

Vulnerability to Poverty in the Philippines: An Examination of Trends from 2003 to 2015

Jose Ramon G. Albert and Jana Flor V. Vizmanos



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Abstract

The reduction of poverty is at the heart of the development agenda both nationally and globally. This is reflected in the Philippine Development Plan, and the worldwide commitment toward the Sustainable Development Goals. While the measurement of poverty is ex post and thus public interventions are directed at helping those who have been identified as poor, the government must broaden the scope of assessments and take account of the dynamics in poverty in public policy. A critical dimension to poverty dynamics is vulnerability which conceptually pertains to the risk to future poverty. Some of the poor are likely to be poor in the future; some non-poor may also become poor if idiosyncratic and covariate risks to future poverty are not addressed. Thus, risk resilience management strategies are critical. This study continued previous work that involves estimating the vulnerability level of households to income poverty using a modified probit model based on income and other poverty correlates data sourced from the Family Income and Expenditure Survey, as well as the country's official poverty lines. Past model specifications are improved on by including data on price and climate shocks to welfare, as well as generating the assessment for urban areas alone and for rural areas alone before combining the cross-section results, rather than using a common specification nationally as was done previously. The vulnerability assessment in this study provide inputs to forward-looking interventions that build the resilience of households for preventing or reducing the likelihood of future poverty. The study makes a case for the need to make use of both poverty and vulnerability estimates in programs, and come up with differentiated actions for those highly vulnerable and relatively vulnerable.

Keywords: vulnerability, poverty, highly vulnerable, relatively vulnerable, risk, resilience.

Table of Contents

| | | |
|-----------|--|-----------|
| 1. | Introduction..... | 4 |
| 2. | The macroeconomy, poverty and vulnerability | 6 |
| 3. | Methodology | 13 |
| 3.1. | Vulnerability Estimation under Expected Poverty | 13 |
| 3.2. | Estimation Issues..... | 17 |
| 4. | Empirical Findings..... | 17 |
| 4.1. | Findings from Panel Data | 19 |
| 4.2. | Overall Trends in Vulnerability | 20 |
| 4.3. | Vulnerability of Basic Sectors | 23 |
| 4.4. | Sources of Risks of Income Variability | 24 |
| 5. | Policy Issues and Ways Forward | 27 |
| 5.1. | Poverty Focus of SocPen | 29 |
| 5.2. | Integrating Data on Poverty and Vulnerability for Social Protection..... | 33 |
| 6. | References | 35 |

List of Boxes

| | |
|---|----|
| Box 1. A Framework for Analyzing Vulnerability to Poverty. | 12 |
| Box 2. Variables Used for Estimating Vulnerability | 15 |

List of Tables

| | |
|--|----|
| Table 1. Growth Elasticity of Poverty: 2003-2006, 2006-2009, 2009-2012 and 2012-2015 .. | 8 |
| Table 2. Distribution of the Poor and Low-income Non-poor Filipinos (in '000s) across Urban and Rural Areas: 2003 and 2009 | 8 |
| Table 3. Poverty Transition Matrix (in Percent of Households in 2003): 2003 - 2009..... | 9 |
| Table 4. 2003 Household Poverty and Vulnerability | 18 |
| Table 5. 2003 Household Vulnerability and Household Income Group Status | 18 |
| Table 6. Vulnerability Status of Households in 2003 by Income Groups in 2006 and 2009. | 19 |
| Table 7. Household Income Groups in 2006 and 2009, by Vulnerability Status in 2003 | 19 |

| | |
|--|----|
| Table 8. Vulnerability Status of Households in 2003 in Urban and Rural Areas : 2003, 2006 and 2009 | 22 |
| Table 9. Poverty and Vulnerability Rates for Basic Sectors | 23 |
| Table 10. Incidence of Vulnerability Among Households, by Highest Educational Attainment of the Head : 2015..... | 25 |
| Table 11. Vulnerability Status of Households in 2015 by Major Income Source of Household Heads in 2016 | 25 |
| Table 12. SocPen Targets and Accomplishments: 2011-2018 | 30 |

List of Figures

| | |
|---|----|
| Figure 1. Growth in Gross Domestic Product by Major Sector: Philippines, 2003-2015..... | 6 |
| Figure 2. Gross Regional Domestic Product Growth (in %) by Region : 2003-2015 | 7 |
| Figure 3. Number of Natural Disaster Events, by Type of Disaster: 2003-2015 | 11 |
| Figure 4. Incidence of Household Vulnerability by Poverty Status: 2003, 2009, 2015..... | 20 |
| Figure 5. Proportion of Households that are Highly Vulnerable and Relatively Vulnerable, by Income Groups: 2015 | 21 |
| Figure 6. Incidence of Household Vulnerability By Region: 2015 | 22 |
| Figure 7. Average Number of Young and Adult Members in Urban and Rural Areas by Household Vulnerability Level: 2015..... | 24 |
| Figure 8. Household Vulnerability Rates by Major Sector of Employment of the Household Head: 2003, 2006, 2009, 2012, 2015 | 27 |
| Figure 9. Social Protection Operational Framework and Implementation Strategy. | 29 |
| Figure 10. SocPen Payouts in Taguig City | 30 |
| Figure 11. Share (%) of Senior Citizens with Pension | 31 |

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1. Introduction

The Sustainable Development Goals (SDGs), a set of 17 goals that the Philippines and 192 other UN member states have committed to attaining by 2030, identifies a shared vision of, by and for all nations of the world: a better future for the people and its planet by promoting, prosperity, peace, and partnership (UN 2015). SDG1, the first of the 17 Global Goals (as the SDGs are also referred to) is to “End poverty in all its forms everywhere.” Poverty reduction is thus critical to the sustainable development agenda. Poverty is also highly prominent in the country’s public policy agenda, with poverty reduction being mainstreamed with economic growth targets in the most recent 2017–2022 Philippine Development Plan (NEDA 2017). The National Anti-Poverty Commission (NAPC) currently espouses a comprehensive, universal, and transformative social policy, including a rights-based approach, to ensure that reaching zero (poverty) becomes the cornerstone of the country’s development policies (NAPC 2018). The NAPC has also take cognizance that poverty has many faces, including vulnerabilities stemming from risks to welfare such as uncertainties from lack of decent work and educational attainment of household members, insecurity from land tenure and lack of productive assets, imperfect and asymmetric information on opportunities, as well as food insecurity, uncertain access to public goods, and asset damages from disasters and violence.

The recognition that management of poverty policies and programs are more effectively done with poverty data has brought to focus using data not only for describing poverty conditions but also for targeting of interventions, as well as for impact evaluation of public policy, programs, and projects. Many developing countries like the Philippines release official poverty statistics by (a) examining a welfare indicator (typically either income or consumption-based data), (b) setting poverty lines¹, which when compared values of the welfare data help differentiate the poor from the non-poor; and (c) aggregating the poverty data into summaries (such as poverty incidence) that can compare welfare conditions across time and space. The official welfare indicator in the Philippines is based on (per capita) income, sourced from the triennial Family Income and Expenditure Survey (FIES), conducted by the Philippine Statistics Authority. Poverty is not just monetary deprivation, but also capability deprivation and optimism deprivation. Regardless of whether the official welfare indicator chosen is income or consumption based or even a non-monetary metric (such as quantity of food consumed), poverty is measured ex post by countries. In consequence, poverty assessments² that put a face

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¹ Poverty lines represent the minimum (per capita) income required by a household to meet its food and other non-food basic needs. The food component of the poverty line (also called the food threshold) is estimated for urban and rural areas of each province by putting a cost to representative one-day food menus. The per capita per day food cost obtained from the menu is multiplied by 365 to get the annual food threshold. The menus serve as an artifice for determining the cost of basic food requirements which meet 100% adequacy of the recommended dietary allowance (RDA) for protein and energy (2,000 calories per person per day) and 80% adequacy of other nutrients. The non-food component of the poverty line is then indirectly estimated to be the ratio of the food threshold to Engel’s coefficient, the latter estimated as the average share of food expenditures to total basic expenditures of households within a ± 10 percentile band of the food threshold.

² In the Philippines, official poverty statistics have been generated by the Philippine Statistical System since 1987; these statistics are released every three years whenever data is available from the triennial Family Income and Expenditure Survey (FIES), conducted by the Philippine Statistics Authority (PSA). In recent years, the PSA has produced more frequent poverty

to the poor and identify their needs, focus on examining whether households are currently poor, or were poor in the past. Targeting of interventions, such as the government's conditional cash transfer program *Pantawid* (Orbeta and Paqueo 2016) and the non-contributory pensions for elderly indigents in the SocPen or Social Pension program (see Velarde and Albert 2018), are likewise using data that determine ex-post welfare conditions to determine program eligibility. Impact evaluation studies of poverty interventions, that measure counterfactuals (i.e., what would have happened to beneficiaries and non-beneficiaries in the absence of the intervention), are also based on ex-post conditions of households.

Measuring poverty ex post has its merits (with the effects of past government interventions being measured with actual data). Poverty, however, is dynamic: the poor exit poverty and the non-poor can slide into poverty. Bearing this in mind, we ought to assess the underlying processes that contributed to observed poverty conditions or to clarify the reasons for poverty persistence, including the risks households face for future poverty. Nonpoor households themselves that have not accumulated enough assets and fall into poverty may find it difficult to escape poverty, just like persistently poor households. Poor households that are at risk of staying poor as well as non-poor households that are likely to become poor need to be capacitated for managing risk resilience. Thus, poverty stakeholders ought to identify not only households that are poor ex post, but also households that are expected to be poor ex ante (Dercon 2001). The latter are households said to be vulnerable to (future) poverty.

In this study, we aim to (a) obtain estimates of vulnerability rates for 2003, 2006, 2009, 2012, and 2015 based on per capita income data and official poverty lines; (b) profile households that are vulnerable to income poverty, with special attention to demographic and socio-economic characteristics; and, (c) provide policy recommendations for building resilience to welfare risks for households, communities, etc. This discussion paper firstly reviews conditions on the macro-economy and on poverty in the period from 2003 to 2015. Further, the paper also reviews the literature on vulnerability, including the conceptual framework for and measurement of vulnerability. The paper then describes the underlying approach for vulnerability measurement used in the study. After this discussion of the study methodology, the paper provides the resulting triennial estimates of the proportion of households vulnerable to income poverty for the period 2003 to 2015. The study illustrates how resulting household vulnerability rates in 2003 manage to predict the experience of poverty in 2006 and 2009 for 2003 FIES panel³ households interviewed across two subsequent waves of FIES (the 2006 FIES and the 2009 FIES). The paper also provides a comprehensive profile of vulnerable households. Finally, the paper describes policy issues attendant to the results of this study. We discuss policy implications particularly as far as social protection programs and systems such as *Pantawid* and SocPen, are concerned.

statistics, including first semester poverty data sourced from the 2012 FIES, the 2015 FIES, as well as from recent rounds of the Annual Poverty Indicator Survey (APIS). While the 2013, 2014 and 2016 APIS have largely made use of the FIES income module, there continue to be comparability issues, however, that hound making the first semester poverty data sourced from the FIES and APIS incomparable, see Albert *et al.* (2015).

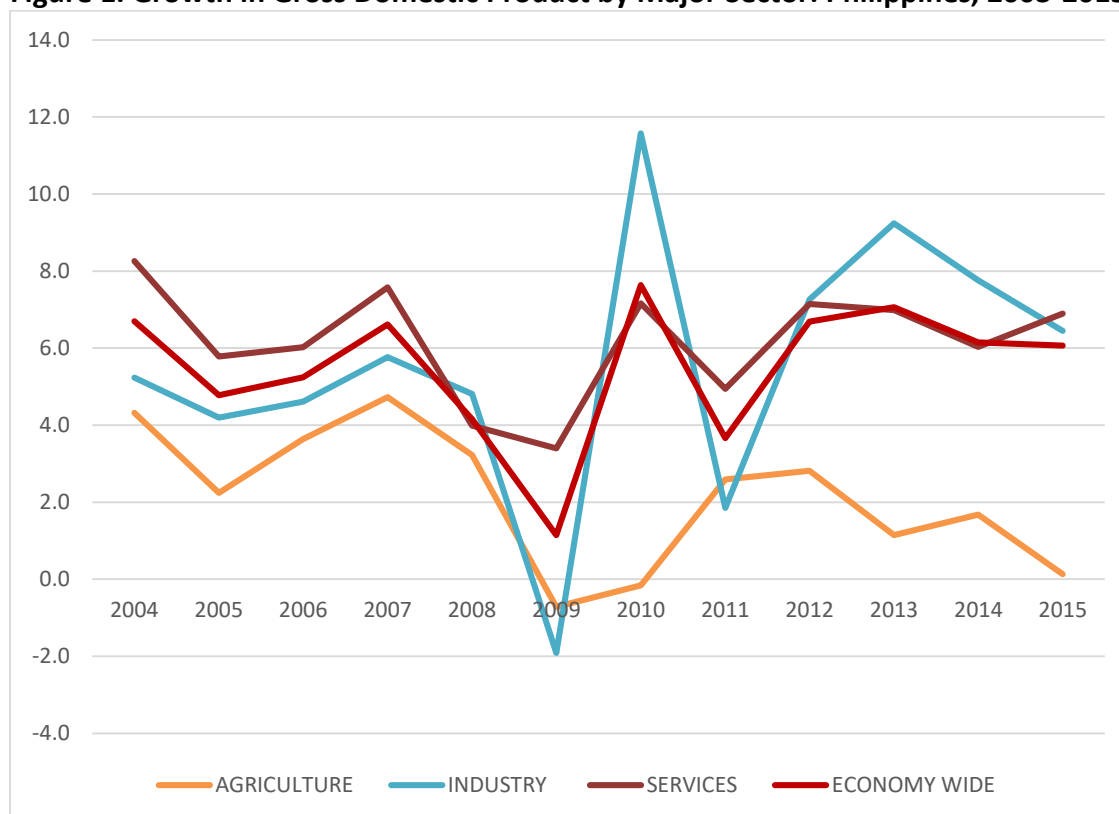
³ The FIES is a rider to the Labor Force Survey (LFS). The July 2003 LFS sample was interviewed for the 2003 FIES and the January 2004 LFS. The second of four replicates of the July 2003 round of the LFS covering 10,500 households was targeted for interview not only for the July 2003 LFS, 2003 FIES, and January 2004 LFS, but also for the 2006 FIES and 2009 FIES (as well as the July 2006 LFS, January 2007 LFS, July 2009 LFS and January 2010 LFS). A total of 6529 households interviewed for the 2003 FIES were successfully interviewed in both the 2006 and 2009 FIES. Weights for these panel data in this report were adjusted for attrition.

2. The macroeconomy, poverty and vulnerability

During the period 2003-2015, the Philippines had an average of 5.5% annual growth in Gross Domestic Product (GDP), but this growth was not inclusive as it did not translate into substantial poverty reduction. The World Bank (2018) has described the lackluster poverty reduction in the country: “Despite the generally good economic performance, poverty remains high and the pace of poverty reduction has been slow compared with other East Asian countries.” Aggregate poverty incidence roughly stood still at about a fourth of the population from 2003 to 2012, dropping only in 2015 to over a fifth (21.6%) of the population. Economic growth during 2003 to 2012 averaged at 5.2% per year, but it was also not broad-based across major sectors.

While all major sectors had positive growth in output from 2003 to 2012, the agricultural sector, which most of the poor are dependent on for their livelihood, was outpaced in its average annual growth (2.5 %) by industry (4.8 %) and services (6.0 %) (**Figure 1**). Historically, the Philippines has always been dominated by the services sector, and in recent decades, the agriculture sector has been shrinking in terms of its position in both total output as well as total employment (Albert *et al.* 2015).

Figure 1. Growth in Gross Domestic Product by Major Sector: Philippines, 2003-2015

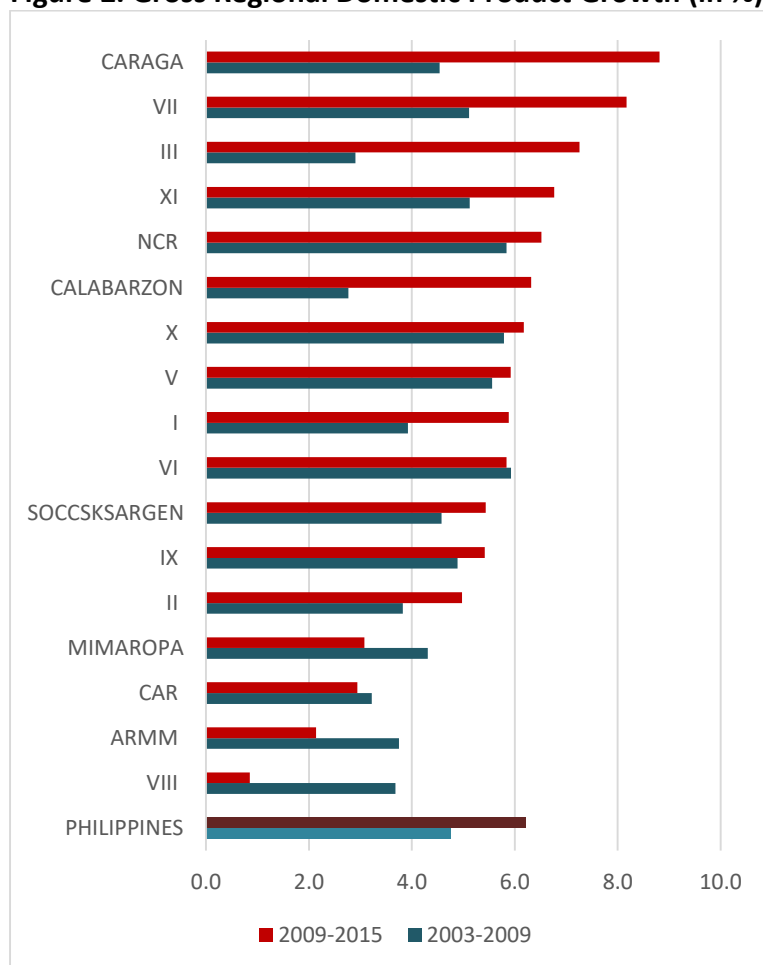


Source: Philippine Statistics Authority (PSA).

Across the period 2003 to 2015, all regions experienced positive growth in the gross regional domestic product (GRDP), but at varying performance. While the National Capital Region, which has the least poverty incidence across the country’s regions, was not among the top three performers among the regions during the period 2009 to 2015, the poorest regions such as Region VIII (Eastern Visayas) and the Autonomous Region of Muslim Mindanao (ARMM), had the least economic growth in the same period. From 2003 to 2009 (when the PSA used a

different base year from that of the latest GRDP data), these two regions were also among the bottom five regions in economic performance. (Figure 2).

Figure 2. Gross Regional Domestic Product Growth (in %) by Region : 2003-2015



Note: The period from 2003 to 2015 is broken into 2003-2009 and 2009-2015 due to breaks in GRDP data series in their base years.

Source: Philippine Statistics Authority (PSA).

According to Kraay (2004), growth in average incomes across countries explains 70 percent of the variation in poverty reduction, while the remainder is explained by changes in the distribution, as well as changes in the growth elasticity of poverty (GEP)⁴. Further, cross-country data suggests that a 1% increase in incomes reduces poverty by 2.5%, on average globally, but by 0.6% in the most unequal countries, and by as much as 4.3% in the most equal ones (Ravallion, 2013).

Estimates of GEP for the Philippines vary considerably (see **Table 1**; Balisacan and Fuwa 2004; Tabuga and Reyes 2011; Reyes and Tabuga 2011), but all of these estimates are rather low compared to the global average performance (2.5%) estimated by Ravallion (2013). The low GEP in the Philippines between 2006 and 2015 suggests that despite the country's economic growth during this period (especially in rather recent years), poverty has not been considerably reduced, in part because the incidence of growth has not been pro-poor. High

⁴ The GEP refers to the percentage reduction in poverty rates associated with a percentage change in mean (per capita) income.

income inequalities have prevented economic growth from benefiting the entire income distribution, especially low-income classes, thus minimizing the effects of economic growth on reducing income poverty.

Table 1. Growth Elasticity of Poverty: 2003-2006, 2006-2009, 2009-2012 and 2012-2015

| | 2003 | 2006 | 2009 | 2012 | 2015 |
|---|----------|-----------|-----------|-----------|-----------|
| Official poverty headcount | 24.9 | 26.6 | 26.3 | 25.2 | 21.6 |
| Per capita GDP (constant PHP) | 48954.05 | 54,225.58 | 58,198.60 | 65,337.06 | 74,832.64 |
| | | 2003-2006 | 2006-2009 | 2009-2012 | 2012-2015 |
| Total Percent change in | | | | | |
| (a) official poverty headcount | | 6.7% | -1.1% | -4.0% | -14.4% |
| (b) per capita GDP | | 10.8% | 7.3% | 12.3% | 14.5% |
| Growth elasticity of poverty (in percent) | | 0.62 | -0.15 | -0.32 | -0.99 |

Source: Authors' calculations using data on official poverty statistics and National Income Accounts (NIA), Philippine Statistics Authority (PSA).

As pointed out by Albert *et al.* (2015), during the period 2003-2009, when the Philippines had an average of 4.8% growth in GDP and when growth did not translate into poverty reduction, the proportion of Filipinos in subsistence⁵ poverty (both in 2003 and 2009) was around ten percent (**Table 2**). Extremely poor Filipinos account for about half of all the total poor in rural areas. In contrast, the extremely poor constitutes about a third of the urban poor.

Table 2. Distribution of the Poor and Low-income Non-poor Filipinos (in '000s) across Urban and Rural Areas: 2003 and 2009

| Poverty Status | | 2003 | | | 2009 | | |
|----------------|-------------------------------|-------|-------|-------|-------|-------|-------|
| | | Urban | Rural | TOTAL | Urban | Rural | TOTAL |
| Poor | Subsistence Poor | 2845 | 7526 | 8990 | 1631 | 8072 | 9703 |
| | Poor but not Subsistence Poor | 1464 | 8000 | 10844 | 3222 | 10375 | 13597 |
| | Total Poor | 4309 | 15526 | 19834 | 4853 | 18448 | 23300 |
| Non-poor | Low income | 11423 | 15258 | 26681 | 12402 | 18411 | 30814 |
| | Not low income | 23184 | 9674 | 32858 | 21070 | 13508 | 34578 |
| | Total Non-Poor | 34607 | 24932 | 59539 | 33472 | 31920 | 65392 |
| Total | | 38916 | 40458 | 79373 | 38325 | 50367 | 88692 |

Note: Authors' calculations on 2003 Family Income and Expenditure Survey (FIES) and 2009 FIES, PSA

Furthermore, if we define those with incomes below twice the poverty line as low-income⁶, we see that seven out of every twenty persons in both the urban and rural populations are low income but not poor, and that a more detailed profile of the low-income poor but not poor show similarities to that of poor Filipinos (Albert and Raymundo 2016). These low income non-poor persons may be viewed as being at high risk of falling into poverty (than those who are non-poor and not low income). Further, among the poor, the extremely poor are more likely to poor in the future than the poor who are not extremely poor (as well as the non-poor).

⁵ Subsistence poverty rate refers to the proportion of persons (or families) whose per capita income is lower than the food poverty line. This may be viewed as the proportion in extreme poverty.

⁶ There are many ways to define the low income. We follow Albert and Raymundo (2016) in this report defining low income households as nonpoor households whose (per capita) income is less than twice the poverty line. Further, persons belonging to low income households are themselves considered low income.

Although aggregate poverty rates have roughly been unchanged in the period 2003 to 2015, especially from 2003 to 2012, panel data analysis of FIES households from 2003 to 2009 suggests that some poor households have exited poverty, and some non-poor households (roughly equal to the poor that have exited poverty) have fallen into poverty (**Table 3**). See also Albert *et al.* (2015). Interestingly, the proportions and magnitudes that have exited poverty are roughly equal to the nonpoor that have fallen into poverty. Near-poor households⁷ that are not poor but with incomes less than 1.5 times the poverty threshold are expected to be more vulnerable to income poverty than the non-poor who are not from the near-poor.

Table 3. Poverty Transition Matrix (in Percent of Households in 2003): 2003 - 2009

| Poverty Status 2003 | Poverty Status 2009 | | | | |
|------------------------|---------------------|------------------------|------------|--------------------|--------|
| | Food-poor | Poor but not Food-poor | Near Poor* | Rest of Households | Total |
| Food poor | 3.04 | 2.52 | 1.19 | 1.24 | 7.99 |
| Poor but not Food Poor | 2.27 | 3.45 | 2.16 | 3.98 | 11.86 |
| Near Poor* | 1.12 | 2.70 | 1.97 | 4.46 | 10.24 |
| Rest of Households | 1.12 | 4.11 | 4.93 | 59.75 | 69.91 |
| Total | 7.55 | 12.78 | 10.24 | 69.42 | 100.00 |

Notes: (i) *= households with per capita income greater or equal to the poverty line but less than 1.5 times the poverty line (ii) Authors' calculations on microdata of panel data from FIES 2003, FIES 2006 and FIES 2009, PSA

So far, only have a few studies have looked into the vulnerability of Filipino households to income poverty either by examining movements in and out of poverty among households using panel data (see, e.g., Tabunda and Albert 2002; Reyes *et al.* 2010; Reyes *et al.* 2011; Albert *et al.* 2015) or by estimating vulnerability levels using models on cross-section data (Chaudhuri and Datt 2001; Albert *et al.* 2008; Albert and Ramos 2010; Mina and Imai 2016).

Public policy interventions to assist segments of society vulnerable to income poverty would require an assessment of the conditions that households face. Such an assessment includes an examination of the multifarious constraints households face related to improving their livelihood, such as the extent of their access to productive resources that can, in in turn, increase their assets and long-term wealth and thus resilience to risks. Being poor and vulnerable are direct consequences of income prospects of a household, the degree of income volatility the household faces from its exposure to idiosyncratic shocks (i.e. household-level shocks) and covariate shocks (i.e. community and national level shocks), and the ability of the household to mitigate the impacts of such shocks. Poor households may face the risk of remaining in poverty, and even falling deeper into poverty, and thus locked into perpetual poverty, especially if they may not have enough capacity and opportunities to secure better income and wealth prospects. Vulnerability is interesting in its own right, but it also has important implications for economic efficiency and long-run welfare of households. Those under a constant threat of poverty often engage in less risky and less profitable behavior than those who are not vulnerable to poverty (Eswaran and Kotwal 1990; Rosenzweig and Binswanger 1993; Dercon 1996). In the presence of credit constraints, shocks to welfare can lead poor households that

⁷ While the near-poor may be defined in several ways but the idea is always about having beyond slightly beyond the poverty threshold, In this report, we say that the near poor have (per capita) income less than 1.5 times the poverty line.

are vulnerable to future poverty into a poverty trap (Morduch 1994). When poor people face a survival constraint, they may respond to negative shocks by adjusting consumption to defend or smooth their asset value to ensure their survival (Zimmerman and Carter 2003) In the Philippines, between 2003 to 2008 , households with income shocks are observed as having decided not to send kids to school as a coping strategy (Albert and Ramos 2010).

Poverty is like a disease, not only carrying a stigma, but also requiring interventions given its harm (Chaudhuri 2003 ; Singh and Singh 2008). Approaches to poverty can be either curative (i.e., alleviating the conditions of the poor, and/or helping them exit out of poverty, just like treating the sick), or preventive (i.e., protecting those vulnerable from the risks and harmful effects of poverty by building the resilience of the vulnerable, just like treating those at risk of getting sick). In the Philippines, social protection programs of the government such as *Pantawid* and SocPen, both implemented by the Department of Social Welfare and Development, were communicated as poverty reduction programs but they are actually meant more to build resilience of the poor, especially as cash transfers will not generally help in changing their poverty status, but the transfers reduce the poverty gaps (i.e., the difference between the poverty thresholds and the poor's income) of the 4.4 million *Pantawid* beneficiaries and the indigent elderly among the 3 million SocPen beneficiaries.

Households in the Philippines are quite heterogenous, but they may be clustered by interrelated socioeconomic dimensions of welfare. Key shocks and sources of vulnerability affecting households include those relating to labor and employment shocks (e.g., the loss of job of the household's breadwinner), price shocks (especially spikes in food prices), demographic, reproductive and health-related shocks (such as the death of a household member, especially the main income earner), and shocks from natural disasters (whether in the form of costs to livelihood, or loss of life and assets).

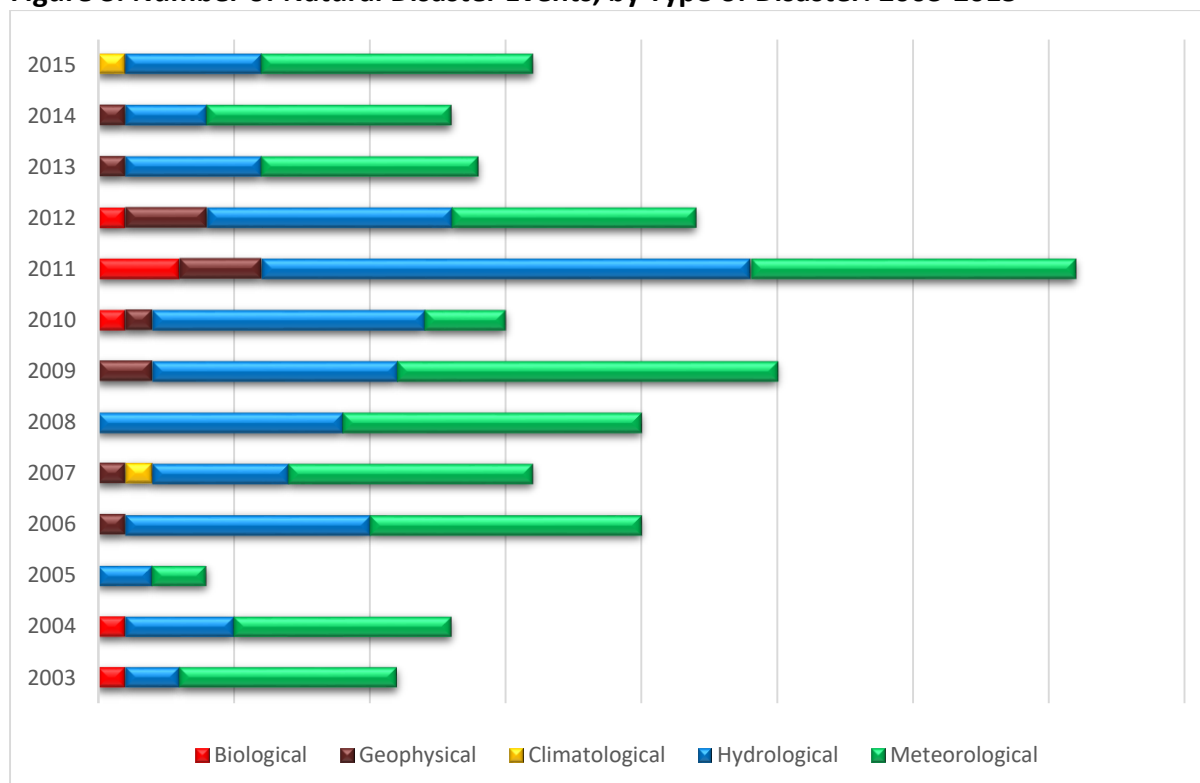
In the hazard-exposure-vulnerability model of the Intergovernmental Panel on Climate Change (IPCC, 2007), vulnerability is nuanced in terms of disaster risk. This framework shows that population exposure and vulnerability together can turn a natural hazard into a natural disaster. Essentially using this IPCC model, the Philippines ranks third globally in being risk-prone, according to the latest World Risk Index⁸ of the Institute for Environment and Human Security of the United Nations University (UNU-EHS, 2017).

An examination of the Emergency Events Database (EM-DAT) of the Centre for Research on the Epidemiology of Disasters (CRED) shows that between 2003 and 2015, EMDAT data suggests that the Philippines had 225 natural disasters⁹ (see **Figure 3**). These disasters have resulted into 21,519 deaths and have injured more than 172 thousand persons in the country.

⁸ The World Risk Index is a composite index of risk computed for 171 countries worldwide on the basis of the following four components: (a) Exposure to natural hazards such as earthquakes, hurricanes, flooding, drought and sea-level rise; (b) Vulnerability as measured by infrastructure, nutrition, living conditions and economic circumstances; (c) Coping capacities as measured by indicators on governance, preparedness and early warning measures, access to healthcare, social and material security; (d) Adapting capacities with respect to impending natural events, climate change and other challenges.

⁹ CRED defines disaster as "a situation or event which overwhelms local capacity, necessitating a request to a national or international level for external assistance; an unforeseen and often sudden event that causes great damage, destruction and human suffering." For a disaster to be recorded in the EM-DAT database, it has to meet one or more of the following four criteria: (a) 10 or more people are killed; (b) 100 people or more are reported affected; (c) a state of emergency is declared; (d) an international call for assistance is issued.

Figure 3. Number of Natural Disaster Events, by Type of Disaster: 2003-2015



Note: Authors' calculations based on data from EM-DAT : The Emergency Events Database - Université catholique de Louvain (UCL) - CRED, D. Guha-Sapir - www.emdat.be, Brussels, Belgium

In 2009 alone, CRED¹⁰ suggests that the Philippines “suffered immensely from natural disasters, as it was struck by two important disasters in 2009: tropical storm 'Ondoy' (Ketsana), which made 4.9 million victims including 501 deaths, and typhoon 'Pepeng' (Parma), which caused 4.5 million victims including 539 deaths. Typhoon 'Morakot' (Kiko) also affected the Philippines, causing over 94 thousand victims of which 26 died, but had a major impact on Taiwan and China. Taiwan saw 10% of its population – or a total of 2.3 million victims including 630 deaths - affected by typhoon 'Morakot' (Kiko)” (Vos *et al.* 2010, page 1).

Thus the country led globally in the frequency of occurrence of natural disasters with its experience of 25 disaster events (Vos *et al.* 2010). Many of these hazards of nature were quite intense making the Philippines rank third across the world in natural-disaster-caused mortality (with its 1,307 disaster related deaths during 2009) following India and Indonesia. The Philippines lies in the typhoon belt (with 18 to 20 typhoons visiting the country annually), as well as in “the Pacific ring of Fire” (i.e., the active volcanic region of the world). Thus, the country is rather highly disposed to hazards of nature, particularly climatological hazards (typhoons), hydrological hazards (floods and tsunamis), geophysical hazards (landslides, volcanic eruptions, earthquakes). Aside from problems from these natural disasters, the country also experiences “person-made” disaster events arising, say, from insurgency, transportation accidents, and industrial accidents. The extent of exposure to natural and person-made disasters is varied across the country, with some regions being more disaster prone. For instance, Bicol is among the most visited regions by typhoons and also has among the most number of persons affected by storms, although the movements of storms in recent years has started to shift south

¹⁰ See 2009 Annual Disaster Statistical Review compiled by the Centre for Research on the Epidemiology of Disasters (available at http://www.preventionweb.net/files/14382_ADSR2009.pdf)

(Thomas *et al.*, 2012), while the ARMM has the most reported events of armed conflicts arising from insurgencies.

Over the years, a number of studies have provided various approaches to defining and measuring vulnerability to (monetary) poverty. For a review, see e.g., Fujii 2016; or Calvo and Dercon 2005. Further, just as poverty has monetary and non-monetary dimensions, vulnerability is likewise multi-dimensional. Brown (2017) points out that there are many faces or senses of vulnerability, and that it is possible to be vulnerable yet able to cope or avoid harm, and this suggests risk. Further, vulnerability can connote a “universal” sense, i.e., a shared human vulnerability, which may be viewed as fundamental feature of the human condition but also connected to individual circumstances (personal, economic, social and cultural).

Vulnerability has both an intrinsic and instrumental perspective as welfare cannot be limited merely to the present, but also involves prospects of future well-being (Dercon, 2001). **Box 1** below, taken from Dercon (2001), provides a framework for analyzing vulnerability to poverty.

| Box 1. A Framework for Analyzing Vulnerability to Poverty. | | |
|--|--|--|
| <i>(a) Assets</i> | <i>(b) Incomes</i> | <i>(c) Well-being/capabilities</i> |
| <ul style="list-style-type: none"> • human capital, labor • physical/financial capital • Commons and public goods • Social capital | <ul style="list-style-type: none"> • Returns to activities and assets • Returns from asset disposal • Savings, credit, investment • Transfers & remittances | Ability to obtain <ul style="list-style-type: none"> • Consumption • Nutrition • Health • Education |
| <i>Examples of risk (a)</i> | <i>Examples of risk (b)</i> | <i>Examples of risk (c)</i> |
| <ul style="list-style-type: none"> • Loss of skills due to ill health or unemployment • Land tenure insecurity • Asset damage due to climate, war, disaster • Uncertain access to commons, public goods • Loss of value of financial assets | <ul style="list-style-type: none"> • Output falls due to climatic shocks, disease, conflict • Output prices rise • Reduced returns on financial assets • Uncertain cash flow during production • Weak contract enforcement, wages not paid • Imperfect information about opportunities | <ul style="list-style-type: none"> • Price risk in food markets • Food availability/rationing • Uncertain quality of public provision in health and education • Imperfect information on how to achieve good health, nutrition |

Source: Based on Dercon (2001), p.17.

This framework on vulnerability to poverty also shows the importance of asset accumulation for building risk resilience among households vulnerable to poverty. Household assets can be bought at good times and sold during difficult conditions to smooth consumption over time, and thus mitigate risks to welfare conditions (Carter and Zimmerman 2000; Zimmerman and Carter 2003). In their discussion about the natural and social rootedness of vulnerability, Farrington *et al.* (2002) point out that where vulnerability is greatest, the basic tools applying development policy are either weak, absent or co-opted by “uncivil” society. Further, some geographical areas in a country are ‘non-viable hinterlands’, facing recurring natural disasters, and/or chronic political instability.

While there are many frameworks on vulnerability, in essence, the concept refers to exposure to contingencies and stress, and difficulties in coping with them. Fujii (2016) categories approaches to vulnerability measurement into three: (a) the welfarist approach which provides explicit specification of a utility or welfare function (Ligon & Schechter, 2003; Elbers & Gunning, 2003); the expected poverty approach where vulnerability relates to how likely it is for an individual to fall into poverty in a given time horizon (Ravallion, 1998; Chaudhuri and Datt 2001; Chaudhuri *et al.* 2002; Chaudhuri 2003); and the axiomatic approach which derives a vulnerability measure from a set of axioms, that lists the properties that an ideal vulnerability measure would satisfy (Calvo and Dercon 2005; Calvo and Dercon 2007). These approaches are, however, not necessarily mutually exclusive. In this study, we make explicit use of an expected poverty approach developed by Chaudhuri (2003) involving a modified probit model for predicting the probability of a household falling into poverty. We discuss this approach in more detail in the next section, and provide empirical results and policy issues in subsequent sections.

3. Methodology

The previous section provided a review of trends regarding the macro-economy and poverty, as well as literature discussing conceptual underpinnings regarding vulnerability measurement. Vulnerability is *ex-ante*, i.e., forward-looking and thus strictly speaking, it is unobservable as far as households are concerned, unlike poverty, which is observable based on an examination of monetary or non-monetary welfare indicators in relation to a “poverty line.” Vulnerability assessments are always rooted in an explicit modelling of inter-temporal household behavior to predict vulnerability status. While preferably this should be undertaken with panel data, but since panel data are scarcely collected, the model proposed by Chaudhuri (2003) involves an examination of cross-sectional data on household (and community) characteristics that put households at risk of experiencing future poverty. This model allows for the estimation of the chance of a household being poor in the future.

3.1. Vulnerability Estimation under Expected Poverty

Chaudhuri (2003) provided a methodology for measuring vulnerability using data sourced from cross-sectional surveys, and illustrated this for several countries, including the Philippines (Chaudhuri and Datt 2001) and Indonesia (Chaudhuri *et al.* 2002). Several studies on Philippine data, e.g., Albert *et al.* (2007) as well as Albert and Ramos (2010), have adapted the Chaudhuri (2003) methodology to estimate vulnerability using income per capita data, and official poverty lines. The use of income over expenditure data in these studies is largely on account of income being the official welfare indicator in the country. Further, income is observed to be more volatile over expenditure, but for a number of reasons.

Chaudhuri (2003) defined the vulnerability level of a household h at time t as the probability that the household will find itself at time $t + 1$:

$$V_{ht} = \Pr(Y_{h,t+1} \leq Z_h) \quad (3.1)$$

where $Y_{h,t+1}$ is the household’s welfare indicator at time $t + 1$ and Z_h is the poverty line for the household (as official poverty thresholds vary across provinces, and by urban and rural location). While the vulnerability level is not directly observable since it represents our expectation of the household’s welfare conditions in the next time period $t + 1$, it may, however, be possible to arrive at a reasonable estimate of the level of the welfare indicator by building a

model of the determinants of poverty and then using this model to predict the next time period's welfare conditions of the household.

As earlier pointed out, while this study follows Chaudhuri (2003) which illustrates vulnerability estimation using expenditure data, we adapted the methodology for use with income per capita data. Per capita income of household h is modeled as:

$$\ln Y_h = X_h\beta + e_h \quad (3.2)$$

where

X_h represents a bundle of observable household and community characteristics that serve as explanatory variables of per capita income;

β is a vector of parameters; and,

e_h is a mean-zero disturbance term that captures idiosyncratic factors (shocks) that contribute to different per capita income levels for households that are otherwise observationally equivalent.

In addition, the variance of the disturbance term is assumed to be given by:

$$\sigma_{e,h}^2 = X_h\theta \quad (3.3)$$

The set of covariates (listed in **Box 2**) included in the model above are variables on household characteristics including number of young members (aged below 15 years old), and the proportion of household members who are adults (aged 15 years and above), and characteristics of the household head such as educational attainment, age, and occupational characteristics; household ownership of various assets and amenities, including use of electricity. To allow for spatial heterogeneity, indicator variables pertaining to the regions where the households reside were also part of the covariates. Furthermore, community shocks such as price shocks, and experience of strong climate hazards at the provincial level were also used in the model (unlike in Albert *et al.*, 2007 and Albert and Ramos 2010) especially as these are sources of risk to household welfare that can put households into harm.

Following Chaudhuri and Datt (2001), the parameters β and θ in equations (b) and (c) were estimated using a three-step feasible generalized least squares (FGLS) procedure suggested by Amemiya (1977):

- Firstly, equation (3.2) is estimated using ordinary least squares (OLS). The residuals from the estimated regression in equation (3.2) are subsequently used to estimate:

$$\hat{e}_{OLS,h}^2 = X_h\theta + \eta_h \quad (3.4)$$

Box 2. Variables Used for Estimating Vulnerability

| | |
|--------------|---|
| hh_employed | Number of working members in household (HH) |
| prodep | Proportion of young dependents in the HH |
| hoh_age | Age of head of household (HOH) in years |
| hoh_hgc_1 | Indicator variable on highest grade completed of HOH= none |
| hoh_hgc_2 | Indicator variable on highest grade completed of HOH= some elementary to elementary graduate |
| hoh_hgc_3 | Indicator variable on highest grade completed of HOH= some high school to high school graduate |
| hoh_hgc_4 | Indicator variable on highest grade completed of HOH= some college and beyond |
| hoh_male | Indicator variable on HOH being male |
| hoh_kb1 | Indicator variable on Employment sector of HOH = Agriculture |
| hoh_kb2 | Indicator variable on Employment sector of HOH= Industry |
| hoh_kb3 | Indicator variable on Employment sector of HOH= Services |
| hoh_kb4 | Indicator variable on Employment sector of HOH = None |
| selfemployed | Indicator Variable on HOH being self-employed |
| hh_spousemp | Indicator Variable on spouse of HOH being employed |
| hoh_empsec1 | Employment of HOH: Agriculture and Self-employed |
| hoh_empsec2 | Employment of HOH: Agriculture and Employed by others |
| hoh_empsec3 | Employment of HOH: Industry and Self-employed |
| hoh_empsec4 | Employment of HOH: Industry and Employed by others |
| hoh_empsec5 | Employment of HOH: Services, Self-employed |
| hoh_empsec6 | Employment of HOH: Services, Employed by others |
| own_hl | Indicator Variable if HH owns or has owner-like possession of its residential house and lot (own_hl=1 if yes, own_hl=0 if no) |
| electricity | Indicator Variable if the HH has electricity (electricity=1 if yes; electricity=0 if no) |
| region1 | Indicator of residing in Ilocos Region |
| region2 | Indicator of residing in Cagayan Valley |
| region3 | Indicator of residing in Central Luzon |
| region4 | Indicator of residing in Bicol Region |
| region5 | Indicator of residing in Western Visayas |
| region6 | Indicator of residing in Central Visayas |
| region7 | Indicator of residing in Eastern Visayas |
| region8 | Indicator of residing in Western Mindanao |
| region9 | Indicator of residing in Northern Mindanao |
| region10 | Indicator of residing in Southern Mindanao |
| region11 | Indicator of residing in Central Mindanao |
| region12 | Indicator of residing in NCR |
| region13 | Indicator of residing in CAR |
| region14 | Indicator of residing in ARMM |
| region15 | Indicator of residing in CARAGA |
| region16 | Indicator of residing in CALABARZON |
| region17 | Indicator of residing in MIMAROPA |
| strong_roof | Indicator Variable of residence made of strong materials |
| strong_walls | Indicator Variable of walls of the house made of strong materials |
| incprice | Indicator of severe increase in prices |
| decprice | Indicator of severe decrease in prices |
| storm | Indicator of experienced a severe tropical storm (Signal #3) |

which allows us to have a measure of the idiosyncratic variance for each household;

- The predictions from equation (3.4) are then used to transform the equation as follows:

$$\frac{\hat{e}_{OLS,h}^2}{X_h \hat{\theta}_{LS}} = \frac{X_h \theta}{X_h \hat{\theta}_{LS}} + \frac{\eta_h}{X_h \hat{\theta}_{LS}} \quad (3.5)$$

This transformed equation is estimated using OLS to obtain $\hat{\theta}_{FGLS}$. Note that $X_h \hat{\theta}_{FGLS}$ is a consistent estimate of $\sigma_{e,h}^2$, and thus the estimates of the standard deviation:

$$\hat{\sigma}_{e,h} = \sqrt{X_h \hat{\theta}_{FGLS}} \quad (3.6)$$

can afterward be used to transform equation (3.2) as follows:

$$\frac{\ln Y_h}{\sqrt{X_h \hat{\theta}_{FGLS}}} = \frac{X_h}{\sqrt{X_h \hat{\theta}_{FGLS}}} \beta + \frac{e_h}{\sqrt{X_h \hat{\theta}_{FGLS}}} \quad (3.7)$$

- OLS estimation of equation (3.7) yields an estimate of β , denoted as $\hat{\beta}_{FGLS}$. The standard error of $\hat{\beta}_{FGLS}$ can be obtained by dividing the reported standard error by the standard error of the regression. Using the estimates $\hat{\beta}_{FGLS}$ and $\hat{\theta}_{FGLS}$ obtained, we can estimate the expected log per capita income:

$$E(\ln \hat{Y}_h | X_h) = X_h \hat{\beta}_{FGLS} \quad (3.8)$$

and the variance of log per capita income:

$$Var(\ln \hat{Y}_h | X_h) = \hat{\sigma}_{e,h}^2 = X_h \hat{\theta}_{FGLS} \quad (3.9)$$

for each household h . This assumes that the covariates do not change from one time period to the next.

By assuming that income per capita is log-normally distributed, we are then able to use these estimates to form an estimate of the probability that a household with the characteristics X_h will be poor, i.e., the probability level of the household's vulnerability. Letting $\Phi(\cdot)$ denote the cumulative distribution function of the standard normal distribution, this estimated probability will be given by:

$$\hat{v}_h = \Pr(\ln \hat{Y}_h < \ln Z_h | X_h) = \Phi \left[\frac{\ln Z_h - X_h \hat{\beta}_{FGLS}}{\sqrt{X_h \hat{\theta}_{FGLS}}} \right] \quad (3.10)$$

After generating estimates of the probability of being poor in the future, it is then important to choose a vulnerability threshold. Following Chaudhuri (2003), we consider two natural

thresholds for the vulnerability estimates: viz., the observed national poverty rate and a threshold of 50%. The rationale for choosing the former is that we would be able to determine a household that is more likely than the typical household to be poor in the next period, while a threshold of 50% would enable us to identify a household having at least an even chance of being poor in the next time period. Using these two thresholds, we operationally define households to be

- **highly vulnerable** if the vulnerability level is greater than 50%, and
- **relatively vulnerable** if the household is vulnerable but not highly vulnerable.
- **vulnerable** if the predicted vulnerability level is greater than the national poverty rate (i.e., if either the household is highly vulnerable or relatively vulnerable);
- **not vulnerable** if the predicted vulnerability level is less than or equal to the national poverty rate.

3.2. Estimation Issues

As Chaudhuri and Datt (2001) pointed out, substantive issues arise in the implementation of the procedure outlined in the previous section. The observed welfare indicator may have measurement errors. In our case, income has the tendency to be biased downward especially in urban areas, which can lead to biases in estimation of the mean of the squared residuals in (3.1), which will then lead to biased estimates of (3.3) and (3.4), and thus biased estimates of the variance of income, and biased estimates of log-income, and vulnerability. One could make some corrections for this by a multiplicative adjustment to the estimated variances by ensuring that the predicted median income is the actual median income for each of the areas for which we estimate a separate set of regressions, for our case, urban and rural areas. Another but rather minor issue is that the possibility of having estimates of the variances $\sigma_{e,h}^2$, viz., $X_h \hat{\theta}_{FGLS}$, that are non-positive. In practice, we only found this for a few observations (specifically 2 out of the 42.094 observations in 2003), so we simply dropped these data from the analysis.

According to the sampling design of the FIES (particularly for the 2003 up to 2012 survey rounds), the FIES has four replicates. Further, sample households for one of the replicates of the 2003 FIES were interviewed for the 2006 FIES and the 2009 FIES, thus forming a panel data. The 2003 FIES- 2006 FIES- 2009 FIES panel data provide useful information on how living conditions of households changed across time from 2003 to 2009, especially in the wake of the global financial and economic crisis in 2008 that lingered on. The 2003 FIES- 2006 FIES- 2009 FIES panel data can also be examined to validate the empirical results of estimating household vulnerability to income poverty in 2003 since the actual poverty status of households in 2006 and 2009 is observed.

4. Empirical Findings

The overall picture of household poverty and vulnerability in the country based on the 2003 FIES and the methodology described in the previous section is shown in **Table 4**. Although 20% of households were poor, the rate of household vulnerability is 55%. While 6% of the poor are not vulnerable, 45% of the non-poor are vulnerable. Not all the poor are vulnerable : the bulk (66%) of the vulnerable are non-poor. Further, not all the non-vulnerable are non-poor: as 3% of the non-vulnerable households are poor.

Table 4. 2003 Household Poverty and Vulnerability

| | All | Observed Poor? | | Vulnerable | | Highly vulnerable | |
|--------------------------------|------|----------------|------|------------|------|-------------------|------|
| | | No | Yes | No | Yes | No | Yes |
| Fraction observed poor | 0.20 | 0.00 | 1.00 | 0.03 | 0.34 | 0.11 | 0.59 |
| Vulnerability | | | | | | | |
| Vulnerability level: mean | 0.28 | 0.22 | 0.51 | 0.12 | 0.54 | 0.34 | 0.65 |
| Fraction vulnerable | 0.55 | 0.45 | 0.94 | 0.00 | 1.00 | 0.45 | 1.00 |
| Fraction relatively vulnerable | 0.37 | 0.36 | 0.39 | 0.00 | 0.67 | 0.45 | 0.00 |
| Fraction highly vulnerable | 0.18 | 0.09 | 0.54 | 0.00 | 0.33 | 0.00 | 1.00 |

Note: Authors' calculations based on 2003 FIES, PSA

Table 5 shows that 19 out of 20 poor households in 2003 were classified as vulnerable. Among the low income households that are not poor in 2003, a fifth and half are highly vulnerable, and relatively vulnerable, respectively. Among other households that are not in the lower income (i.e., those with incomes more than twice the poverty threshold), about 7 out of 10 are not vulnerable, as of 2003.

Table 5. 2003 Household Vulnerability and Household Income Group Status

| Vulnerability Status | Income Group (2003) | | | |
|-----------------------|---------------------|-------------------------|----------------|-------|
| | Poor | Low income but not poor | Not Low income | Total |
| Highly Vulnerable | 54.5 | 17.8 | 3.6 | 18.4 |
| Relatively Vulnerable | 39.1 | 53.1 | 24.3 | 36.7 |
| Not Vulnerable | 6.4 | 29.1 | 72.1 | 44.9 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |

Note: Authors' calculations based on 2003 FIES, PSA

Since 6,517 households in the 2003 FIES were also interviewed for the 2006 FIES and 2009 FIES, we can examine how well vulnerability estimates in 2003 actually manage to predict the household poverty status in 2006 and in 2009 especially as the poverty status of households interviewed in the 2003 FIES – 2006 FIES – 2009 FIES panel was observed. Note that appropriate panel data weights are needed to make the 2003 FIES – 2006 FIES – 2009 FIES panel nationally representative across the years are not directly available from the PSA. In this report, post-stratified panel weights have been computed by the authors of this report that involve adjusting the household weights within the per capita income deciles of the survey waves, to account for attrition biases across the income distribution. From 2003 to 2009, the overall attrition rate of the panel was 38 percent, but the attrition rate was lower (35 percent) in the bottom seven per capita income deciles than that of the richest three per capita income deciles (44 percent). Consequently, since FIES is designed to have reliable sampling domains at the regional level, the panel weights made use of income decile post stratifications at the regional level.

Since households are likely to have gotten affected by the global financial and economic crisis that started in 2008, an investigation of the actual poverty status of the households in 2006 and 2009 using the 2003 FIES – 2006 FIES – 2009 FIES panel would help validate the vulnerability estimates derived in this study. The next subsection provides this analysis, while the subsequent subsections discuss cross section empirical findings.

4.1. Findings from Panel Data

As shown in **Table 6**, among the panel households that were poor in both 2006 and 2009, three-fifths (60.7%) were identified as highly vulnerable and another third (34.9%) were relatively vulnerable in 2003. Among households that were poor in either 2006 or 2009 but not both, half or more were classified as relatively vulnerable. Four-fifths (79.9%) of households that were not low income in both 2006 and 2009 were classified not vulnerable in 2003.

Table 6. Vulnerability Status of Households in 2003 by Income Groups in 2006 and 2009.

| Income Groups in 2006 and 2009 | Vulnerability Status in 2003 | | | |
|---|------------------------------|-----------------------|----------------|-------|
| | Highly Vulnerable | Relatively Vulnerable | Not Vulnerable | Total |
| Poor in both 2006 and 2009 | 60.7 | 34.9 | 4.3 | 100.0 |
| Poor in 2006; low income but not poor in 2009 | 37.2 | 50.3 | 12.5 | 100.0 |
| Poor in 2006; not low income in 2009 | 27.5 | 50.7 | 21.9 | 100.0 |
| Low income but not poor in 2006, poor in 2009 | 24.7 | 56.6 | 18.7 | 100.0 |
| Low income but not poor in both 2006 and 2009 | 16.2 | 53.6 | 30.2 | 100.0 |
| Low income but not poor in 2006, others in 2009 | 8.0 | 42.0 | 50.1 | 100.0 |
| Not low income in 2006, poor in 2009 | 15.6 | 56.3 | 28.1 | 100.0 |
| Not low income in 2006; low income but not poor in 2009 | 6.1 | 37.0 | 56.9 | 100.0 |
| Not low income in both 2006 and 2009 | 2.2 | 18.0 | 79.9 | 100.0 |
| TOTAL | 17.8 | 35.5 | 46.7 | 100.0 |

Note: Authors' calculations based on 2003 FIES – 2006 FIES – 2009 FIES panel, PSA

Further, when we consider the vulnerability status of households in 2003, we find that nearly half (47.4%) of households identified as highly vulnerable in 2003 were poor in both 2006 and 2009, and more than a quarter (28.1%) experienced poverty either in 2006 or 2009 but not both (**Table 7**).

Table 7. Household Income Groups in 2006 and 2009, by Vulnerability Status in 2003

| Income Groups in 2006 and 2009 | Vulnerability Status in 2003 | | | |
|---|------------------------------|-----------------------|----------------|-------|
| | Highly Vulnerable | Relatively Vulnerable | Not Vulnerable | Total |
| Poor in both 2006 and 2009 | 47.4 | 13.6 | 1.3 | 13.9 |
| Poor in 2006; low income but not poor in 2009 | 14.3 | 9.7 | 1.8 | 6.8 |
| Poor in 2006; not low income in 2009 | 1.5 | 1.4 | 0.5 | 1.0 |
| Low income but not poor in 2006, poor in 2009 | 8.6 | 9.9 | 2.5 | 6.2 |
| Low income but not poor in both 2006 and 2009 | 16.7 | 27.6 | 11.8 | 18.3 |
| Low income but not poor in 2006, others in 2009 | 3.7 | 9.6 | 8.7 | 8.1 |

| Income Groups in 2006 and 2009 | Vulnerability Status in 2003 | | | |
|---|------------------------------|-----------------------|----------------|-------|
| | Highly Vulnerable | Relatively Vulnerable | Not Vulnerable | Total |
| Not low income in 2006, poor in 2009 | 0.6 | 1.0 | 0.4 | 0.6 |
| Not low income in 2006; low income but not poor in 2009 | 2.8 | 8.6 | 10.1 | 8.3 |
| Not low income in both 2006 and 2009 | 4.5 | 18.6 | 63.0 | 36.9 |
| TOTAL | 100.0 | 100.0 | 100.0 | 100.0 |

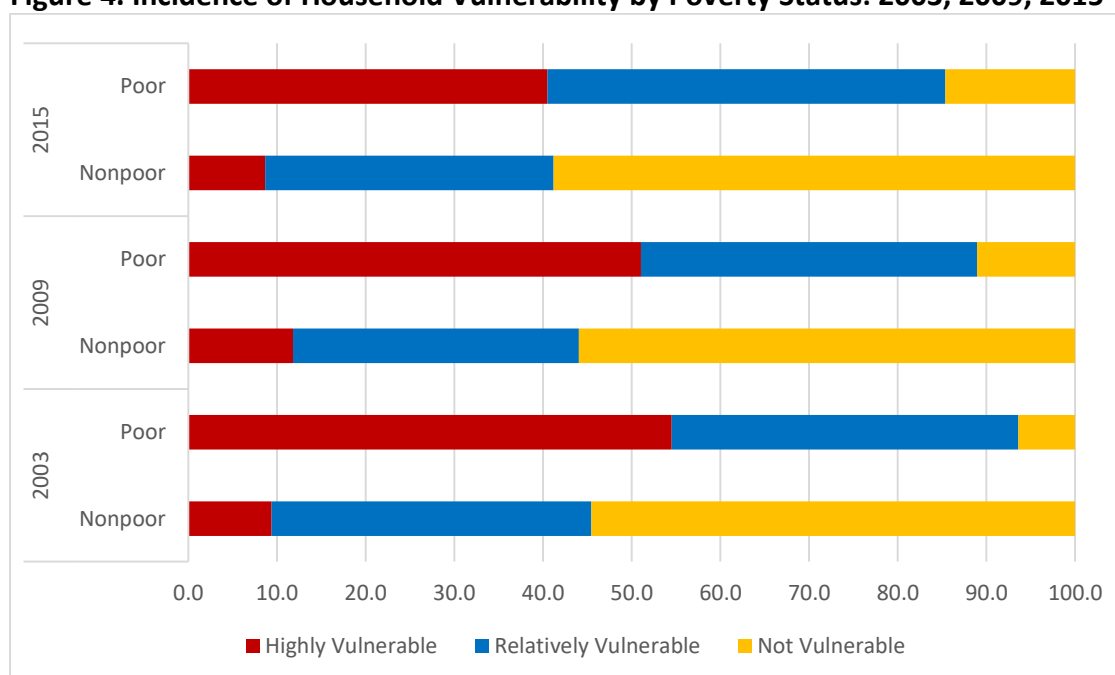
Note: Authors' calculations based on 2003 FIES – 2006 FIES – 2009 FIES panel, PSA

Among the relatively vulnerable households in 2003, about two thirds (65.4%) were low income (and possibly poor) in either 2006 or 2009 or both. Four-fifths (81.4%) of not vulnerable households in 2003 were not low income in both 2006 and 2009. These results on the panel data suggest that the vulnerability estimation model of Chaudhuri (2002) employed in this study has very strong predictive power of identifying the future poverty status of households.

4.2. Overall Trends in Vulnerability

Across the years, the proportion of households in the Philippines that are vulnerable to income poverty has been around double to triple the corresponding official estimates of the proportion of households in poverty. Household vulnerability rates, however, have been steadily declining from 55.1 percent in 2003 to 48.5 percent in 2015. Among poor households, the proportion that are found to be highly vulnerable to income poverty has also decreased from 54.5 percent in 2003 to 40.5 percent in 2015 (**Figure 4**).

Figure 4. Incidence of Household Vulnerability by Poverty Status: 2003, 2009, 2015



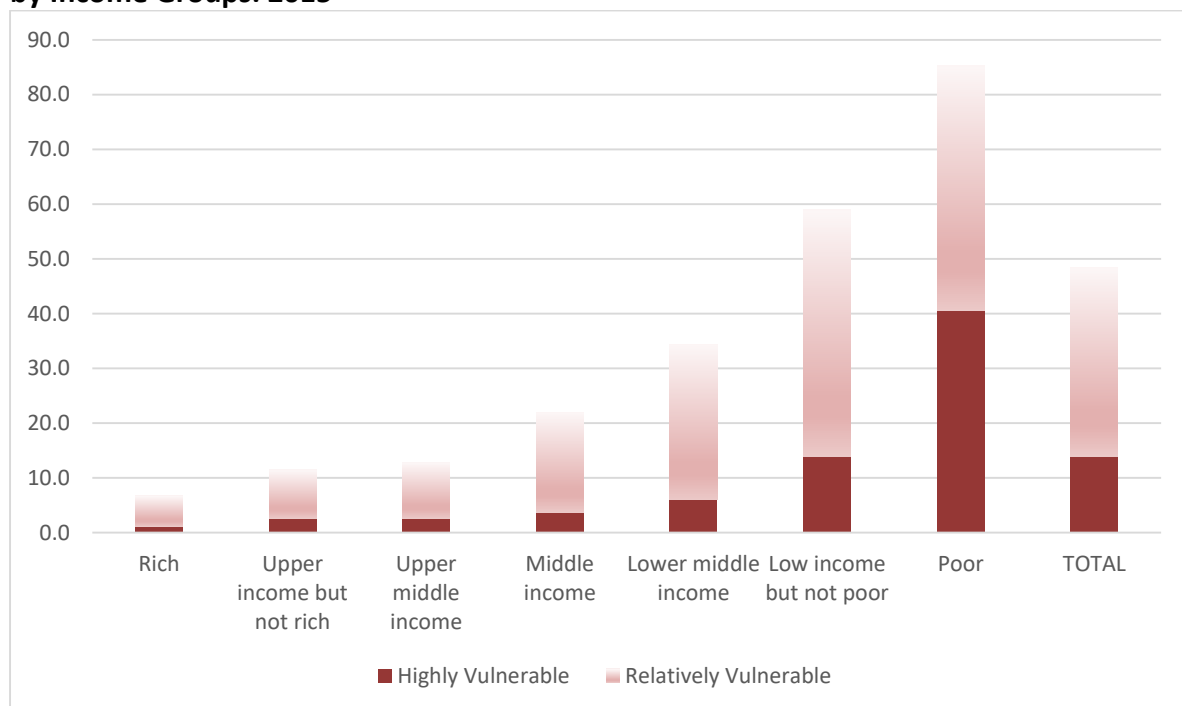
Note: Authors' calculations based on 2003 FIES, 2009 FIES and 2015 FIES, PSA.

The overall percentage of households that are relatively vulnerable has also decreased but at substantially lesser rates from 36.7 percent in 2003 to 34.5 percent in 2015, on account of the

increase in the proportion of poor households that are relatively vulnerable, which offset the decline in the proportion of non-poor households that are relatively vulnerable. As of 2015, about three-fifths (58.8%) of non-poor households are classified as not vulnerable to poverty, but the bulk of vulnerable households continue to be non-poor households with non-poor households having 71.0 percent share of all vulnerable households. In 2015, about one-seventh (13.9%) of households throughout the country are highly-vulnerable and about a third (34.9%) are relatively vulnerable. Thus, as of 2015, about half (48.5%) of Filipino households are vulnerable to income poverty, a third of which are highly vulnerable.

Since vulnerability and poverty are both conceptually tied to income, their incidence is also dependent on the position of households in the (per capita) income distribution. In particular, as **Figure 5** illustrates the incidence of vulnerability to poverty decreases as Filipino households move up the income ladder. Note that the income classes used in this study follow those proposed in Albert et al. 2018 for defining the middle-income classes in the Philippines (that divide the per capita income distribution using thresholds based on multiples of the official poverty line). In 2015, the vulnerability rate of lower middle-income households is registered to be about half that of low income but not poor households. Upper income households are practically not highly vulnerable; and only 5% of them are considered relatively vulnerable, as of 2015.

Figure 5. Proportion of Households that are Highly Vulnerable and Relatively Vulnerable, by Income Groups: 2015



Note: Authors' calculations based on 2015 FIES, PSA.

The rural population is more vulnerable than its urban counterpart, with vulnerability rates at two thirds (69.3%) of all households at in rural areas, compared to two-fifths (40.4%) of urban households, as of 2015. Although vulnerability is a largely rural phenomenon, the proportion of highly vulnerable households in rural areas has declined by 7.1 percentage points from 27.6 percent in 2003 to 20.5 percent in 2015.

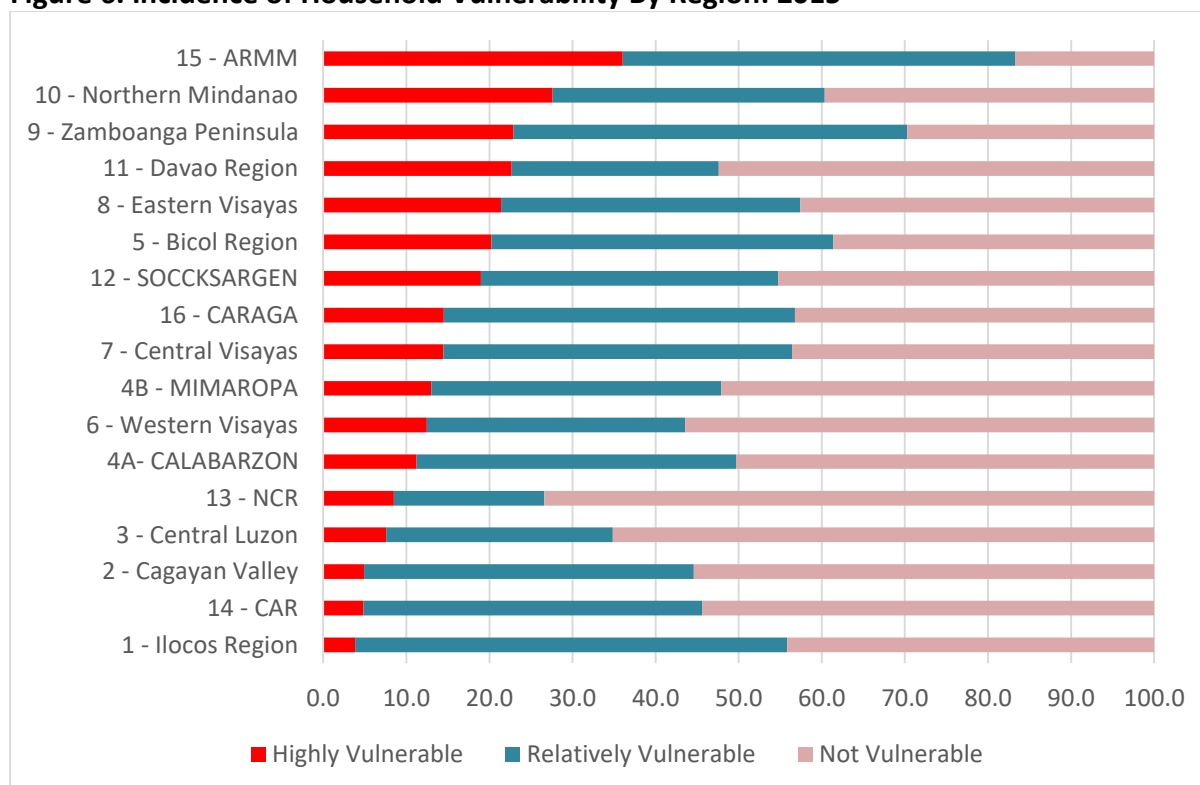
Table 8. Vulnerability Status of Households in 2003 in Urban and Rural Areas : 2003, 2006 and 2009

| Year | Area | Highly Vulnerable | Relatively Vulnerable | Not Vulnerable | Total |
|------|----------|-------------------|-----------------------|----------------|-------|
| 2003 | Rural | 27.6 | 48.7 | 23.7 | 100.0 |
| | Urban | 14.8 | 26.0 | 59.2 | 100.0 |
| | National | 21.2 | 37.5 | 41.3 | 100.0 |
| 2009 | Rural | 27.1 | 40.9 | 32.0 | 100.0 |
| | Urban | 16.9 | 26.2 | 56.9 | 100.0 |
| | National | 22.6 | 34.4 | 43.1 | 100.0 |
| 2015 | Rural | 20.5 | 48.8 | 30.7 | 100.0 |
| | Urban | 15.5 | 24.9 | 59.6 | 100.0 |
| | National | 18.3 | 38.4 | 43.3 | 100.0 |

Note: Authors' calculations based on 2003 FIES, 2009 FIES and 2015 FIES, PSA.

Across the regions, ARMM is the most vulnerable region (83.3%)– more than two fifths of these are highly vulnerable (**Figure 6**). Ilocos Region has the lowest proportion of households (3.8%) that are highly vulnerable among the regions but as much as 52.0% of its households are relatively vulnerable, putting it in the middle among regions as far as vulnerability rate is concerned. The NCR (26.6%) and Central Luzon (34.9%) are the only regions with (overall) vulnerability rates below 35%.

Figure 6. Incidence of Household Vulnerability By Region: 2015



Note: Authors' calculations based on 2015 FIES, PSA.

4.3. Vulnerability of Basic Sectors

Republic Act 8425 or the Social Reform and Poverty Alleviation Act provided the government's framework for social protection and defining poverty. This law also identified 14 basic sectors, that require focused intervention for poverty alleviation. These sectors are: (1) Farmer-peasant; (2) Artisanal fisherfolk; (3) Workers in the formal sector and migrant workers; (4) Workers in the informal sector (5) Indigenous peoples and cultural communities; (6) Women; (7) Differently-abled persons; (8) Senior citizens; (9) Victims of calamities and disasters; (10) Youth and students; (11) Children; (12) Urban poor; (13) Cooperatives; and (14) Non-government organizations. Among these 14 sectors, PSA has obtained estimates of poverty for 9 of the 14 basic sectors making use of merged Labor Force Survey (LFS)-FIES data. The basic assumption here is that individuals belonging to households that are poor, are themselves considered poor. While in practice there are intra household differences, this assumption is made to yield poverty estimates for the corresponding populations of these basic sectors. We similarly provide below the share of the basic sectors that are highly vulnerable, relatively vulnerable and non-vulnerable to income poverty, also based on merged results of the LFS-FIES (**Table 9**). We generally observe that vulnerability rates for the populations of the basic sectors are much larger than corresponding shares of the population in poverty. Further, the vulnerability rates, and the proportions of the basic sectors that are highly vulnerable are consistently highest for fisherman, farmers and children. Consistent also with patterns in poverty rates, the lowest vulnerability rates are also observed for persons residing in urban areas, and for senior citizens.

Table 9. Poverty and Vulnerability Rates for Basic Sectors

| Basic Sector | Poverty Rate | Vulnerability Level | | | |
|--|--------------|---------------------|-----------------------|----------------|-------|
| | | Highly Vulnerable | Relatively Vulnerable | Non-Vulnerable | Total |
| Farmers | 34.3 | 24.7 | 48.2 | 27.1 | 100.0 |
| Fishermen | 34.0 | 33.4 | 50.5 | 16.1 | 100.0 |
| Children | 31.4 | 25.4 | 41.4 | 33.2 | 100.0 |
| Self-employed and Unpaid Family Workers | 25.0 | 18.3 | 42.5 | 39.2 | 100.0 |
| Women | 22.5 | 18.1 | 37.9 | 44.0 | 100.0 |
| Youth | 19.4 | 14.6 | 38.4 | 47.1 | 100.0 |
| Migrants and Workers Employed in Formal Sector | 13.4 | 11.5 | 35.0 | 53.6 | 100.0 |
| Senior Citizens | 13.2 | 7.5 | 31.5 | 61.0 | 100.0 |
| Individuals in Urban Areas | 11.5 | 14.7 | 23.2 | 62.1 | 100.0 |

Note: Authors' calculations based on merged 2015 LFS – FIES, PSA.

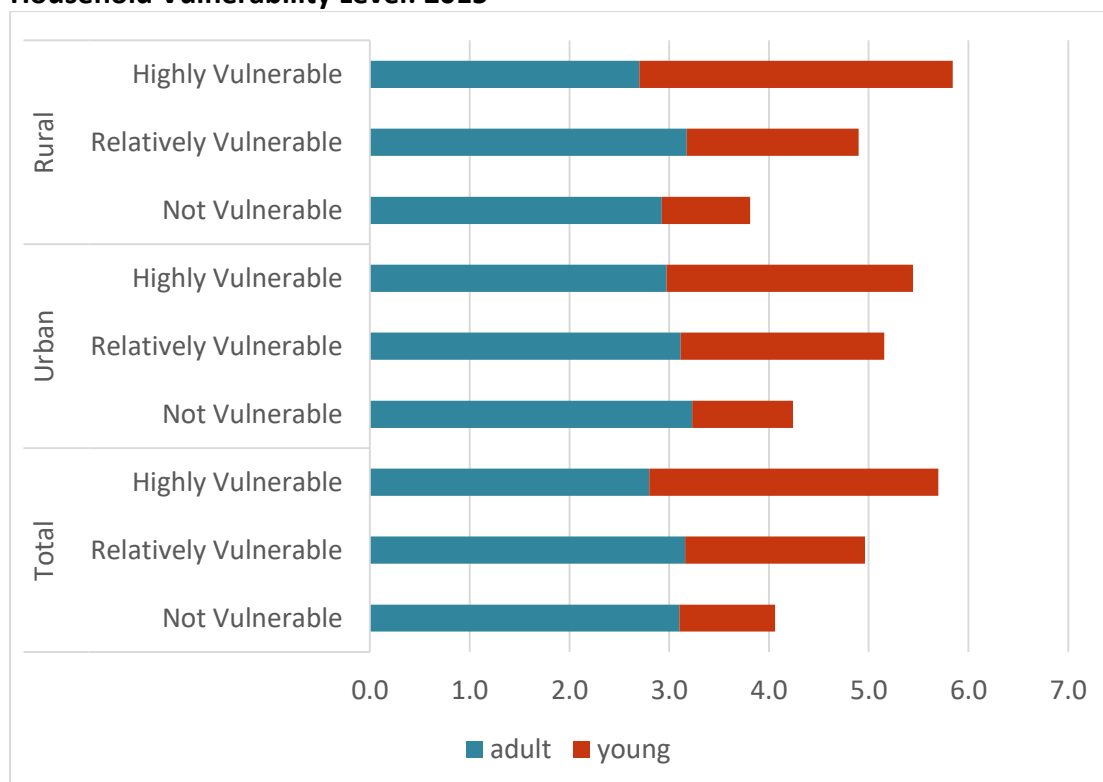
Many of the basic sectors have been targeted for specific social protection and other interventions but targeting systems for these programs have often been defective. In the next

section, we discuss particularly the implications of our empirical results for one basic sector, namely senior citizens, in relation to the DSWD SocPen that provides non-contributory pension support for indigent seniors.

4.4. Sources of Risks of Income Variability

As pointed out earlier, labor and employment, price, and demographic factors are key sources of income variability and shocks. Average family size among the non-vulnerable households is much smaller than those of vulnerable households, especially highly-vulnerable ones. As **Figure 7** illustrates, the disparity in 2015 is largely on account of the number of young members in the household (though this is also observable even from 2003 to 2012). Highly vulnerable households in rural areas have larger family sizes (5.8) than counterparts in urban areas (5.4). We can also observe more young members (3.1) than adults (2.7) for highly vulnerable households in rural areas. There are about twice as many adults (3.2) than young members (1.8) for relatively vulnerable households. Further, for households identified as not vulnerable, there are more than three times the number of adults (3.1) than young (1.0). Thus, demographic patterns among households, particularly the size of their families, especially their number of young members appear to be contributing to additional risks for vulnerability to poverty regardless of area where the household resides, i.e., whether in urban or rural areas.

Figure 7. Average Number of Young and Adult Members in Urban and Rural Areas by Household Vulnerability Level: 2015



Note: Authors' calculations based on 2015 FIES, PSA.

While we can examine attributes of all household members based on information from the merged LFS-FIES, we limit our analysis to educational attainment, income sources and the major sector of employment of household heads but note that similar patterns can also be observed for all members of the household who are in the labor force.

Higher educational attainment provides lessens risk for households to be vulnerable to income poverty. The vulnerability rate of households drops with increasing educational attainment of the household head (**Table 10**). More than half (53.2%) of households with heads who had no education are highly vulnerable, and another quarter (24.8%) are relatively vulnerable. About two-thirds (66.1%) of households with heads that have had some elementary education (including those who finished at most elementary) are vulnerable, while less than half (44.0%) of those with heads who have had some high school education ((including those who finished at most high school) are vulnerable. In contrast, only a quarter (24.7%) of households with heads who at least attended college are vulnerable to poverty. This suggests the importance of human capital investments, not only by government but also by the households themselves. More often than not, the poor have difficulty in making investments in the schooling of their young because of pressing immediate needs given their limited incomes, and this decision to invest little in schooling of household members puts them to increased risks of vulnerability. Thus, government interventions on social protection, particularly those with effects on education such as *Pantawid*, need to continue to incentivize poor families into giving more investments in the schooling of their children especially given evidence that *Pantawid* has improved school attendance in the country (Albert *et al.* 2015).

Table 10. Incidence of Vulnerability Among Households, by Highest Educational Attainment of the Head : 2015

| Highest Educational Attainment | Highly Vulnerable | Relatively Vulnerable | Not Vulnerable | Total |
|--|-------------------|-----------------------|----------------|-------|
| None | 53.2 | 24.8 | 22.0 | 100.0 |
| Some elementary to elementary graduate | 20.1 | 46.0 | 34.0 | 100.0 |
| Some high school to high school graduate | 10.9 | 33.1 | 56.0 | 100.0 |
| Some college and beyond | 5.1 | 19.6 | 75.3 | 100.0 |
| TOTAL | 13.9 | 34.5 | 51.5 | 100.0 |

Note: Authors' calculations based on 2015 FIES, PSA.

In 2015, vulnerability rates of over 25% are observed among households whose heads have major income sources from fishing, forestry, mining, income from family sustenance activities, wage/salaries from agricultural activities, crop farming and gardening (**Table 11**).

Table 11. Household Vulnerability in 2015 by Major Income Source of Household Heads

| Major Income Source | Highly Vulnerable | Relatively Vulnerable | Not Vulnerable | Total |
|-------------------------------------|-------------------|-----------------------|----------------|-------|
| Wage/Salary from Agri. Activity | 27.8 | 43.3 | 28.9 | 100.0 |
| Wage/Salary from Non-Agri. Activity | 10.5 | 31.9 | 57.6 | 100.0 |
| Crop Farming and Gardening | 27.3 | 46.4 | 26.4 | 100.0 |
| Livestock and Poultry Raising | 21.4 | 47.4 | 31.2 | 100.0 |
| Fishing | 37.2 | 46.9 | 16.0 | 100.0 |
| Forestry and Hunting | 33.1 | 55.7 | 11.1 | 100.0 |
| Wholesale and Retail | 7.9 | 34.5 | 57.7 | 100.0 |
| Manufacturing | 12.2 | 32.8 | 55.0 | 100.0 |
| Community, etc. services | 8.0 | 26.1 | 65.9 | 100.0 |
| Transport and Communication | 11.6 | 39.9 | 48.5 | 100.0 |
| Mining | 17.3 | 60.5 | 22.2 | 100.0 |

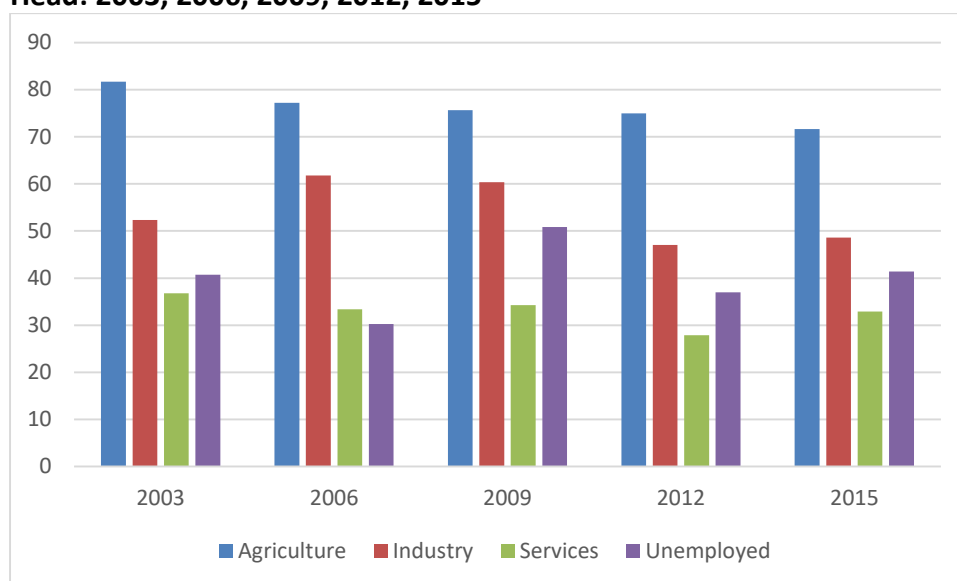
| Major Income Source | Highly Vulnerable | Relatively Vulnerable | Not Vulnerable | Total |
|---|-------------------|-----------------------|----------------|-------|
| Construction | 7.6 | 14.4 | 78.0 | 100.0 |
| Entrepreneurial Activity N.E.C. | 5.8 | 24.3 | 69.9 | 100.0 |
| Net Share of Crops and others | 10.3 | 39.4 | 50.3 | 100.0 |
| Assistance from Abroad | 10.4 | 32.2 | 57.4 | 100.0 |
| Assistance from Domestic Source | 19.7 | 39.4 | 40.9 | 100.0 |
| Rental of Lands and other Properties | 6.2 | 14.1 | 79.7 | 100.0 |
| Interests from Banks / loans | 0.0 | 0.0 | 100.0 | 100.0 |
| Pensions and retirements benefits | 2.9 | 16.8 | 80.3 | 100.0 |
| Dividend from Investments | 5.5 | 31.5 | 63.0 | 100.0 |
| Rental value of owner-occupied dwelling unit for income | 4.6 | 19.7 | 75.8 | 100.0 |
| Income from family sustenance activities | 29.8 | 48.9 | 21.3 | 100.0 |
| Received as Gifts | 10.6 | 35.0 | 54.5 | 100.0 |
| Other Income | 55.1 | 34.1 | 10.8 | 100.0 |
| TOTAL | 13.9 | 34.5 | 51.5 | 100.0 |

Notes: (i) Authors' calculations based on merged 2015 FIES, PSA; (ii) NEC = not elsewhere classified

Those engaged in mining are not highly vulnerable, but they have the biggest incidence of relative vulnerability. Furthermore, least vulnerable are households with heads whose major income sources are interests from banks / loans, pensions and retirements benefits, rental of lands and other properties, construction rental value of owner-occupied dwelling unit for income, entrepreneurial activity not elsewhere classified (N.E.C.), community, etc. services, dividend from investments, wholesale and retail wage/salary from non-agricultural activity, assistance from abroad, manufacturing, received as gifts, net share of crops and others.

Figure 8 provides a historical portrait of household vulnerability rates by sector of employment of household head from 2003 to 2015. While the vulnerability of households with heads dependent in agriculture has declined from 82 percent in 2003 to 72 percent in 2015, but the agriculture sector still the highest vulnerability rate among household heads primarily dependent on each of the major sectors. Households with heads employed in services has consistently been found to be least vulnerable at 33 percent in 2015. As of 2015, half (49%) of households with heads working in industry sector are vulnerable to poverty, and about two fifths (41%) of households with unemployed heads are vulnerable.

Figure 8. Household Vulnerability Rates by Major Sector of Employment of the Household Head: 2003, 2006, 2009, 2012, 2015



Note: Authors' calculations based on 2003 FIES, 2006 FIES, 2009 FIES, 2013 FIES and 2015 FIES, PSA.

5. Policy Issues and Ways Forward

The main mechanism for addressing vulnerability to income poverty is managing risks systematically, particularly building risk resilience through social protection. The country's framework for social protection focuses on managing situations that adversely affect the wellbeing of the poor and various vulnerable groups. Since 2007, the government has adopted a definition of social protection as

“policies and programs that seek to reduce poverty and vulnerability to risks and enhance the social status and rights of the marginalized by promoting and protecting livelihood and employment, protecting against hazards and sudden loss of income, and improving people's capacity to manage risks.”¹¹

Such a definition suggests that social protection has protective, preventative, promotive, and transformative functions (Devereux, & Sabates-Wheeler, 2004). Instruments on social protection have purposes on providing relief from deprivations of minimum basic needs, as well as enabling poor and vulnerable households to invest in the development of their human capital whether directly or indirectly. Aside from being social assistance, social protection is also a human capital investment that can result in asset accumulation and capacity development which empowers the poor to break away from intergenerational poverty (Barrientos, 2010). Social protection also builds risk resilience by averting gaps in needs, aside from providing a means for the vulnerable to stabilize their income and consumption in the wake of risks from ill effects of natural hazards (Devereux & Sabates-Wheeler, 2007). Further, when viewed with a human rights dimension social protection is a means of empowerment for everyone to attain decent living conditions (Jones & Shahrokh, 2013).

¹¹ Resolution No. 1 of 2007 of the Social Development Committee (SDC) of the National Economic and Development Authority (NEDA). See Villar 2013.

Social protection has figured prominently in the country's development agenda. The Philippine Development Plan (PDP) of 2010-2016 and the current PDP for 2017-2022 both give emphasis on social protection as a means to building resilience to withstand harms posed by risks to welfare for the poor and vulnerable groups (NEDA 2011, 2017a). The PDP puts flesh into how the country can attain its long-term development vision of a prosperous, predominantly middle-class society where no one is poor, articulated in *Ambisyon Natin 2040* (NEDA, 2017b). The country has also committed to the Sustainable Development Goals, which have a guiding principle of leaving no one behind (UN, 2015).

The forms of social protection instruments in the country are rather wide, owing to their differing functions from building human capital, to improving livelihoods, to building risk resilience and reducing poverty. In the Philippines, social protection may be categorized into four core program responses, viz.,

- (a) social insurance (including health insurance, crop insurance; mandated occupational or personal pension plans; voluntary occupational or personal pension plans and supplementary non-contributory schemes);
- (b) labour market interventions (including regulations on industrial relations and labour market, and active labour market policies);
- (c) social safety nets (including stop-gap or urgent responses to the impact of economic shocks and disasters on vulnerable groups); and
- (d) social welfare (including homeownership support, and assistance for meeting minimum basic needs of the poor).

At least eleven institutions¹² from government-owned and controlled corporations (GOCCs) and national government agencies (NGAs) are implementing these responses as part of their social protection mandate. Local government units (LGUs) and civil society organizations (CSOs) likewise carry out some social protection interventions, or cooperate with NGAs in the implementation of social protection programs at various locales.

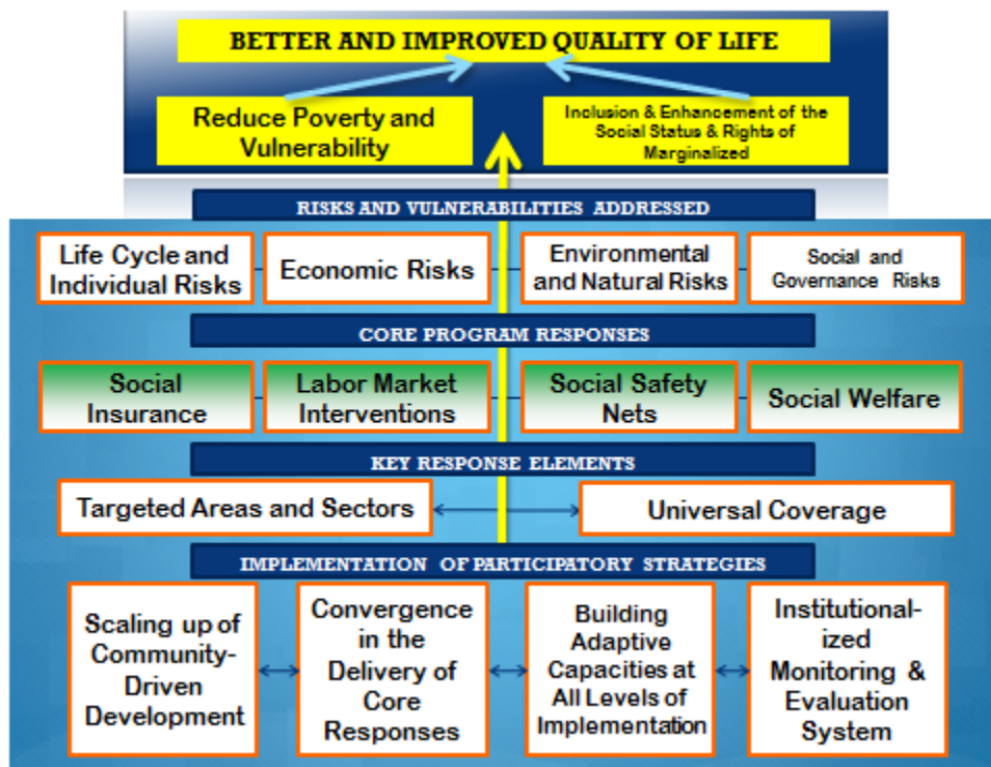
The last decade has seen significant strides in social protection in the Philippines, with the development and use of objective targeting mechanisms, the implementation of a conditional cash transfer that currently covers one-fifth of the household population, stronger coordination as well as the adoption of an overarching social protection operational framework and strategy (SPOFS) in 2012. The SPOFS identifies the underlying purpose and objective of social protection, namely, a better and improved quality of life for its beneficiaries, achieved through reduction of poverty and vulnerability and the inclusion of the marginalized in the development process (Villar 2013).

Underlying principles behind the operational framework include (a) tailoring and clustering social protection intervention in line with vulnerabilities faced by individuals, households and communities from four major risks (viz., individual life cycle; economic; environment and disasters; and social and governance); (b) identifying and responding to priority targets, including make use of a unified national targeting system; and, (c) working toward universal

¹² At least seven institutions are implementing SP programs with contributory schemes, viz., (1) the Government Service and Insurance System (GSIS); (2) the Social Security System; (3) the Armed Forces of the Philippines-Retirement & Separation Benefits System; (4) Employees' Compensation Commission; (5) Home Development Mutual Fund; (6); Overseas Workers Welfare Administration; and (6) Philippine Health Insurance Corporation (PhilHealth). Meanwhile, non-contributory schemes for SP are being implemented by at least four institutions: (1) the Department of Social Welfare and Development; (2) the Philippine Charity Sweepstakes Office; (3) the Philippine Amusement and Gaming Corporation; and, (4) the Philippine Veterans Affairs Office (PVAO).

coverage over time. Specific implementation strategies laid out in the SPOFS include (i) entailing convergence in social protection delivery, i.e., synchronizing programs with a whole-of-government approach and a bottom-up programming through LGUs; (ii) scaling up Community Driven Development activities, (iii) building adaptive capacity among beneficiaries to manage risks by empowering households and communities, e.g., through human capital development and other promotive and transformative investments, and (iv) making full use of Monitoring and Evaluation (M&E) Systems (Figure 8).

Figure 9. Social Protection Operational Framework and Implementation Strategy.



Source: Villar (2013)

Across many developing countries, including the Philippines strengthening social protection systems took on added urgency in the wake of the impending effects of the global financial crisis in 2009. Social protection, however, can also suffer from a number of implementation deficits. Past evaluations of social protection in the country (e.g., DAP 2009; Manasan 2009; Aldaba 2008) have noted that social protection measures in the country tend to be fragmented and uncoordinated (especially given the number of institutions implementing social protection), inadequately funded, inadequately designed, short-lived, in some cases redundant and overlapping, and in many cases even mistargeted and dysfunctional.

In the following sub-section, we discuss a case study of the DSWD SocPen as an illustration of a well-intentioned program meant to provide social protection for senior citizens. More details are given in Velarde and Albert (2018).

5.1. Poverty Focus of SocPen

Among social protection programs, *Pantawid*, has gotten a lot of public attention and scrutiny especially as this is the biggest social protection program in terms of budget and coverage, which have both grown over the years (Orbeta and Paqueo 2016). Another social protection

program that also has grown in budget and coverage since its inception in 2011 is SocPen. Both Pantawid and SocPen are implemented by DSWD. Through SocPen, indigent senior citizens (not covered by any pension) are given monthly stipends of five hundred pesos each for augmenting daily subsistence and medical needs (**Figure 10**). By targeting indigent seniors, SocPen has a poverty focus. A review of the cash assistance should be regularly undertaken by Congress with DSWD every 2 years.

Figure 10. SocPen Payouts in Taguig City



Social Pensioners line up in a basketball court in Taguig City to receive their stipends. Each senior receives a different amount, depending on how long they received their last stipend. Some new beneficiaries receive their stipend for the first time, others receive for the whole retroactive payments from the previous year. After receiving their stipend, their photo is taken with the newspaper bearing the date as ‘proof of life’ (November 2017). Photo credits to R. Velarde.

At program inception in 2011, about 150,000 beneficiaries were enrolled in SocPen. Program targets remained below half a million up to 2014, until they were doubled in 2015. That year, the minimum age of beneficiaries was reduced to 65, and further down to 60 in 2016, which resulted in huge budget jumps (**Table 12**). For this year, 19 billion pesos is allocated to assist 3 million “indigent senior citizens”.

Table 12. SocPen Targets and Accomplishments: 2011-2018

| Year | Physical Target | Age Coverage | Actual Served | Budget Allocation (in Million PhP) | Actual Budget Stipend (in Million PhP) |
|-------|-----------------|-----------------------|-------------------|------------------------------------|--|
| 2011 | 138,960 | 77 yrs. old and above | 138,960 | 871 | 843.47 |
| 2012 | 185,194 | 77 yrs. old and above | 211,657 | 1227.46 | 1231.70 |
| 2013 | 232,868 | 77 yrs. old and above | 255,763 | 1532.95 | 1553.65 |
| 2014 | 479,080 | 77 yrs. old and above | 481,603 | 3108.91 | 2934.42 |
| 2015 | 939,609 | 65 yrs. old and above | 930,222 | 5962.63 | 5946.97 |
| 2016 | 1,368,944 | 60 yrs. old and above | 1,343,943 | 8711.20 | 8593.53 |
| 2017 | 2,809,542 | 60 yrs. old and above | 2,559,202 | 17940.26 | 14978.25 |
| 2018* | 3,000,000 | 60 yrs. old and above | Not yet available | 19282.86 | Not yet available |

Source: DSWD.

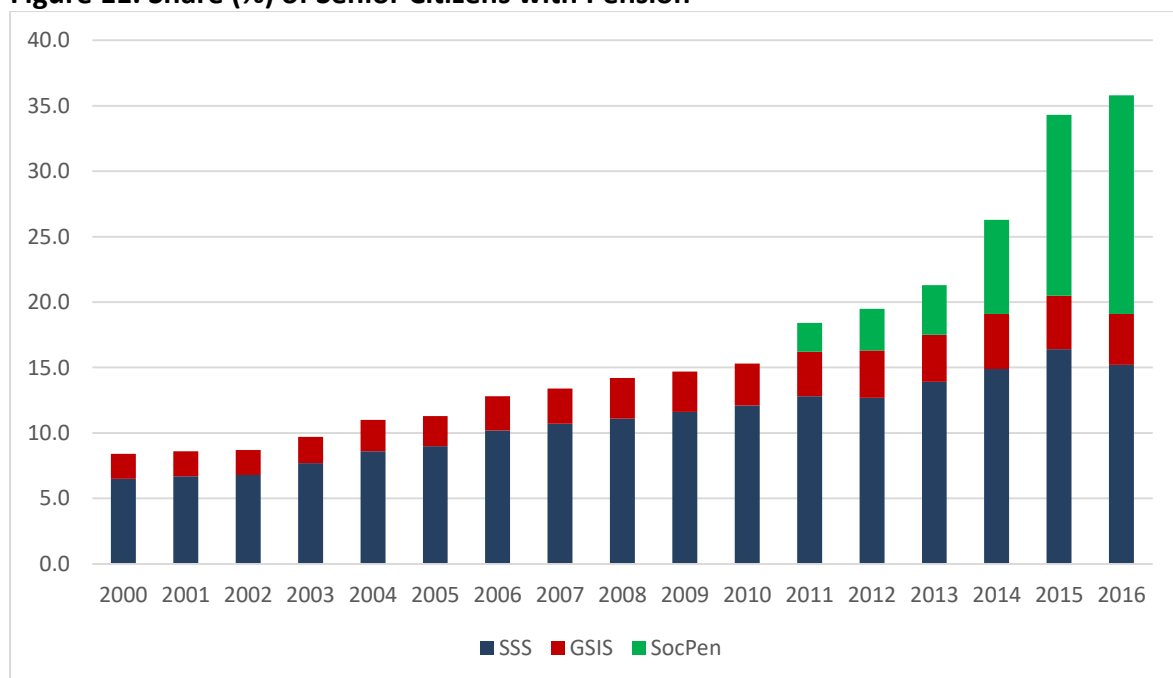
Note: *=Based on the 2018 approved Government Appropriations Act.

The 3 million SocPen beneficiaries for 2018 are also among the priority beneficiaries of the government subsidies for lower income families under the recent tax reform law¹³. For 2018, the monthly cash assistance of Php200 for SocPen beneficiaries essentially provides a 40% increase from their regular Php6,000 annual stipend (to Php8,400). In 2019 and 2020, the monthly subsidies from the tax reform law will increase to Php300 monthly, bringing total annual assistance to Php9,600 for each of the current 3 million senior beneficiaries for 2019 and 2020. In total, the subsidies from the tax reform law will effectively bring the total SocPen program budget to Php26.5 Bn in 2018 and Php 30.1 Bn annually in 2019 and 2020.

To the SocPen beneficiaries, the increase in cash assistance is most welcome, especially since it cushions the impact of inflation brought about directly or indirectly by the government’s tax reform program. But the rapid increase in the government’s pension for indigent seniors needs safeguarding. In particular, more attention is needed to ensure SocPen’s poverty-focus and social protection objective are maintained.

The increased coverage of SocPen over the years has led to almost doubling the coverage of the entire Philippine pension system. In 2016, 19 percent of elderly Filipinos with GSIS or SSS coverage has been topped up by about 17 percent of seniors with SocPen coverage (**Figure 11**). Prior to SocPen, the whole pension system covered only those who had been formally employed either in the public or the private sector. As of 2013, coverage to both SSS and GSIS has only been at less than a third of the labor force as of 2013. Only a quarter of those employed actively contribute to SSS, another 3.4 percent contribute to the GSIS. As a result, only 17.5% of senior citizens benefit from old age contributed pensions of SSS and GSIS. In 2016, the 19 percent of elderly Filipinos covered by either GSIS or SSS is topped up by around 17 percent of seniors under SocPen. Thus, the SocPen has helped close the pension coverage gap among elderly Filipinos.

Figure 11. Share (%) of Senior Citizens with Pension



Source: Data from DSWD and PSA, 2017. “Decent Work Statistics” available in <http://dews.psa.gov.ph>. Accessed 15 December 2017.

¹³ <https://www.rappler.com/nation/193668-philippines-poor-families-tax-reform-subsidy-january-2018>

As per program design, SocPen beneficiaries are indigent seniors defined as “Filipinos aged at least 60 years old who are frail, sickly, or with disability and without pension or permanent source of income or regular support from his/her relatives to meet his/her basic needs, as determined by the DSWD database of poor families called *Listahanan*¹⁴.” Thus, beneficiary identification begun with using a masterlist of potential beneficiaries from *Listahanan*, which is also used for Pantawid. Regional lists were shared with and validated by the LGUs, specifically Office of Senior Citizens Affairs (OSCA) and the City/Municipal Social Welfare and Development Office (C/MSWDO) staff, through home visits to potential beneficiaries.

Recognizing that *Listahanan* is an incomplete list of the poor, the DSWD allowed “on-demand” applicants into SocPen in cases where an applicant is not in *Listahanan*. In 2014, the DSWD further relaxed the SocPen’s target beneficiaries to those identified as “indigent” by OSCA and C/MSWDO, in addition to those identified in *Listahanan*. This effectively moved responsibility of identifying SocPen beneficiaries from DSWD to the LGUs. Further, *Listahanan* is currently no longer used as sole basis for identifying indigent elderly, and the SocPen beneficiary lists (that are available at the regional field offices) are not linked to *Listahanan*. While flexibility for adding beneficiaries is important since not all poor households (and elderly indigents, especially those who are living alone, abandoned, neglected or homeless) may have been recorded in *Listahanan*. Further, elderly may have accumulated assets over their lifetime, and consequently, classified by *Listahanan* as non-poor, but some of them may be vulnerable to poverty especially given high costs of medical expenses for their age. But without specific guidelines on how LGUs should screen prospective beneficiaries consistently, this leaves room for political patronage. Direct quotes from some elderly undertaken during an external review of the program by a non-government organization (COSE and HAI 2016) shows this:

“Ang katuwiran kasi ng mga kwan dun, sa isang barangay kung hindi apat, tatlo. . . ang makakakuha ng pension. Yung dating pangulo ng OSCA [ang nagsabi nun]. . . Kung hindi tatlo, apat ika ang makukuha. So yung mga namimili naman ilalapit doon sa kapitan kung ano lang ang gusto ni kapitan, kung kalaban ka ni kapitanwala, magtiis ka nalang sa gusto ng kapitan.” — *Anonymous non-recipient A*

“Kwan ‘Eto binigyan ng limang daan,’ ‘Kami wala’, sabi ko naman. Eh sabi, ‘Mahina ka eh. Kasi palakasan eh.’ Bakit yung iba binibigyan kami wala?” — *Anonymous non-recipient B*

By providing a monthly assistance to social pensioners (many of whom are in *Listahanan*), SocPen has a poverty focus. But, the current lack of standardized operational guidelines for consistently screening program applicants has weakened the poverty focus of SocPen and the ability to achieve the main objective of extending protection to indigent seniors. Velarde and Albert 2018 further provide evidence of how this poverty focus in SocPen has weakened and recommend linking current beneficiaries with the *Listahanan*.

¹⁴ <https://listahanan.dswd.gov.ph/>

5.2. Integrating Data on Poverty and Vulnerability for Social Protection

While the country has had some progress in reducing poverty from 1990, the rate of reduction has been rather minimal in recent years, with a substantial proportion (16.5 percent) of households remaining poor as of 2015 and about three times as many (48.5 percent) vulnerable to poverty. Poverty alleviation and social protection efforts have typically revolved around the formulation and implementation of “one size fits all” strategies, even in huge programs such as free college education, SocPen and *Pantawid*. At least for the cases of SocPen and *Pantawid*, program designs have looked into targeting aspects, unlike other social assistance programs such as free college education and free irrigation that are “leaky buckets” that are to be paid for by all taxpayers. The free college education program, while well meaning, has potentially unintended consequences of making access to college inequitable (Orbeta and Paqueo 2017). Although state universities and colleges (SUCs) are providing free college, their students slots are limited. Thus, SUCs sort college entrants based on admission exams. Since it is more likely that those attaining better in entrance examinations are from nonpoor and non-vulnerable families, the poor will be crowded out of benefits for the free college program. Even if the poor do benefit from free college program, they are at high risk of not completing college especially as tuition is not the only cost for obtaining a college education. Further, the huge costs for the free college program are not sustainable, and potentially crowd out other extremely needed development programs in basic education, agriculture, infrastructure and national security. While social protection now has a lens of social justice and human rights, it requires a more realistic targeted assistance that addresses equity issues, given fiscal constraints.

Typical social protection actions involve the provision of a uniform social assistance to all beneficiaries, rather than accounting for differentiated needs. SocPen, for instance, provides Php500 monthly pensions for all beneficiaries, who are by law, supposed to be indigent senior citizens. At program inception, the SocPen grants were only given to a limited number seniors in *Listahanan* aged 77 and above, and later the age cut-offs were brought down to 65 and further to 60. When the prospective beneficiaries from *Listahanan* were exhausted, the SocPen targeting was relaxed to allow LGUs to identify the indigent elderly to meet the number of program target beneficiaries. Both *SocPen* and *Pantawid* appear to have been started off with a limited number of targeted beneficiaries due to budget constraints, but the targets have kept rising in time, without program benefits adjusted for inflation. The program could have been more impactful if rather than increasing coverage, the program had differentiated the highly vulnerable (e.g., the poorest 7 percent) from the relatively vulnerable (e.g., the next poorest 7 percent together with the next 25 percent). In 2015, the poverty rate among citizens is registered at 13 percent, while the proportion that are highly vulnerable and relatively vulnerable are 7.5 percent and 31.5 percent, respectively. At program onset, the program could have piloted assistance to the highly vulnerable or poorest segment (i.e., those from the poorest 7.5 percent, assuming that income is monotonically decreasing with vulnerability) when budgets were limited. And in time with better resources, more beneficiaries (from the relatively vulnerable) could have been targeted, but with those from the highly vulnerable also being provided a bigger amount for the monthly pensions, say Php750, on account of the bigger needs of the highly vulnerable and their farther position from the poverty line. By choosing to simply give a Php500 monthly pensions for all beneficiaries and focusing on increasing the number of beneficiaries rather than increasing the benefits provided to the highly vulnerable beneficiaries, the SocPen has clearly been less impactful especially for those who need help the most. In other words, different levels of assistance could actually be provided to different sets of vulnerable groups, rather than slicing the pie equally for all, which may be easy to implement, but potentially problematic as we are giving the same assistance to everyone

regardless of the level of needs. Making use of the *Listahanan*, especially its most recent conduct, is important not only for DSWD but for all government agencies. The *Listahanan*, though has to be identify further the extremely poor, from the poor who are not extremely poor, as well low-income households so that specific interventions directed for various vulnerable groups can make use of this rich database.

Support from the development community during extreme crises, such as unconditional cash transfers (UCT) provided by the United Nations Children's Fund (UNICEF) to 10,000 poor households have themselves been one size fits all, in both the assistance and the payment modes. In the aftermath of the effects of super typhoon Yolanda, UNICEF provided monthly cash assistance of USD100 (or PHP5,000) to 10,000 Yolanda-affected families living in Tacloban City and neighboring municipalities from February 2014 to July 2014 (Reyes *et al.* 2018). While the program has been a big help to beneficiary households in various aspects of the victims' recovery, the cash support was uniform, even in a monthly pay out mode, rather than providing flexibility for having option of one-time six-month assistance (over the six month pay outs) especially for those who may have needed using the assistance for investing in entrepreneurial activities (rather than spending for daily needs).

Social protection could actually also be made more impactful if policies and programs were integrated, synergized and collaborative. Collaboration enables social protection actors to address complex challenges, use knowledge and expertise more effectively with shared understanding and a common purpose, and integrate support to become more efficient and effective. When done in synergy, social protection interventions can attain outcomes that cannot be achieved by working in isolation (Albert and Dacuycuy 2017). The extra assistance, for instance, given to SocPen beneficiaries as subsidies from the tax reform, coupled with various health assistance from the national government and LGUs, clearly provide a mechanism to fill needed gaps, but the extent to which all these social protection programs are making a dent on the welfare of elderly indigents is unknown.

When vulnerable households face shocks, development losses are often the result of the ad-hoc decisions and the lack of preparations for uncertainty. In the face of limited resources and uncertainty, setting priorities and making constrained choices is unavoidable. Poor households, for instance, may decide to put more priority on addressing daily survival needs over investing in the education of their young members given limited daily income and uncertainties in opportunities, but in the wake of extra support from *Pantawid*, the poor have become more willing to put priority in the schooling of children, which, in turn, can unleash more opportunities for improved welfare when their children finish basic education and get better income prospects.

To overcome obstacles in reducing poverty, government needs to see the importance of forward-looking planning and risk resilience building in a context of uncertainty. This requires the national government to build an enabling environment for shared action and responsibility with local governments and other stakeholders, and to formulate an action agenda that addresses all relevant risks to vulnerability jointly, seeing synergies, tradeoffs and priorities in policy responses, using all available resources, institutions and means of implementation across different contexts. Risk resilience measures based on an examination of data on both poverty and vulnerability will allow vulnerable households to reduce the effects of adverse events (e.g., natural calamities, price shocks, and idiosyncratic shocks) on their conditions but also empower them to seize the moment and take advantage of opportunities for improving their prospects for a better future today.

6. References

- Albert, J. R. G., and Dacuycuy, C. B. 2017. I Evaluation and Assessment of the Effectiveness of the DSWD Internal and External Convergence as Operationalized by the Regional, Provincial, and City/Municipality Action Teams. Discussion Paper No. 2017-32. Philippine Institute for Development Studies <https://pidswebs.pids.gov.ph/CDN/PUBLICATIONS/pidsdps1732.pdf> (Accessed on July 15, 2018).
- Albert, J. R. G., Dumagan, J. C., and Martinez, A., Jr. 2015. Inequalities in Income, Labor and Education: The Challenge of Inclusive Growth. Discussion Paper No. 2015-01. Philippine Institute for Development Studies <https://dirp4.pids.gov.ph/webportal/CDN/PUBLICATIONS/pidsdps1501.pdf> (Accessed on April 29, 2018).
- Albert, J.R.G., Elloso, L.V., and Ramos, A.P. E. 2008. Toward measuring household vulnerability to income poverty in the Philippines. *Philippine Journal of Development* 35(64):23–53. <https://dirp3.pids.gov.ph/ris/dps/pidsdps0716.pdf> (Accessed on April 29, 2018).
- Albert, J. R. G. and Ramos, A. P. E. (2010). Trends in Household Vulnerability. Discussion Paper Series No. 2010-01. Philippine Institute for Development Studies. <https://dirp4.pids.gov.ph/ris/dps/pidsdps1001.pdf> (Accessed on April 29, 2018).
- Aldaba, F. T. 2008. "Major Social Risks and Vulnerability in the Philippines: A Survey" *Social Welfare and Development Journal*, Vol. 2, No. 2.
- Balisacan, A. and Fuwa, N. (2004). Going Beyond Cross-Country Averages: Growth, Inequality and Poverty Reduction in the Philippines. *World Development* 32 (November 2004): 1891-1907. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.620.7218&rep=rep1&type=pdf> (Accessed on April 29, 2018).
- Barrientos, A. & Hulme, D. (2008). Social Protection for the Poor and Poorest in Developing Countries. Brooks World Poverty Institute Working Paper 30. ISBN : 978-1-906518-29-5. (<http://hummedia.manchester.ac.uk/institutes/gdi/publications/workingpapers/bwpi/bwpi-wp-3008.pdf> ; Accessed July 15, 2018).
- Brown, K, K. Ecclestone, and N. Emmel. 2017. The Many Faces of Vulnerability. *Social Policy and Society*, 16 (3). pp. 497-510. ISSN 1474-7464 <https://doi.org/10.1017/S1474746416000610> (Accessed on April 29, 2018).
- Calvo, C., and S. Dercon. 2005. Measuring Individual Vulnerability. Department of Economics Discussion Paper 229, University of Oxford https://www.economics.ox.ac.uk/materials/working_papers/paper229.pdf (Accessed on May 5, 2018).
- Calvo, C., and S. Dercon. 2007. Vulnerability to Poverty. CSAE Working Paper 2007-03, University of Oxford. <http://www.csaee.ox.ac.uk/materials/papers/2007-03text.pdf> (Accessed on May 5, 2018).
- Carter, M., and F. Zimmerman. 2000. The Dynamic Cost and Persistence of Asset Inequality in an Agrarian Economy. *Journal of Development Economics* 63(2): 265–302. <https://www.sciencedirect.com/science/article/pii/S030438780001176> (Accessed on April 29, 2018).

- Chaudhuri, S. (2003). Assessing household vulnerability to poverty: concepts, empirical methods and illustrative examples. Technical Report, Economics Department, Columbia University. <https://pdfs.semanticscholar.org/4461/840126dab19ab38692628d35de9516e6dcc0.pdf> (Accessed on April 29, 2018).
- Chaudhuri, Shubham. and Gaurav. Datt. 2001. Assessing household vulnerability to poverty: a methodology and estimates for the Philippines. Technical Report, Economics Department, Columbia University. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.202.3980&rep=rep1&type=pdf> (Accessed on April 30, 2018).
- Chaudhuri, S., J. Jyotsna, and A. Suryahadi. 2002. Assessing Household Vulnerability to Poverty from Cross-sectional Data: A Methodology and Estimates from Indonesia. Discussion Paper Series 0102-52, Department of Economics, Columbia University https://academiccommons.columbia.edu/download/fedora_content/download/ac:112940/content/econ_0102_52.pdf (Accessed on May 1, 2018).
- Dercon, S. 1996. Risk, Crop Choice and Savings: Evidence from Tanzania. *Economic Development and Cultural Change* 44(3): 485–513. <https://www.journals.uchicago.edu/doi/10.1086/452229> (Accessed on April 29, 2018).
- Dercon, S. 2001. “Assessing Vulnerability.” Paper prepared for the UK Department for International Development. Department of Economics, Oxford University. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.202.9154&rep=rep1&type=pdf> (Accessed on April 29, 2018).
- Department of Social Welfare and Development (DSWD). N.d. <https://listahanan.dswd.gov.ph/> (Accessed on July 15, 2018).
- Development Academy of the Philippines (DAP). 2009. “Review and Strengthening of the National Social Protection and Welfare Program DAP”. Unpublished Paper prepared for the National Social Welfare and Protection Cluster and the National Economic and Development Authority.
- Devereux, S. & Sabates-Wheeler, R. (2004). Transformative social protection. Institute of Development Studies (IDS) Working Paper 232). Brighton: IDS. (<http://www.ids.ac.uk/files/dmfile/Wp232.pdf> ; Accessed July 15, 2018).
- Elbers, C., and J.W. Gunning. 2003. Vulnerability in a Stochastic Dynamic Model. Tinbergen Institute Discussion Paper TI 2003-070/2, Tinbergen Institute. <https://papers.tinbergen.nl/03070.pdf> (Accessed on May 2, 2018).
- Eswaran, M., and A. Kotwal. 1990. Implications of Credit Constraints for Risk Behaviour in Less Developed Economies. *Oxford Economic Papers* 42(2): 473–482. <https://academic.oup.com/oep/article-abstract/42/2/473/2361336?redirectedFrom=PDF> (Accessed on April 29, 2018).
- Farrington, J., I. Christoplos, A. D. Kidd, and M. Beckman. 2002. Extension, Poverty and Vulnerability: The Scope for Policy Reform Final Report of a Study for the Neuchâtel Initiative. Overseas Development Institute Working Paper 155. <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/2993.pdf> (Accessed on April 29, 2018).
- Fujii, T. 2016. Concepts and Measurement of Vulnerability to Poverty and Other Issues: A Review of Literature. ADBI Working Paper 611. Tokyo: Asian Development Bank Institute. Available:

- <https://www.adb.org/publications/concepts-and-measurement-vulnerability-poverty> (Accessed on April 29, 2018).
- Institute for Environment and Human Security of the United Nations University (UNU-EHS). WorldRiskReport Analysis and prospects 2017. http://weltrisikobericht.de/wp-content/uploads/2017/11/WRR_2017_E2.pdf (Accessed on May 1, 2018).
- Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Core Writing Team, R. K. Pachauri, and A. Reisinger, eds. Geneva, Switzerland: IPCC. http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_synthesis_report.htm (Accessed on May 1, 2018).
- Jones, N. & Shahrokh, T. (2013). Social protection pathways: shaping social justice outcomes for the most marginalised, now and post-2015. London: ODI. (<https://www.odi.org/publications/7437-social-protection-pathways-shaping-social-justice-outcomes-most-marginalised-now-and-post-2015> ; Accessed July 15, 2018).
- Kraay, A. (2004). When Is Growth Pro-Poor? Cross-Country Evidence. IMF Working Paper 04-47. <https://www.imf.org/external/pubs/ft/wp/2004/wp0447.pdf> (Accessed on April 29, 2018).
- Ligon, E., and L. Schechter. 2003. Measuring Vulnerability. Economic Journal 113: 95–102. <https://pdfs.semanticscholar.org/6c8b/c19772f9911efaa30d468561c9e7da25c2a2.pdf> (Accessed on May 2, 2018).
- National Economic and Development Authority (NEDA). 2017. Philippine Development Plan 2017-2022. Pasig City, Philippines: NEDA. <http://pdp.neda.gov.ph/wp-content/uploads/2017/01/PDP-2017-2022-07-20-2017.pdf> (Accessed on April 29, 2018).
- National Economic and Development Authority (NEDA). 2011. Philippine Development Plan 2011-2016. Pasig City, Philippines: NEDA. <http://www.neda.gov.ph/wp-content/uploads/2013/10/pdprm2011-2016.pdf> (Accessed on July 15, 2018).
- Manasan, R. 2009. "Reforming Social Protection Policy: Responding to the Global Financial Crisis and Beyond." PIDS Discussion Paper Series 2009-22. (<https://dirp3.pids.gov.ph/ris/dps/pidsdps0922.pdf> ; Accessed July 15, 2018).
- Mina, C. and K. Imai. 2016. Estimation of vulnerability to poverty using a multilevel longitudinal model: Evidence from the Philippines. PIDS Discussion Paper No. 2016-10. Quezon City, Philippines: Philippine Institute for Development Studies. <https://dirp3.pids.gov.ph/websitecms/CDN/PUBLICATIONS/pidsdps1610.pdf> (Accessed on April 29, 2018).
- Morduch, J. 1994. Poverty and Vulnerability. American Economic Review 84(2): 221–225. <https://www.jstor.org/stable/2117833> (Accessed on April 29, 2018).
- Orbeta, A. C., Jr, and V. B. Paqueo. 2016. Pantawid Pamilya Pilipino Program: Boon or Bane?. Discussion Paper No. 2016-56. Philippine Institute for Development Studies <https://dirp3.pids.gov.ph/websitecms/CDN/PUBLICATIONS/pidsdps1656.pdf> (Accessed on July 12, 2018).
- Orbeta, A. C., Jr, and V. B. Paqueo. 2017. Who benefits and loses from an untargeted tuition subsidy for students in SUCs?. Policy Note No. 2017-03. Philippine Institute for Development Studies

- <https://dirp4.pids.gov.ph/websitemcs/CDN/PUBLICATIONS/pidspn1703.pdf> (Accessed on July 12, 2018).
- Pasion, P. 2018. “Poor families to get P200 tax reform subsidy starting January”, Rappler. <https://www.rappler.com/nation/193668-philippines-poor-families-tax-reform-subsidy-january-2018> (Accessed on July 15, 2018).
- Ravallion, M. (2013), How Long Will It Take to Lift One Billion People Out of Poverty? http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/2013/01/22/000158349_20130122091052/Rendered/PDF/wps6325.pdf (Accessed on April 29, 2018).
- Ravallion, M. 1988. Expected Poverty under Risk-induced Welfare Variability. *Economic Journal* 98(393): 1171–1182. <https://www.jstor.org/stable/2233725> (Accessed on May 2, 2018).
- Reyes, A. C., Albert, J.R., and C. M. Reyes. 2018. Lessons on Providing Cash Transfers to Disaster Victims: A Case Study of UNICEF’s Unconditional Cash Transfer Program for super typhoon Yolanda Victims. Discussion Paper Series No. 2018-04. Philippine Institute for Development Studies. <https://pidswebs.pids.gov.ph/CDN/PUBLICATIONS/pidsdps1804.pdf> (Accessed on July 12, 2018).
- Reyes, C. M. and Tabuga, A.D. (2011), A note on economic growth, inequality, and poverty in the Philippines. Discussion Paper Series No. 2011-30. Philippine Institute for Development Studies. <http://dirp3.pids.gov.ph/ris/dps/pidsdps1130.pdf> (Accessed on April 29, 2018).
- Reyes, C.M., Tabuga, A. D., Mina, C.D., Asis, R. D., and Datu, M. B. G. (2010). Chronic and Transient Poverty. Discussion Paper Series No. 2010-30. Philippine Institute for Development Studies. https://dirp3.pids.gov.ph/ris/dps/pidsdps1030_rev.pdf (Accessed on April 29, 2018).
- Reyes, C.M., Tabuga, A. D., Mina, C.D., Asis, R. D., and Datu, M. B. G. (2011). Dynamics of Poverty in the Philippines: Distinguishing the Chronic from the Transient Poor. Discussion Paper Series No. 2010-30. Philippine Institute for Development Studies. <https://dirp4.pids.gov.ph/ris/dps/pidsdps1131.pdf> (Accessed on April 29, 2018).
- Rosenzweig, M., and H. Binswanger .(1993. Wealth, Weather Risk and Agricultural Investments. *Economic Journal* 103: 56–78. <http://documents.worldbank.org/curated/en/331281468741314855/pdf/multi-page.pdf> (Accessed on April 29, 2018).
- Singh, A.R., and S. A. Singh. (2008). Diseases of Poverty and Lifestyle, Well-Being and Human Development. *Mens Sana Monogr.* 2008 Jan-Dec; 6(1): 187–225. doi: 10.4103/0973-1229.40567 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3190550/> (Accessed on July 12, 2018).
- Tabunda , A. M. and J. R. G. Albert. 2002. Philippine Poverty in the Wake of the Asian Financial Crisis and El Niño. In *Impact of the East Asian Financial Crisis Revisited*, edited by Shahid Khandker. The World Bank Institute and the Philippine Institute for Development Studies. <https://dirp4.pids.gov.ph/ris/books/pidsbk02-impact.pdf> (Accessed on April 29, 2018).
- Thomas, V., Albert, J. R. G. and Perez, R. T. 2012. Examination of Intense Climate-Related Disasters in Asia-Pacific. Discussion Paper Series No. 2012-16. Philippine Institute for Development Studies. <https://dirp4.pids.gov.ph/ris/dps/pidsdps1216.pdf> (Accessed on April 29, 2018).
- United Nations (UN). 2015. A/RES/70/1-Transforming our world: the 2030 Agenda for Sustainable Development. Resolution adopted by the General Assembly on 25 September 2015.

http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E (Accessed on April 29, 2018).

Velarde, R. B. and Albert, J. R. G. 2018. The Socpen and its role in closing the coverage gap among poor elderly Filipinos. World Bank Social Protection Policy Note May 2018 No. 14. <https://openknowledge.worldbank.org/bitstream/handle/10986/29874/127251-PN-PUBLIC-ADD-SERIES-SPL-Policy-Note-14-SocPen.pdf> (Accessed on July 15, 2018).

Villar, F. 2013. The Philippine Social Protection Framework and Strategy: An Overview. Proceedings of the 12th National Convention on Statistics. EDSA Shangri-La Hotel, Mandaluyong City October 1-2, 2013. (http://nap.psa.gov.ph/ncs/12thncs/papers/INVITED/IPS-09%20Social%20Protection%20Statistics/IPS-09_3%20The%20Philippine%20Social%20Protection%20Framework%20and%20Strategy_An%20Overview.pdf ; Accessed April 29 2018).

Vos F, Rodriguez J, Below R, Guha-Sapir D. 2010. Annual Disaster Statistical Review 2009: The Numbers and Trends. Brussels: Centre for Research on the Epidemiology of Disasters. http://www.preventionweb.net/files/14382_ADSR2009.pdf (Accessed on April 29, 2018).

World Bank (WB) 2018. Making Growth Work for the Poor: A Poverty Assessment for the Philippines. <http://documents.worldbank.org/curated/en/273631527594735491/pdf/126194-WP-REVISED-OUO-9.pdf> (Accessed on July 12, 2018).

Zimmerman, F., and M. Carter. 2003. Asset Smoothing, Consumption Smoothing and the Reproduction of Inequality under Risk and Subsistence Constraints. *Journal of Development Economics* 71: 233–260. <https://www.sciencedirect.com/science/article/pii/S0304387803000282> (Accessed on April 29, 2018).