norte	103.55%	Full coverage	102.58%	Full coverage
Agusan del Sur	65.36%	Moderate undercoverage	65.92%	Moderate undercoverage
Surigao del Norte	62.57%	Moderate undercoverage	59.60%	Moderate undercoverage
Surigao del Sur	85.17%	Mild undercoverage	86.34%	Mild undercoverage
CAR				
Abra	111.57%	Mild leakage	112.39%	Mild leakage
Apayao	61.45%	Moderate undercoverage	60.94%	Moderate undercoverage
Benguet	86.34%	Mild	83.64%	Mild

		undercoverage		undercoverage
Ifugao	87.40%	Mild undercoverage	86.84%	Mild undercoverage
Kalinga	75.47%	Mild undercoverage	75.33%	Moderate undercoverage
Mountain Province	227.58%	Severe leakage	229.45%	Severe leakage
NCR				
First District NCR	108.64%	Full coverage	111.18%	Mild leakage
Second District NCR	90.51%	Full coverage	94.51%	Full coverage
Third District NCR	134.73%	Moderate leakage	128.79%	Moderate leakage
Fourth District NCR	67.80%	Moderate undercoverage	68.39%	Moderate undercoverage

It is worth noting that under the Government Employed Program, no region has been classified as having severe under-coverage. Only four provinces have been classified as having severe under-coverage but all near the 50% mark. The observed coverage levels below 100% can be partially explained by a difference in definition between the LFS-estimated population and the PhilHealth population. Some respondents for the LFS that indicated government employment might have been casual employees or contractuals. These types of workers are not entitled to the same benefits as that of a regular employee. In order to get more accurate coverage rates for the government EP, the number of contractuals and casual employees have to be subtracted from the estimated population.

Regression Results

Table 7. Ordered Logit Regression for Private Employed Program

Independent Variables	No Jackknife		Jackknife	
	Coeff.	Std. Error	Coeff.	Std. Error
Sectoral Employment				
Agriculture	-0.2077	0.2125	0.0314	0.1184
Banking/Finance	-1.0008*	0.5212	-0.8807*	0.4665
Sales	-0.2139	0.2148	-0.0568	0.1377
Real Estate	0.5591	1.0302	1.3381	1.0712
Services	-0.2143	0.2247	0.1555	0.1244
Manual	-0.1985	0.2427	0.0265	0.1386
Mining	-0.3005	0.2066	-0.1983	0.1904
Processing/Manufacturing	-0.1842	0.2227	0.0151	0.1291
Skilled	0.4515	0.3996	0.6455**	0.3142

Education	-0.1412	0.2274	0.1370	0.1538
Nature of Employment				
Permanent	0.3336***	0.1288	0.2014**	0.0990
Short-Term	0.4250***	0.1375	0.3124***	0.1083
Union Coverage	-0.0689	0.0635	-0.0026	0.0628
Union-Employee Ratio (per 10,000 population	0.1060	0.0905	0.0386	0.0890
Enterprise Size (No. of Employees)				
Micro	0.0000	0.0001	0.0000	0.0000
Small	0.0001	0.0001	0.0001	0.0001
Medium	-0.0006**	0.0003	-0.0007**	0.0003
Large	0.0000**	0.0000	0.0001***	0.0000

Significant at ***1% level, **5% level, *10% level.

Table 8. Ordinary Least Squares Regression for Private Employed Program (Restricted to Provinces with Under-coverage)

Independent Variables	No Jackknife		Jackknife	
	Coeff.	Std. Error	Coeff.	Std. Error
Sectoral Employment				
Agriculture	0.0199	0.0193	0.0083	0.0091
Banking/Finance	-0.0110**	0.0049	-0.0049	0.0420
Sales	0.0187	0.0192	0.0021	0.0114
Real Estate	-0.0752	0.1028	0.0671	0.1058
Services	0.0254	0.0201	0.0198**	0.0091
Manual	0.0349	0.0222	0.0174	0.0105
Mining	0.0133	0.0171	0.0081	0.0141
Processing/Manufacturing	0.0226	0.0213	0.0113	0.0105
Skilled	0.1058**	0.0426	0.0620**	0.0295
Education	0.0263	0.0223	0.0151	0.0115
Nature of Employment				
Permanent	0.0109	0.0100	0.0115*	0.0067
Short-Term	0.0116	0.0110	0.0132	0.0080
Union Coverage	0.0029	0.0085	-0.0003	0.0074
Union-Employee Ratio (per 10,000 population	-0.0064	0.0152	0.0030	0.0141
Enterprise Size (No. of Employees)				
Micro	0.0000	0.0000	0.0000	0.0000

Small	0.0000	0.0000	0.0000	0.0000
Medium	0.0000	0.0000	0.0000	0.0000
Large	0.0000	0.0000	0.0000**	0.0000
Constant	-2.8051	1.8587	-1.7075	1.0515

Significant at ***1% level, **5% level, *10% level.

Table 7 shows that the nature of employment significantly affects the coverage levels of the province. Both permanent and short-term employments have a positive impact on the coverage levels. However, when looking at the OLS regressions (Table 8) which focuses on the provinces with under-coverage, this effect not only becomes insignificant but also diminishes considerably in terms of magnitude. Sectoral employment was largely insignificant except for the skilled sector. The higher the percentage of people working in the skilled sector, the more likely it is for the province to belong to higher coverage level categories. The result is consistent with the OLS regressions. The same result is observed for the services sector albeit only significant in the OLS regression. The banking/finance sector also came out significant but negative, signifying a low enrolment rate for the sector. For the enterprise sizes, both the medium and large enterprises came out significant with opposing results – the former having a negative coefficient and the latter having a positive coefficient. This indicates that the greater the number of employees in the medium-sized enterprises, the more likely it is for the province to have lower coverage levels. Conversely, the greater the number of employees in large-sized enterprises, the more likely it is for the province to have higher coverage levels. This result suggests that medium-sized enterprises are less likely to enroll their employees in the Employed Program while large-sized enterprises are more likely to enroll their employees in the same program. However, it must be noted that the magnitude of the coefficients are very small.

Table 9. Ordered Logit Regression for Government Employed Program

Independent Variables	No Jackknife		Jackknife	
	Coeff.	Std. Error	Coeff.	Std. Error
Good Governance Index	-0.006	0.010	-0.008	0.010
Real Local GDP/capita	0.088**	0.041	0.088**	0.041
Income Class	0.040	0.212	-0.067	0.216

Significant at ***1% level, **5% level, *10% level.

Table 10. Ordinary Least Squares Regression for Government Employed Program (Restricted to Provinces with Under-coverage)

Independent Variables	No Jackknife		Jackknife	
	Coeff.	Std. Error	Coeff.	Std. Error
Good Governance Index	0.001	0.001	0.001	0.001
Real Local GDP/capita	0.002	0.011	0.003	0.011
Income Class	-0.018	0.015	-0.017	0.015
Constant	0.630***	0.087	0.594***	0.087

Significant at ***1% level, **5% level, *10% level.

For the government Employed Program, only the local GDP per capita came out as significant for the ordered logistic regression. This signifies that the higher the local income generated by the province per capita, the more likely it is for the province to have higher coverage rates. The income class of the province had no significant impact on the level of coverage. Cross-tabulation of income class against coverage-level categories showed no evident pattern. It must be noted that the R-squared for the ordered logistic regressions and the OLS regressions are very low at 0.027 and 0.125, respectively. This implies that the model explains very little of the variation between provinces. To improve the model, the number of casual or contractual employees per province should be included. Secondly, a better proxy for corruption might be able to better explain the observed variation between provinces.

LIMITATIONS

1. The computation of coverage rates in this study is based on estimation of FIES and LFS datasets as well as headcount membership data from PhilHealth. There may exist discrepancies between the former and the latter in terms of definition of the class of workers.
2. The models need further improvement, especially that of the government employed program. The incompleteness of the model implies that there are certain factors that would have better explained the variation of coverage levels. This study is limited as there are no appropriate proxies for certain factors such as corruption, as well as the number of casual or contractual employees.
3. The analysis is done with provincial level characteristics. The level analysis should be done on the level at which the decision is taken. For the Private EP, this would be the firm level while for the Government EP, this would be at the LGU level.

RECOMMENDATIONS

Private Employed Program

1. **Monitoring medium-sized establishments.**
   Results indicate that the more number of employees hired by medium-sized establishments, the larger the likelihood of the province to have under-coverage. The opposite was found for large establishments. Although the impact was miniscule, the direction of the relationship and the significance are indicators that these establishments might be more likely to fall in between the cracks. From PHIC's contribution table, contribution of the individual is the same as the IPP up to a salary range of Php24,999. Without monitoring, the employer can encourage employees who earn over Php 13,000 to enroll in the IPP scheme instead and offer to pay half the premium in order to save on monthly premium costs. This type of brokering would be more likely to occur in smaller-sized establishments.

2. **Targeting of certain sectors.**
   The banking and finance sector presented a negative impact on provincial level coverage. The most relevant lesson to take from this is that certain sectors might be more prone to under-coverage. This highlights the importance of targeting enrolment by sector. A number of countries that have achieved universal coverage started with sectoral coverage. Luxembourg started with the manufacturing and industrial workers while Israel started with the agricultural sector (Carrin, et.al., 2005). The same principle is applied with the government-employed program.

3. **Monitoring of casualization.**
   Under Article 280 of the Labor Code of the Philippines, it is stated that "any employee who has rendered at least one year of service, whether such service is continuous or broken, shall be considered a regular employee with respect to the activity in which he is employed and his employment shall continue while such activity exists". There has been anecdotal evidence of firms that terminate employment every 6 months before rehiring in order to maintain the casual status of the employee. The one-year clause of the Labor Code should be properly implemented through monitoring as well as through information campaigns for casual employees. Enrolment into social security benefits, which include the national health insurance, will then be addressed when casualization is addressed.

Government Employed Program

1. **Enrolment of casual and contractual employees.**
   Government should mandate the enrolment of non-regular employees into the health insurance program, if not as formal employees then as members of the voluntary program. Workers belonging to these categories are waiting for regularization. They are then more likely to postpone enrolment until they become regular employees and can avail of the same benefits as their counterparts.

2. **Monitoring of Local Government Units.**
   Monitoring of government enrolment must be done on the local level. In the thrust for universal health coverage, the importance of political will cannot be stressed enough. If there is lack of coverage in the government sector, which is supposed to be mandatory, this signals a lack of political will for expansion in other sectors. Under the revised National Health Insurance Act of 2013, Section 28 has been amended to include "It shall be mandatory for all government agencies to include the payment of premium contribution in their respective annual appropriations." The Implementing Rules and Regulations of NHIA 2013 should, thus, look into how proper implementation of this clause can be monitored.

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APPENDIX A: PREMIUM CONTRIBUTION TABLE

Salary Bracket	Salary Range	Salary Base	Total Monthly Premium	Employee Share	Employer Share
1	7,999.99 and below	7,000.00	175	87.5	87.5
2	8,000.00 - 8,999.99	8,000.00	200	100	100
3	9,000.00 - 9,999.99	9,000.00	225	112.5	112.5
4	10,000.00 - 10,999.99	10,000.00	250	125	125
5	11,000.00 - 11,999.99	11,000.00	275	137.5	137.5
6	12,000.00 - 12,999.99	12,000.00	300	150	150
7	13,000.00 - 13,999.99	13,000.00	325	162.5	162.5
8	14,000.00 - 14,999.99	14,000.00	350	175	175
9	15,000.00 - 15,999.99	15,000.00	375	187.5	187.5
10	16,000.00 - 16,999.99	16,000.00	400	200	200
11	17,000.00 - 17,999.99	17,000.00	425	212.5	212.5
12	18,000.00 - 18,999.99	18,000.00	450	225	225
13	19,000.00 - 19,999.99	19,000.00	475	237.5	237.5
14	20,000.00 - 20,999.99	20,000.00	500	250	250
15	21,000.00 - 21,999.99	21,000.00	525	262.5	262.5
16	22,000.00 - 22,999.99	22,000.00	550	275	275
17	23,000.00 - 23,999.99	23,000.00	575	287.5	287.5
18	24,000.00 - 24,999.99	24,000.00	600	300	300
19	25,000.00 - 25,999.99	25,000.00	625	312.5	312.5
20	26,000.00 - 26,999.99	26,000.00	650	325	325
21	27,000.00 - 27,999.99	27,000.00	675	337.5	337.5
22	28,000.00 - 28,999.99	28,000.00	700	350	350
23	29,000.00 - 29,999.99	29,000.00	725	362.5	362.5
24	30,000.00 - 30,999.99	30,000.00	750	375	375
25	31,000.00 - 31,999.99	31,000.00	775	387.5	387.5
26	32,000.00 - 32,999.99	32,000.00	800	400	400
27	33,000.00 - 33,999.99	33,000.00	825	412.5	412.5
28	34,000.00 - 34,999.99	34,000.00	850	425	425
29	35,000.00 and up	35,000.00	875	437.5	437.5

Source: PHIC website, 2013

Employee shares represent half of the total monthly premium while the employer shoulders the other half.

APPENDIX B: FORMAL SECTOR POPULATION ESTIMATES

Table 1. National Population Estimates

	Total Population	Population 15 and Over	Population 15 and over that is employed	Non-Poor Population	Formal Private Sector Population	Formal Govt. Sector Population
Philippines	92337852	62060270	36354906	22267380	**9049463**	**2654272**

Table 2. Regional Population Estimates

Region	Total Population	Population 15 and Over	Population 15 and over that is employed	Non-Poor Population	Formal Private Sector Population	Formal Govt. Sector Population
I - Ilocos Region	4748372	3312939	1764140	1165391	**397981**	**133321**
II - Cagayan Valley	3229163	2221341	1378120	898534	**254645**	**108453**
III - Central Luzon	10137737	7108581	3805934	2511536	**1192226**	**248642**
IVA - Calabarzon	12609803	8766335	4840770	3140692	**1594529**	**285489**
IVB - Mimaropa	2744671	1708283	1113801	723971	**215961**	**99039**
V - Bicol Region	5420411	3374206	2041057	1374652	**409646**	**160972**
VI - Western Visayas	7102438	4855227	2932557	1973904	**747123**	**204496**
VII - Central Visayas	6800180	4613242	2718584	1763817	**776432**	**200193**
VIII - Eastern Visayas	4101322	2621155	1589731	1055422	**265544**	**158208**

IX - Zamboanga Peninsula	3407353	2190587	1419062	890603	**261036**	**129672**
X - Northern Mindanao	4297323	2852563	1860156	1193104	**426177**	**157609**
XII - Davao	4468563	2981872	1813276	1176635	**544311**	**117193**
XII - Socksargen	4109571	2691769	1685586	1086866	**433442**	**111947**
NCR	11855975	8471094	4495610	3182892	**1810429**	**289961**
CAR	1616867	1093811	685273	414042	**134522**	**61320**
ARMM	3256140	2029878	1788598	1199076	**69067**	**102041**
Caraga	2429224	1584826	942338	623639	**191083**	**82632**

Table 3. Provincial Population Estimates (No Jackknife)

Province	Total Population	Population 15 and Over	Population 15 and over that is employed	Non-Poor Population	Formal Private Sector Population	Formal Govt. Sector Population
REGION I						
Ilocos Norte	568017	409370	223148	157833	**49102**	**15831**
Ilocos Sur	658587	465094	273847	181643	**57962**	**26919**
La Union	741906	518147	297105	183254	**52924**	**18234**
Pangasinan	2779862	1919495	970497	642081	**237827**	**72684**
REGION II						
Batanes	16604	8941	7153	7153	**0**	**3321**
Cagayan	1124773	789703	488115	314639	**67647**	**44018**
Isabela	1489645	1016981	622392	364659	**124932**	**40769**
Nueva Vizcaya	421355	287743	172157	136848	**43737**	**10428**
Quirino	176786	118853	85931	72105	**19425**	**7903**

REGION III						
Aurora	201233	131103	81310	45737	**8132**	**8132**
Bataan	687482	471956	239518	192884	**81243**	**26136**
Bulacan	2924433	2072253	1117773	874769	**459341**	**66570**
Nueva Ecija	1955373	1357616	820407	372875	**144303**	**49108**
Pampanga	2340355	1671482	774565	612991	**326173**	**48794**
Tarlac	1273240	892159	476056	265020	**108579**	**31007**
Zambales	755621	506719	279404	157221	**70073**	**19763**
REGION IVA						
Batangas	2377395	1654429	935414	569667	**268256**	**53264**
Cavite	3090691	2164720	1128685	946515	**497488**	**93989**
Laguna	2669847	1880373	1036274	734407	**386151**	**63012**
Quezon	1987030	1347604	866779	232904	**86058**	**24595**
Rizal	2484840	1722740	867744	678836	**372206**	**52135**
REGION IVB						
Marinduque	227828	140889	88168	54840	**13633**	**9087**
Occidental Mindoro	452971	281386	182788	136908	**54188**	**16251**
Oriental Mindoro	785602	506478	322272	226686	**67054**	**28222**
Palawan	994340	611320	411052	258881	**71244**	**33189**
Romblon	283930	168541	111288	51382	**12332**	**11746**
REGION V						
Albay	1233432	805431	468600	333175	**118444**	**42746**
Camarines Norte	542915	329658	204718	141542	**49865**	**12824**
Camarines Sur	1822371	1150827	660229	447437	**148818**	**54364**
Catanduanes	246300	154676	107887	76362	**13791**	**11332**
Masbate	834650	460560	324925	190698	**39112**	**12548**
Sorsogon	740743	472890	275033	186500	**44648**	**26483**

REGION VI						
Aklan	535725	378811	224408	107514	**34383**	**13127**
Antique	546031	373267	217167	116467	**21791**	**15781**
Capiz	719685	491833	321019	226350	**71119**	**20530**
Guimaras	162943	105538	56009	50918	**14812**	**5555**
Iloilo	4035771	2760871	1615662	1221602	**478624**	**110555**
Negros Occidental	2907859	1981997	1234190	787783	**334887**	**89256**
REGION VII						
Bohol	1255128	837672	486604	267438	**78252**	**41801**
Cebu	4167320	2824193	1638032	1219187	**602400**	**109727**
Negros Oriental	1286666	883554	549129	251885	**83777**	**45944**
Siquijor	91066	68063	46494	19174	**7190**	**3355**
REGION VIII						
Biliran	161760	97460	57599	45670	**7855**	**9308**
Eastern Samar	428877	263802	177380	104459	**21707**	**15157**
Leyte	1789158	1191937	708726	499794	**149388**	**59925**
Northern Samar	589013	348519	203884	132912	**12653**	**30291**
Samar (Western)	733377	452494	295841	177090	**49160**	**28334**
Southern Leyte	399137	269018	145431	91069	**23696**	**14407**
REGION IX						
Isabela City	97857	65134	33687	29197	**7699**	**7699**
Zamboanga del Norte	957997	598461	446213	218734	**37972**	**28479**
Zamboanga del Sur	1766814	1157617	698506	495730	**182478**	**70741**
Zamboanga Sibugay	584685	370106	235572	149541	**36503**	**22506**
REGION X						
Bukidnon	1299192	830833	620715	406630	**161676**	**36393**
Camiguin	83807	57014	41124	30218	**5297**	**3427**

Lanao del Norte	932738	606280	388322	225071	**65113**	**35854**
Misamis Occidental	567642	378050	225469	110660	**36252**	**17750**
Misamis Oriental	1415944	975869	602697	445152	**175390**	**63212**
REGION XI						
Compostela Valley	687195	460008	281617	177954	**75150**	**11656**
Davao del Norte	945764	636499	382154	240107	**123127**	**27468**
Davao del Sur	2317986	1558382	915549	662857	**322944**	**66882**
Davao Oriental	517618	327704	233161	95806	**24584**	**11449**
REGION XII						
Cotabato City	271786	180901	88913	68472	**27594**	**15331**
North Cotabato	1226508	793919	519302	340402	**117132**	**25905**
Sarangani	498904	309370	190819	99016	**34844**	**10624**
South Cotabato	1365286	909007	543586	388990	**178469**	**44889**
Sultan Kudarat	747087	498830	339105	185084	**66482**	**17213**
ARMM						
Basilan	293322	188078	97274	63851	**18957**	**8977**
Lanao del Sur	933260	501347	231823	150221	**8773**	**30495**
Maguindanao	1216504	789024	548845	312787	**28557**	**11886**
Sulu	718290	491526	241044	184953	**814**	**8082**
Tawi-Tawi	366550	222496	140417	104400	**459**	**8665**
CARAGA						
Agusan del Norte	632196	415542	237316	170915	**72126**	**16869**
Agusan del Sur	656418	414856	272602	171685	**44844**	**19864**
Surigao del Norte	442588	299057	161281	99849	**18822**	**24832**
Surigao del Sur	561219	363389	221340	147280	**44155**	**15391**
CAR						
Abra	234733	158163	98282	41947	**9392**	**7513**

Apayao	112636	75680	50153	19991	**3390**	**6247**
Benguet	516580	364809	198201	168233	**75738**	**18977**
Ifugao	349923	229235	161198	84242	**15795**	**13369**
Kalinga	201613	129436	87473	45302	**8431**	**10197**
Mountain Province	154187	96398	82873	30099	**2399**	**2835**
NCR						
First District NCR	1652171	1194520	627004	458215	**248078**	**43026**
Second District NCR	4305772	3126852	1656919	1200106	**674460**	**123251**
Third District NCR	3231168	2255355	1144818	676130	**391276**	**60514**
Fourth District NCR	2666864	1890540	1037528	777835	**453011**	**61449**

Table 4. Provincial Population Estimates (Jackknife)

Province	Population 15 and Over	Population 15 and over that is employed	Non-Poor Population	Formal Private Sector Population	Formal Govt. Sector Population
REGION I					
Ilocos Norte	409313	223280	157636	**48930**	**15811**
Ilocos Sur	465160	273979	181538	**57983**	**26886**
La Union	518296	295118	182855	**53814**	**18231**
Pangasinan	1918383	968208	642116	**237711**	**73651**
REGION II					
Batanes	8941	7153	7153	**0**	**3321**
Cagayan	790715	487080	314897	**67986**	**43928**

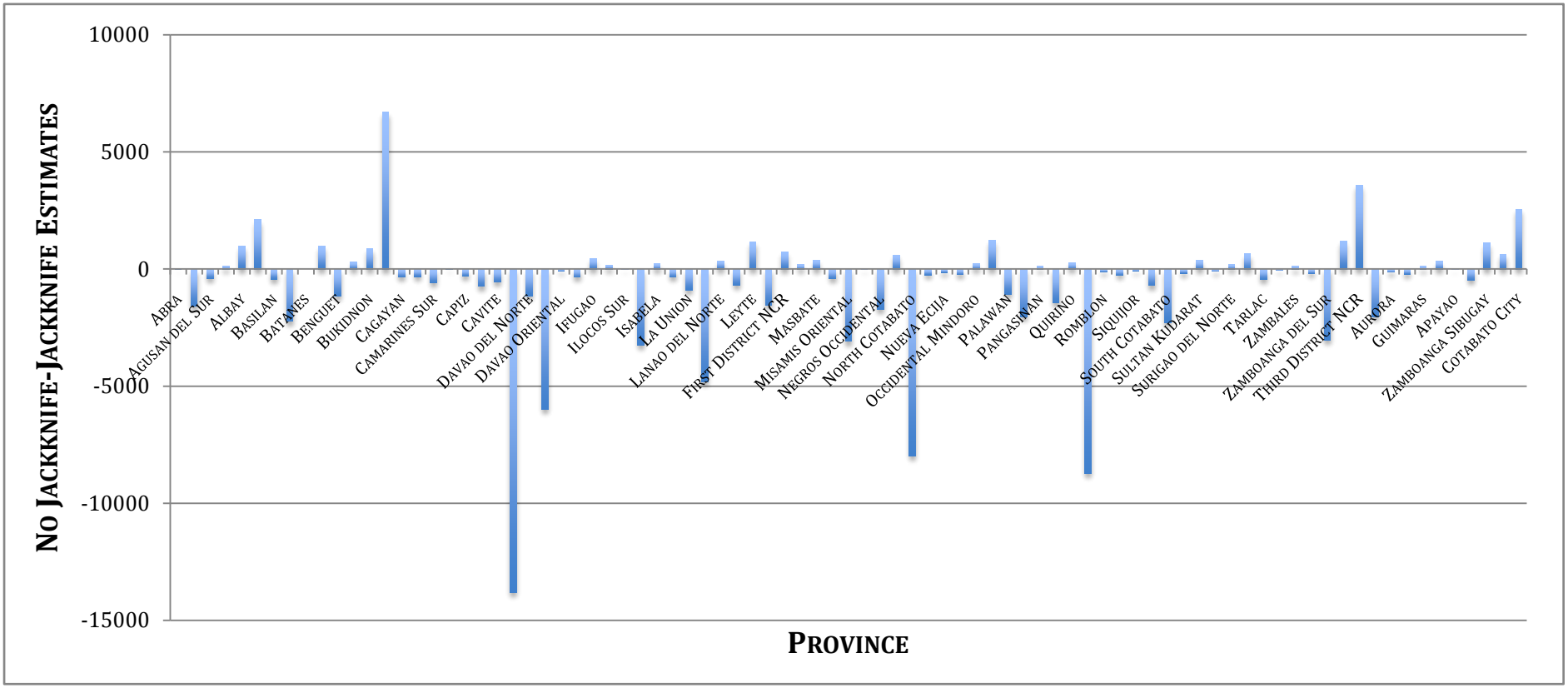
Isabela	1016683	620583	364717	**124697**	**41395**
Nueva Vizcaya	287743	171869	136653	**43975**	**10249**
Quirino	118376	85763	71158	**19156**	**7685**
REGION III					
Aurora	131345	81434	46377	**8269**	**8371**
Bataan	474500	240334	192916	**83475**	**26102**
Bulacan	2066989	1102325	867420	**452620**	**65837**
Nueva Ecija	1356247	819038	373727	**144445**	**48472**
Pampanga	1674992	780044	618341	**328215**	**49529**
Tarlac	890504	474282	264412	**109017**	**32073**
Zambales	506417	280707	156017	**69958**	**18410**
REGION IVA					
Batangas	1655380	934793	567700	**267273**	**53932**
Cavite	2167193	1130841	948663	**498048**	**94013**
Laguna	1885713	1029222	737232	**390954**	**61411**
Quezon	1349392	863476	237197	**87502**	**25190**
Rizal	1724479	870862	687981	**380935**	**52906**
REGION IVB					
Marinduque	140889	88070	55202	**13442**	**9175**
Occidental Mindoro	280933	181707	135299	**53957**	**16114**
Oriental Mindoro	502550	321330	223838	**65808**	**27196**
Palawan	614403	409561	259744	**72313**	**33845**
Romblon	168427	111010	51298	**12445**	**11573**
REGION V					

Albay	807035	469210	333796	**117463**	**43594**
Camarines Norte	329115	204578	141118	**50182**	**12658**
Camarines Sur	1152832	658959	446642	**149402**	**54892**
Catanduanes	154085	107690	76805	**14532**	**11283**
Masbate	460810	324456	188866	**38736**	**12541**
Sorsogon	472520	274959	186642	**45354**	**26484**
REGION VI					
Aklan	378811	224521	106760	**34249**	**12961**
Antique	371956	198662	106364	**19688**	**14614**
Capiz	490969	320799	226003	**71417**	**20589**
Guimaras	105978	55681	50831	**14700**	**5393**
Iloilo	2764100	1614511	1224929	**481887**	**113183**
Negros Occidental	1988394	1239366	786130	**336621**	**88047**
REGION VII					
Bohol	834409	484208	264329	**77951**	**40760**
Cebu	2835445	1640021	1230672	**616197**	**109161**
Negros Oriental	884969	548858	252914	**83183**	**46536**
Siquijor	68163	46992	19661	**7265**	**3248**
REGION VIII					
Biliran	97363	57600	45660	**8068**	**9182**
Eastern Samar	264060	177580	105980	**22054**	**15346**
Leyte	1180665	702968	491937	**148221**	**58491**
Northern Samar	347400	203576	134503	**12899**	**30828**
Samar (Western)	452787	295534	177261	**49420**	**28326**

Southern Leyte	268859	145023	91321	**23871**	**14675**
REGION IX					
Isabela City	64654	33180	28873	**7068**	**7426**
Zamboanga del Norte	599227	446184	217158	**38155**	**27905**
Zamboanga del Sur	1159383	700499	497634	**185518**	**69669**
Zamboanga Sibugay	369462	232872	144567	**35390**	**21772**
REGION X					
Bukidnon	829014	619771	404525	**160799**	**36731**
Camiguin	56980	41197	30366	**5262**	**3471**
Lanao del Norte	604787	386822	223931	**64761**	**35941**
Misamis Occidental	378333	224995	111755	**36667**	**18071**
Misamis Oriental	976577	603427	446536	**178480**	**62604**
REGION XI					
Compostela Valley	460283	281923	177950	**75629**	**11389**
Davao del Norte	638580	381168	243871	**124277**	**28923**
Davao del Sur	1566959	914164	673647	**328942**	**68375**
Davao Oriental	327911	232063	94612	**24665**	**11051**
REFION XII					
Cotabato City	178808	83950	64902	**25052**	**14175**
North Cotabato	795758	518914	343417	**125107**	**26443**
Sarangani	309221	192305	99095	**34515**	**10445**
South Cotabato	917199	545642	400610	**180755**	**48754**
Sultan Kudarat	499353	339510	185339	**66110**	**16959**
ARMM					

Basilan	188577	99003	65352	**19390**	**9522**
Lanao del Sur	505267	232120	153292	**9458**	**32437**
Maguindanao	793526	543327	309588	**30092**	**13065**
Sulu	492675	239588	182638	**913**	**8968**
Tawi-Tawi	223046	141723	105853	**519**	**9167**
CARAGA					
Agusan del Norte	415353	236170	172522	**73701**	**17028**
Agusan del Sur	414134	271051	170085	**45243**	**19696**
Surigao del Norte	299809	160548	99877	**18627**	**26068**
Surigao del Sur	364736	220775	147124	**43505**	**15183**
CAR					
Abra	158093	98033	41899	**9377**	**7458**
Apayao	75714	50130	19962	**3386**	**6300**
Benguet	364964	198212	170046	**76895**	**19589**
Ifugao	228675	160438	83412	**15356**	**13454**
Kalinga	129315	87339	45836	**8773**	**10217**
Mountain Province	96351	82563	30045	**2428**	**2812**
NCR					
First District NCR	1192207	627339	458961	**247334**	**42041**
Second District NCR	3109629	1663341	1197107	**673253**	**118035**
Third District NCR	2248247	1142334	677061	**387685**	**63305**
Fourth District NCR	1893473	1041410	781995	**455043**	**60917**

Graph 1. Difference in Provincial Population Estimates for Formal Private Sector (No Jackknife vs. Jackknife)



Graph 2. Difference in Provincial Population Estimates for Formal Government Sector (No Jackknife vs. Jackknife)