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Catastrophic Out-of-Pocket Expenditure on Health: Evidence from the Regions in the Philippines

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Abstract: ***This study estimates Filipino's catastrophic and impoverishing out-of-pocket (OOP) healthcare expenditures on a regional perspective to measure the effectiveness and progress of Philippines' healthcare financing system in ensuring population protection from excessive and unequal healthcare costs. Observations are drawn from the most recent household-based survey in the Philippines, 2018 and 2021 Family Income and Expenditure Survey, and grouped by four major regions: National Capital Region, the rest of Luzon, Visayas, and Mindanao region. From 2018 to 2021, results showed that the distribution of catastrophic OOP healthcare expenditures decreases while depth of these payments increases across the four major regions. The highest incidences of these catastrophic payments were found in the rest of Luzon and Visayas regions, while the highest intensities were found in Mindanao region. Despite medicines and pharmaceuticals products dominance on OOP healthcare expenditures, payment on inpatient medical services drives the catastrophic expenditures of households. Aside, deepening poverty caused by healthcare payments were more evident in households residing in Mindanao regions, thus exposing this Filipino families to financial risk and poverty threats. Logistic regression analysis showed that aging households head, employment, and socio-economic status are significant and common factors affecting the likelihood of incurring excessive health expenditures across the regions. The risk of catastrophic and impoverishing effects of healthcare expenditures persists in the country. Low levels of catastrophic OOP healthcare expenditures may indicate that disadvantaged households focused on spending on basic necessities and struggle to afford healthcare due to high costs amid COVID 19, leading to foregone treatment. Thus, continuous implementation of fair and innovative ways of financing the healthcare system to reduce the financial burden of OOP payments on Filipino households is recommended.***

Keywords: ***Out-of-Pocket Healthcare Payments, Catastrophic Healthcare Expenditures, Impoverishment, Universal Healthcare Coverage, Healthcare Financing.***

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1. INTRODUCTION

Better health has been identified as an essential part of sustainable economic growth. People start to invest and demand good quality health services in view of the fact that different nations were experiencing aging of population as well as the prevailing digitalization; thus, leading to requisite and higher healthcare costs.

In 2021, the Philippines spent over 1 trillion pesos on Current Health Expenditure (CHE), accounting for 6.0 percent of country's growing economy or the Gross Domestic Product (GDP). This healthcare expenditures are mostly sourced from the government and mandatory contributory health care financing schemes, which account for 50.3 percent of the total. It was followed by out-of-pocket (OOP) payment from Filipino families and other voluntary health care payment and financing schemes which is 41.5 and 8.2 percent share respectively. Nearly half of healthcare spending is borne by Filipino families, potentially influencing their economic activities and consumption behaviors.

In addition, the country's Current Health Expenditure accelerated by 18.5 percent, relative to annual GDP growth of 8.1 percent in 2021. This indicates a persistent increase in health expenditures, basically impeding the economy's growth. This rapid healthcare spending growth places pressure on policy makers of different sectors and exposes Filipino families in financial risk and poverty threats.

The World Health Organization (WHO) promotes an equitable health financing system capable of providing access to medical and healthcare services as well as protecting each family from financial risk of excessive OOP health payment given the incidence of different diseases or illnesses. This organization refers to this goal as Universal Health Coverage (UHC). In the Philippines, Universal Health Care Bill has been enacted aiming to cater the increasing demand of Filipinos to quality, cost-effective, and affordable health services without compromising financial access and prioritizing those without financial means.

Out-of-pocket healthcare expenditures is one of the long-been used indicators to measure the effectiveness of a healthcare financing system in ensuring population protection from excessive and unequal healthcare costs. However, reports shows that Filipino household still rely on OOP healthcare payments placing financial burden on indigent group of population and creates challenges on national government's attainment of universal healthcare coverage.

Amid coronavirus pandemic, health policy makers and local executives have been engaged in protecting and promoting people's health and welfare, as well as understanding individual healthcare spending pattern. These planners aim to boost health opportunities, strengthen human capital, and improve economic productivity and performance. Nevertheless, programs and interventions aimed at improving healthcare systems must not only address the factors affecting individual's vulnerability to excessive and impoverishing healthcare payments, but also identify which vulnerable class or group of population requires specialized financial system or immediate improvement.

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Thus, the specific objectives of this research are twofold: first is to quantify and provide critical analyses on the regional perspective of household OOP healthcare expenditures and how these expenditures led the household to succeeding catastrophic financial payments and subsequent impoverishment, benefiting local executives and planners. Second, this study investigates household characteristics influencing catastrophic health spending using household-based surveys, taking advantage of the increasing availability of information. Specifically, it sought to answer the following questions:

1. What is the current trend of OOP healthcare expenditures of Filipino families across the regions in the Philippines?
2. What is the regional incidence and intensity of catastrophic and impoverishing effect of OOP healthcare expenditures in the Philippines?
3. What are the significant factors associated with catastrophic OOP healthcare expenditures of Filipino families across regions in the Philippines?

2. METHODS

The study drew on secondary data from the Philippine Statistics Authority's (PSA) Family Income and Expenditure Survey (FIES), which is conducted every three years since 1957. The national sample of 147,717 households in 2018 and 165,029 in 2021 was obtained in the 2013 Master Sample (MS) of the Philippine Statistics Authority This sample accurately represents national and regional data. However, the surveys focused on private households, excluding institutional residents, and will only include statistics on the characteristics of the population residing in private households.

Out-of-pocket health expenditure refers to households' direct outlay to health practitioners and suppliers for goods and services aimed at improving their health status. This study includes immediate disbursement of Filipino household on medical or healthcare services such as medicinal and pharmaceutical product costs, inpatient facility and consultation charges, and outpatient laboratory and diagnostics tests, but excludes free or in-kind healthcare services. Because of the recent pandemic, the 2021 FIES questionnaires have been revised to include questions about household expenditures on coronavirus disease (COVID-19) vaccinations, preventative and protective equipment (e.g., face masks, face shields, medical gloves, protective gowns, and aprons), preventative care services (e.g., immunizations and COVID-19 testing) and other healthcare services (e.g., diagnostic imaging services, medical laboratory services, patient emergency transportation services, and emergency rescue). This study homogenizes the structure of these healthcare expenditures for a more accurate comparison. Aside, total household consumption expenditure is computed as the aggregate of all expenses on various goods and services paid in cash, in kind or received as gift, as well as the value of consumed goods and services produce by the household itself (item under family sustenance activities in 2018 and 2021 FIES). The study preferred the use of households' consumption over income because it was deemed to be a more sufficient indicator of welfare and gives better accurate measure. Using income, less accurate results might be generated presuming households have no alternative resources.

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Furthermore, this study provided analysis and estimation on catastrophic expenditures and its determinants, as well as the impoverishing effect of healthcare payments, in four identified major regions: National Capital Region (NCR), the rest of Luzon, Visayas and Mindanao following the proposed metrics of Wagstaff and Doorslaer. The ith household in the jth region faces catastrophic OOP healthcare expenditure when their OOP healthcare and medical payments, as a ratio of total resource available for consumption, exceeded the predefined 10 percent threshold. This predefined threshold was supported by several studies and serve as the standard threshold used for monitoring universal health coverage including financial protection under SDGs indicator 3.8.2 of World Health Organization. Catastrophic head count is the incidence of household OOP healthcare expenditures exceeding a predetermined threshold, while average overshoot (or the mean level where healthcare payments, as a ratio of total consumption, exceeding the threshold) is the intensity of catastrophic healthcare expenditures for all households incurring these payments. Similarly, direct healthcare and medical expenditures can lead an impoverishing effect on households when their per capita consumption expenditures after healthcare payments were pushed below the predefined poverty line of 60% of median annual per capita consumption, resulting to a deepening poverty. Both distribution and depth of the impoverishing effect of OOP healthcare expenditures is the difference between pre- and post-poverty measures. Using a binary logistic regression model, this study investigated the variables significantly associated with the risk of incurring catastrophic health care payments across regions such as household head characteristics (i.e., sex, age, education, and employment) and household demographic and socioeconomic characteristics (i.e., size, settlement, socioeconomic status, and access to insurance schemes).

3. RESULTS

Health spending in the Philippines

From 2018 to 2021, household OOP healthcare payments accounted for almost half of the total household fund. For these periods, on average, private households shelled out 46 pesos for every 100 pesos health expenditure, while voluntary health care payment schemes spent only 9 pesos. The remaining 44 pesos came from government and compulsory contributory financing schemes. Although out-of-pocket payments is lower than half of total household health spending starting 2019, they remain a significant source of funding. According to the WHO (2010), incidence of financial catastrophe and impoverishment falls to negligible levels only when direct OOP falls between 15 to 20 percent of the Total Health Expenditure.

In nominal terms, the average household out of pocket spending on health grew by 10 percent (from 5,128 to 5,616 pesos) from 2018 to 2021. However, using the 2018 constant prices, the average household OOP healthcare expenditures in 2021 falls by 5,006 pesos from 5,128 pesos in 2018, representing a 2% decrease. The rest of Luzon, on the other hand, is the only region that posted a positive growth in OOP health spending in the same period, which is 0.5 percent. Furthermore, in both nominal and real terms, the NCR, the rest of Luzon, and Visayas had higher OOP healthcare expenditures than the national average in 2018 and 2021. Looking at the micro-level, OOP healthcare expenditures of all the households in the higher quantiles in all four major regions, fell (real terms) or decelerated (nominal terms) in 2021. On the other

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hand, households belonging to lowest quantiles or poorest group posted faster healthcare expenditures growth from the same period. Despite households in Mindanao regions recording the lowest OOP healthcare expenditures, poor families in this region had the fastest OOP healthcare expenditures growth of 15 percent (real terms) among others. The greater elevation in healthcare expenditures relative to overall spending is likely due to many factors like increased demand due to rising prevalence of illnesses like COVID-19, improved awareness, and access to health-care services by the population (Greig et al. 2022). Spending patterns changed dramatically during the pandemic with increases in certain categories like groceries and home improvement, and big decreases in a variety of in-person services, including healthcare (Wheat et al. 2021). Furthermore, it was noted that the price of medical services paid by consumers climbed by 12.2 percent in 2021, outpacing the price of overall commodities by 8.9 percent, influencing average healthcare spending.

From 2012 to the present, medicines have been the most significant contributor to household OOP healthcare spending. Because of the economic disruption caused by the COVID-19 pandemic, the share of medicines and health products in total household health spending grew even higher by 5 percent in 2021.This increase in the share of medicine and health products spending was also evident across the four major regions, especially in NCR which recorded to be the biggest spender. Medicines, which include pharmaceutical products, vaccines, and vitamins and minerals, account for a large portion of these expenditures, followed by medical products that includes prevention and protective devices against COVID 19 (e.g., face masks, face shields, medicinal stockings and gloves, and protective gowns). Seemingly, the share of medicines and health products in household total OOP health spending is even higher than the average among the poor households and posted an increasing trend from 2018 to 2021. This is in contrast with those in richest households whose spend more on inpatient care services such as consultations and hospital room expenses on the same period. Despite a drop in outpatient care services in 2021, the majority of this household OOP spending goes to private institutions offering immunization services, dental services and other curative, rehabilitative and long-term care services.

Incidence and Intensity of Catastrophic OOP healthcare expenditures

Table 1. Incidence and Intensity of Catastrophic OOP Healthcare expenditures, by Region, 2018 & 2021

	2018			2021		
	Headcount	Overshoot	Mean Positive Gap	Headcount	Overshoot	Mean Positive Gap
Philippines	3.6	0.3	8.7	3.0	0.3	9.9
NCR	2.7	0.2	6.8	2.0	0.2	8.1
The rest of Luzon	4.3	0.4	9.1	3.9	0.4	10.0
Visayas	4.0	0.4	8.7	3.6	0.4	9.9
Mindanao	2.8	0.2	8.8	2.1	0.2	10.4

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Source: Author's calculations, 2018 and 2021 FIES
Note: Units in percentage

Despite being the top spender of NCR on OOP healthcare expenditures, it was found out that a large percentage of households in the rest of Luzon and Visayas region—3.9 and 3.6 percent, respectively—spent more above the 10 percent threshold of their total consumption on health care costs in 2021. This means that households in these regions spent hugely on healthcare payment, making them the most vulnerable to catastrophic spending. (Table 1).

Incidence of catastrophic health spending declined across the regions, with Luzon having the least decline of 3.9 percent from 4.3 percent. The overshoot was observed as the highest in the rest of Luzon and Visayas regions, around 0.4 percent in 2021, for catastrophic OOP healthcare payments exceeding the predefined threshold. Table 1 also showed that a Filipino household incurring catastrophic OOP on healthcare spends an average overshoot of 19.9 percent (10 percent predefined threshold and 9.9 percent mean positive gap) of their total spending on healthcare. In particular, families in Mindanao area accounted the highest mean positive gap among other regions with 10.4 percent in 2021. It was also found out that in addition to medicines and health products, inpatient care services mostly drive the catastrophic healthcare payments in all regions except NCR in 2021. Although catastrophic healthcare expenditures decreased, a Filipino household facing catastrophic OOP health payments spent over 56,000 pesos in 2018 to over 68,000 pesos in 2021, representing a 21.6 percent increase. This was mainly contributed by wealthier families in Visayas region.

Incidence and Intensity of Impoverishing Effect of OOP Healthcare Expenditures

Table 2. Impoverishing Effects of OOP Healthcare Expenditures, by Quantiles and by Region, 2018 and 2021

2018						
	Pre-OOP health care payment		Post-OOP health care payment		Change	
	(1)		(2)		(3) = (2)-(1)	
	HC	NPG	HC	NPG	HC	NPG
Philippines	19.8	4.3	20.5	4.5	0.7	0.2
NCR	1.0	0.1	1.1	0.1	0.1	0.0*
The rest of Luzon	13.7	2.6	14.4	2.8	0.7	0.1
Visayas	20.2	4.3	21.2	4.6	1.0	0.2
Mindanao	34.3	8.1	35.2	8.3	0.8	0.3
2021						
	HC	NPG	HC	NPG	HC	NPG
Philippines	20.2	4.9	21.0	5.1	0.8	0.2
NCR	1.8	0.2	2.0	0.3	0.1	0.0*
The rest of Luzon	15.7	3.4	16.5	3.6	0.8	0.2
Visayas	22.2	5.4	23.0	5.6	0.9	0.3
Mindanao	32.6	8.4	33.6	8.8	1.0	0.3

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Source: Author's calculations, 2018 and 2021 FIES
Note: *below 0.01%; Head count (HC) and Normalized Poverty Gap (NPG)
Units in percentage

Using the 60 percent of median annual per capita consumption as poverty line, the percentage of Filipinos that faced impoverishment after health care spending grew by 0.8 percent in 2021 from 0.7 percent in 2018. Mindanao region accounts the highest headcount of Filipinos suffering impoverishment after healthcare payments. Similarly, the severity of the deepening poverty caused by this OOP healthcare expenditures were visible in the same region with 8.3 percent and 8.8 percent for years 2018 and 2021, respectively.

Determinants of Household Catastrophic OOP Healthcare Expenditures
Using Binary Logistic Regression, several factors such as characteristic of household head (e.g., sex, age, highest grade completed and employment), and household demographic and socioeconomic characteristics (i.e., size, settlement, socioeconomic status, and access to insurance schemes) were found to be significantly associated with the risk of catastrophic healthcare expenditures.

Household Head Sex: Gender of households was not found to be a significant factor of catastrophic OOP healthcare expenditures across the four regions except for the households in rest of Luzon region. Household with female headship's odd of incurring catastrophic payments is lower by 13.6 percent than of male (CI=0.783-0.953).

Household Head Age: As household head ages, the odd of incurring catastrophic payment also increases. This likelihood is greater in Visayas region (OR=3.941, CI=1.855-8.373), followed by NCR (OR= 2.973, CI=1.203-7.346) and the rest of Luzon region (OR= 1.829, CI=1.268-2.64).

Household Head Highest Grade Completed: Similar with other studies, educated household heads are expected to incur catastrophic OOP healthcare expenditures. The educated household head in Visayas (OR=2.494, CI=1.094-5.686) and Mindanao (OR=1.769, CI=1.031-3.035) regions exhibit significantly greater odds of incurring catastrophic expenditures than of those household head without any basic education. In general, educated households are more health-conscious, and they are more efficient in maintaining health and making better use of health care and preventative services.

Household Head Job Indicator: Employed household heads in the NCR, Visayas, and Mindanao areas were less likely to experience catastrophic spending than jobless household heads. Notably, employed household heads in the rest of Luzon area have the least chance of 52.0 percent (OR=0.48, CI=0.435-0.529) of experiencing catastrophic spending than unemployed family heads. This may reflect the greater capacity of household heads with regular employment and regular source of income in the rest of Luzon region to cope with health expenses than those who are economically inactive.

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Family Size: Families with members greater than four were found out to have less risk of experiencing catastrophic healthcare payments rather than those with lesser than four members in the rest of Luzon (OR= 0.809, CI=0.743-0.882), Visayas (OR= 0.814, CI=0.720-0.921) and Mindanao (OR= 0.761, CI=0.669-0.865).

Settlement. Household in rural areas, specifically the rest of Luzon and Visayas regions has increased odds of suffering from catastrophic payment by 27.8 percent (OR=1.278, CI=1.167-1.399) and 81.3 percent (OR=1.813, CI=1.58-2.081), respectively, compared to those residing in urban areas.

Socio-economic Status: Catastrophic OOP healthcare payments increased relatively with socio-economic status, with wealthier families having a higher likelihood of catastrophic payments than of indigent families.

Any member who reported paying for health insurance e.g., PhilHealth/other insurance: Households in NCR, the rest of Luzon and Visayas with members reporting paying/having insurance have lower risk of being exposed to catastrophic OOP healthcare expenditures, with odds ratio of 0.603, 0.915, and 0.802 respectively, compared to those families who don't have any form of health insurance.

4. DISCUSSION

At the national level, Filipino households' OOP healthcare expenditures grew by 10% in nominal terms but contracted by 2% in real terms from 2018 to 2021. This might be due to shifting purchasing habits of households, particularly during a pandemic. Aside from that, inflation posted an impact on the overall healthcare spending. In 2021, the price of medical services paid by consumers rose by 12.2 percent, outpacing the 8.9 percent price increase of the overall commodities. Despite the noticeable decline in health expenditures among wealthier families, poor households across regions spent significantly more on health care payment in 2021.

The purchase of medicines and health products accounted for the majority of this healthcare spending across all regions. This included medicines, vitamins, and COVID 19 preventative and protection devices. Households in the NCR and Mindanao areas, on the other hand, were the top spenders. In addition, spending on outpatient and inpatient care services was primarily borne by households in the rest of Luzon. Wealthier families spent more on private medical facilities offering outpatient and inpatient medication. Despite a higher risk of illness, poor families tended to spend less on inpatient and outpatient medical services and rely extensively on medicines and medical products, which led to self-medication.

Although the incidence of catastrophic OOP healthcare expenditure decreased, the amount of OOP healthcare spending among those who do was also quite substantial. In 2018, a Filipino household spent an average of over 56,000 pesos; however, by 2021, they were spending an average of over 68,000 pesos. Notably, poor families incurring catastrophic payment spent

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almost 11 percent greater than average health spending of poor families that do not. Richer families, on the other hand, spent just a 7 percent increase on the amount spent for catastrophic health payments compared to richer families who do not. With the 10 percent predefined threshold of the budget share approach, the overshoot for catastrophic OOP healthcare payment across the region ranged from 0.2-0.4 percent between 2018 and 2021, while the average overshoot for single households incurring catastrophic payment (mean positive gap) ranged between 8 to10 percent.

The findings of this study also highlighted the changing composition of OOP healthcare payments after catastrophic payments. Household OOP healthcare expenditures, particularly in NCR and Mindanao region, primarily consisted of medicines and products. However, during OOP catastrophic healthcare payment, Filipino households primarily spent on inpatient care services especially those residing in the rest of Luzon and Mindanao region. In 2021, Filipino household notably spent more, on the average, inpatient medical services than of purchasing medicinal products. One of the reasons for this was the prevalence of COVID 19. Not surprisingly, poorer families' catastrophic health expenditure is driven by the purchase of medicinal products, whereas wealthier households' catastrophic health spending is driven by payments for inpatient medical services. This was also the case for households in the NCR whose driver of catastrophic OOP healthcare expenditure was still the purchase of medicinal products.

Health spending was also found out to add burden of poverty among those Filipinos who were already facing impoverishment. In 2021, 0.8 percent of the sample were found to be impoverished after health payments, with the majority coming from the lower quantiles. Similarly, Mindanao region had the highest number of individuals suffering impoverishment after healthcare payment.

Binary logistic regression revealed that factors like aging household head, employment status and the socio-economic status significantly contributed to the probability of household incurring catastrophic OOP healthcare expenditures in the four identified major regions. Presence of an educated household head was found to be a significant factor of incurring catastrophic payment in Visayas and Mindanao regions than of those without proper education. This scenario was similar in households residing in rural areas of the rest of Luzon and Visayas region who were more exposed in catastrophic payments than of those in urban areas. Lastly families with members greater than four and with a member having health insurance also posted lesser probability of facing catastrophic payments than of lesser member and without any health insurance.

The study has its own limitations. First, recent pandemic created revisions on survey questionnaire possibly affecting the structure of indicators used. Despite that, this study homogenized the variable categories which gave accurate comparison. Second, as mentioned with other studies, the survey lacked variables to assess whether the health expenditures stated was net of health insurance reimbursement nor provides instruction to respondents to net out reimbursement. However, this constraint did not affect the trend observed in different

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estimates obtained: catastrophic OOP healthcare expenditures and impoverishing effect of healthcare payments. In addition, this study provided critical analyses of these estimates using the most recent available information which is important for monitoring equitable financial coverage.

5. CONCLUSION

The attainment of Universal Healthcare Coverage might be hindered by financial challenges faced by the Philippine' health system i.e., lack of pharmaceuticals and qualified medical professionals, poor service quality, and inaccessible and insufficient number of health facilities. This constraint led Filipino households on purchasing pharmaceutical drugs and products at private pharmacies and sought higher quality services and competent medical personnel at private facilities, leading to high and catastrophic OOP healthcare payments.

Thus, the result of this study suggested reducing reliance on direct healthcare payments and continuous reassessment and implementation of equitable and innovative financing system that reduce financial burden on Filipinos. (1) Systematic monitoring of catastrophic OOP healthcare expenditures should be maintained to guide health financing policies developments and interventions i.e., cost control measures. (2) Vulnerable groups should be given focus especially on Mindanao region which has the highest intensity of catastrophic healthcare payments and with predominant proportion of household suffering impoverishment after healthcare payments. (3) Preparedness for the unexpected outbreak must be reassessed. As a government reallocates program that provides a social safety net to ensure universal access to health care, benefits may need to be further increased to encourage pro-social health-seeking behavior more greatly, especially among the poor. (4) All Filipinos must know of their entitlement to health insurance and are aware of their full range of benefits to lessen excessive health payments

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