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Health Policy Analysis

Toward Better Measurement of Financial Risk Protection in Health Expenditure: The Case of Chile

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ABSTRACT

Objectives: Our study highlights the impact of out-of-pocket health expenditure (OOPHE) in highly unequal countries, where the middle class is particularly vulnerable to declines in well-being. We modify 2 financial protection measures—impoverishment and catastrophic health expenditure (CHE)—to address this issue. The first adjustment improves the classification of households based on their risk of poverty due to OOPHE, whereas the second corrects the underestimation of CHE for poorer households and the overestimation for the richest.

Methods: We applied our adjusted financial protection measures to data from the Chilean Household Budget Surveys (2006-2007, 2011-2012, 2016-2017, and 2021-2022) and compared the results with conventional CHE and impoverishment measures. Logistic regressions were used to identify factors associated with CHE.

Results: Our impoverishment risk indicator indicates that approximately 10% of Chilean households entered poverty, became poorer, or were at high risk due to OOPHE in 20. Our revised CHE measure suggests that approximately 15.8% of households faced financial hardship, with both figures exceeding conventional estimates. Households with more women and an older average age were more likely to experience CHE.

Conclusions: Effective and equitable access to health services, along with adequate financial protection, is critical to achieving universal health coverage. However, in countries with high-income inequality and a high proportion of nonpoor households close to the poverty line, conventional measures may have blind spots for monitoring and analyzing financial hardship in health spending. This research provides evidence to open the debate on this issue.

Keywords: catastrophic health expenditure, financial protection, health policy, impoverishment, out-of-pocket.

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Introduction

Health systems must be able to improve the health of the population by providing services that are accessible to all and by ensuring financial protection for households when these services are needed.[1-3] Countries, regardless of the structure and organization of their health systems, are expected to include financial protection schemes that reduce the likelihood of individuals and families becoming impoverished due to having to face high costs of illness and accidents.[4] Therefore, the level of out-of-pocket spending on health services and goods needs to be controlled and monitored by countries' health systems.[5]

Comparative evidence shows that the higher the out-of-pocket health expenditure (OOPHE) in a country, the higher the risk of households incurring catastrophic health expenditure (CHE).[6] For example, in Chile, although most of the population is covered by some form of health insurance, 8 of 10 Chileans believe that they would not be able to pay for medical expenses in the event of a serious illness or accident.[7] This perception could be explained by the fact that (1) 80% of people lack some buffer, such as assets, borrowing capacity, or formal employment, to face an economic shock,[8] and (2) more than a third of health spending in Chile is out-of-pocket, the highest proportion among OECD countries and much higher than recommended by the World Health Organization (WHO).[1] WHO suggests a maximum out-of-pocket payment of 15-20 per cent of total health expenditure to minimise situations in which health expenditure causes significant financial loss to the household.[9]

The main component of household out-of-pocket spending in Chile was on medicines. From 2007 to 2012, there was a decrease in household expenditure among the 3 lowest income groups. This highlights the positive impact of public programs aimed at improving financial protection.[10] However, health expenditure can become a heavy financial burden if countries do not provide adequate financial protection for households that have to rely on their own resources to access health services for a member.

Two concepts commonly used by WHO for cross-country comparisons capture the lack of financial protection: the

incidence of impoverishment due to health expenditure and the incidence of CHE.[4] These measures calculate the number of households whose expenditure exceeds a predefined threshold. However, these measures have some methodological and conceptual limitations that this article aims to address.

The incidence of impoverishment due to health expenditure refers to the number of households that move from nonpoverty to poverty as a result of having to use their resources to cover the costs of an adverse health event.[11] One of the criticisms of this measure is that it does not identify households whose income is close to the poverty line but whose finances are affected by health-related expenditure.[12] These households are relevant for countries that have managed to reduce the number of households in poverty but have failed to build an economically stable middle class.[13,14] Recently, the WHO Regional Office for Europe[6,12] has adopted conventional measures for use in high- and middle-income countries to highlight the gradient of impoverishment risk from OOPHE. This approach captures both initially nonpoor households at risk of falling into poverty and already impoverished groups pushed further into hardship by health expenditures.

The incidence of CHE corresponds to the number of households experiencing financial problems due to high OOPHE relative to available household resources.[15,16] Household resources can be defined in 2 ways. In the first, household resources correspond to total consumption expenditure or, in some cases, to disposable income. It is assumed that all household resources can be spent on health, which is why this method is known as the total budget share approach.[1-3] However, this approach does not consider the diminishing marginal utility of income, where the opportunity cost of spending on healthcare is higher for low-income households than for high-income households. As a result, it tends to underestimate the economic hardship faced by low-income households. In low-income countries, a significant proportion of the population spends a large proportion of household resources on basic necessities such as food, heating, or housing, leaving little for healthcare.[17] Furthermore, this approach identifies a higher proportion of CHE at higher-income levels, given that wealthier households tend to spend a higher proportion of their total expenditure on this item, and are therefore likely to overestimate the welfare loss due to catastrophic expenditure in higher-income households.[4]

The second approach to measure CHE assumes that households have to cover their basic needs before they can spend on health services.[15] This approach, known as the capacity to pay approach, measures the difference between total expenditure and an amount that accounts for expenditure on basic household needs. In general, studies have used food consumption as a proxy for household needs.[18] However, household expenditure on food is not necessarily a good proxy for basic needs. For example, households in high- and middle-income countries tend to spend proportionally less on food as their income increases, and in countries with cold climates, heating becomes as important a basic need as food.[11,12] Both ways of accounting for household resources to measure CHE inherently involve value judgments about how to weigh disaster payments incurred by the poor relative to those incurred by the better-off. The imposition of such value judgments is inevitable in the development of any distributionally sensitive measure. Indeed, it could be argued that even a distributionally insensitive measure imposes a value judgment because it treats catastrophic payments equally regardless of who incurs them.[17]

In this article, we propose new measures to the conventional indicators of financial protection of health expenditure. It aims to complement and deepen the usefulness of financial protection indicators in countries characterized by high-income inequality, high OOPHE, and broad groups highly vulnerable to losses in well-being, thereby improving the capacity to inform public and social policies aimed at reducing OOPH in specific groups that are either falling into poverty or highly vulnerable to impoverishment due to their health expenses. This article builds on the improvements introduced by the WHO for European countries[6,12] while incorporating some differences. Our innovations link the absolute poverty line to 2 measures of health financial protection. The first measure uses a poverty vulnerability approach to estimate the risk of impoverishment associated with household OOPH.[15] The second measure considers an out-of-pocket expenditure as catastrophic if it is greater than the total household expenditure minus a fixed amount given by the poverty line. This measure corrects for the underestimation of poor households with CHEs and the overestimation of CHEs in rich households for this type of indicator.

These innovations are applied to Chile, a country recently classified by the World Bank as a high-income country but with a socially stratified health system,[2,19] using data from the 2006-2007, 2011-2012, 2016-2017, and 2021-20 Household Budget Surveys, which are representative of Chile's urban population.

Methods

Data

The Household Budget Survey (*Encuesta de Presupuestos Familiares*, EPF, by its acronym in Spanish) is a nationally representative survey of households in the regional capitals and their main metropolitan areas. It has been conducted every 5 years since 2006 by the National Institute of Statistics of Chile, with the aim of updating the consumer price index basket of goods and services. The EPF collects information on OOPHE, total household consumption, and income for a reference period of one year. The sample sizes of the EPF in its last 3 versions were 10 389 households from 2006 to 2007, 10 532 cases from 2011 to 2012, 15 243 observations from 2016 to 2017, and 15 134 households from 2021 to 2022. More information on the EPF sample design, questionnaire and fieldwork can be found at https://www.ine.cl/estadisticas/sociales/ingresos-y-gastos/encuesta-de-presupuestos-familiares. For simplicity, we refer to each survey by the year in which the fieldwork was completed. A descriptive analysis of OOPHE for the study period is available in Supplemental Materials found at https://doi.org/10.1016/j.vhri.2025.101086.

Risks of Impoverishment After Paying Out-of-Pocket Healthcare Costs

To construct our impoverishment risk measure, we use an absolute poverty line and 2 vulnerability lines to identify households that have an increased risk of falling into poverty after paying out-of-pocket health expenses. Our proposal follows the vulnerability approach of Prieto,[14] who uses the poverty line proposed by the World Bank for middle-income countries to estimate the vulnerability lines used in our measure.[20] This threshold of US$5.5 per day per person (pdpp) in 2011 purchasing power parity (PPP) is based on the cost of purchasing a fixed basket of goods and services that allow people to meet their basic needs. This poverty line is attractive because it aims to measure the absolute poverty of people regardless of the country in which they live, thus allowing for comparative studies. Converting each country's currency to dollars based on PPP allows for differences in the cost of living between countries, and in this way the international poverty line is adjusted to capture the same level of

well-being. Prieto[14] also proposes vulnerability lines for Chile's official poverty line, which is set at CL$64 134 per month ($6.41 pdpp in 2011 PPP); consequently, the poverty line used in this study is 14.2% less stringent than Chile's. It is worth noting that the impoverishment indicator for monitoring the impact of OOPHE on household well-being in European countries uses a basic needs line as an absolute poverty line.[6,12]

For our impoverishment risk measure, the 2 vulnerability lines allow us to identify households that have an increased risk of falling into poverty after paying out-of-pocket health expenses. The high vulnerability line has a value of US$10.0 pdpp in 2011 PPPs and allows us to identify the proportion of households that are at high risk of poverty. The low vulnerability line of US$20.0 pdpp in 2011 PPP identifies households that have lost their status as economically secure middle class. The economically secure middle class is defined as those between the low vulnerability line and an affluence line defined as US$70.0 pdpp. These households have a low vulnerability to poverty (risk of falling into poverty in the next year of less than 5% and greater than 1%). These high and low vulnerability lines are used to classify households according to their level of vulnerability to poverty in upper-middle-income countries.[14] Non-poor households below the high vulnerability line have a probability of falling into poverty in the next year of 17% or more. These households are classified as high vulnerability to poverty. Households above the low vulnerability line are identified as low vulnerability households and their risk of being poor in the next year is less than 5%. Households falling between the two vulnerability lines are classified as moderately vulnerable. We used a classification of households based on their risk of impoverishment after paying OOPHE, identifying 7 different groups. Group 1 includes households that did not report any OOPHE during the year, whereas groups 2 to 5 represent households with varying levels of vulnerability to poverty, from no risk to high risk, depending on their income relative to the poverty and vulnerability thresholds. Groups 6 and 7 cover households that experience a decline in economic status after paying OOPHE, either falling below the poverty line or becoming poorer if they were already in poverty. This detailed classification goes beyond the conventional focus on households falling into poverty due to OOPHE, by highlighting the different degrees of vulnerability to poverty that households face even if they do not cross the poverty line.

The conventional classification of impoverishment by health expenditure only makes visible the sixth group of households: those who fall into poverty because of out-of-pocket expenditure. Information on the other groups is important for health systems that aim to protect low-income households. In this way, financial protection policy makers can better understand how out-of-pocket spending affects the resources households have to spend on basic needs. This is the case for groups that are hidden from the conventional impoverishment indicator: those who remain in a state of high or moderate vulnerability to poverty or who become poorer after paying OOPHE.

CHE Adjusted for Unequal Capacity to Pay

To estimate the incidence of CHE, we consider all households whose OOPHE is greater than a given proportion of their ability to pay. We define the ability to pay for health as the household's resources minus the value of the absolute poverty line for that country. As Wagstaff and Eozenou[21] rightly point out, societies themselves have defined this threshold to define the basic needs of households. Therefore, the discussion shifts to what kind of absolute poverty line to use, rather than the items that should or should not be included as basic needs (eg, food, heating, or housing rent).[5] It should be recalled that the absolute poverty line definitions exclude health expenditure. This type of expenditure is not associated with an increase in welfare. In fact, if they were included, it would implicitly be assumed that if a member of the household becomes ill, their welfare would increase, when the opposite is true.[22] We used the absolute poverty line of US$5.5 pdpp in 2011 PPP and a threshold of 25% of the ability to pay. The ability to pay was calculated using total household income as a resource. We also looked at the sensitivity of the results using: (i) household consumption expenditure as a resource and (ii) a 40% share of capacity to pay.

We wanted to adjust our CHE indicator so as not to underestimate households with a CHE at the bottom of the income distribution and to reflect the fact that the opportunity cost of a CHE is different for households at the extremes of the distribution. In the first case, households below the poverty line have a negative ability to pay. To avoid this conceptual inconvenience, conventional CHE measures apply ad hoc and less demanding thresholds for such cases, so that the household has a positive ability to pay. For example, they use the household's actual expenditure on food. This means that CHE households are underestimated among poor households. Following Thomson et al,[12] we consider that any amount of OOPHE among households below the poverty line constitutes a CHE, given that it further reduces the household's insufficient resources to acquire the goods and services that meet its basic needs. These households correspond to group 7 of the deprivation measures.

In contrast, the conventional CHE indicator is insensitive to the income (or consumption) distribution, so it implicitly assumes that a percentage OOPHE (eg, 25%) affects welfare equally for households at the top and bottom of the income distribution. However, the opportunity cost of a CHE is lower for high-income households than for low-income households. It is not the same to have a CHE and still have a very low probability of being poor as it is to have a CHE and not be able to meet basic household needs.[17] Therefore, a high OOPHE could be considered noncatastrophic if the household does not experience a significant welfare loss.

Our indicator considers that a household with an OOPHE of more than 25% of its capacity to pay is not a CHE if its resources are still at the level of a high-income household. We used the value of US$70.0 per day per capita in 2011 PPP proposed by the World Bank's Latin America and the Caribbean (LAC) Equity Lab as the affluence line. More details at https://www.worldbank.org/en/topic/poverty/lac-equity-lab1/poverty. This threshold is used in LAC countries to distinguish the middle class from high-income households and is associated with a poverty risk of less than 1%.[14]

Table 1[12,15,18] compares our indicator of health financial protection with conventional CHE measures used by international agencies. Our measure thus differs in 3 respects: (1) in the approach to calculating the amount that represents basic household needs, (2) in the threshold used, and (3) in the appropriateness of the indicator to minimize under- and over-representation of economic hardship at the extremes of the income distribution.

Results

Risks of Impoverishment due to Out-of-Pocket Healthcare Spending in Chile

Figure 1 (panel 1) shows the risk of impoverishment after paying OOPHE and those who do not report OOPHE for the years 2007, 2011, 2017, and 2022. As noted earlier, the poverty line used to construct our measure of financial protection against

Table 1. Comparison of our method with those used by the World Health Organization and the World Bank for calculating the CHE.

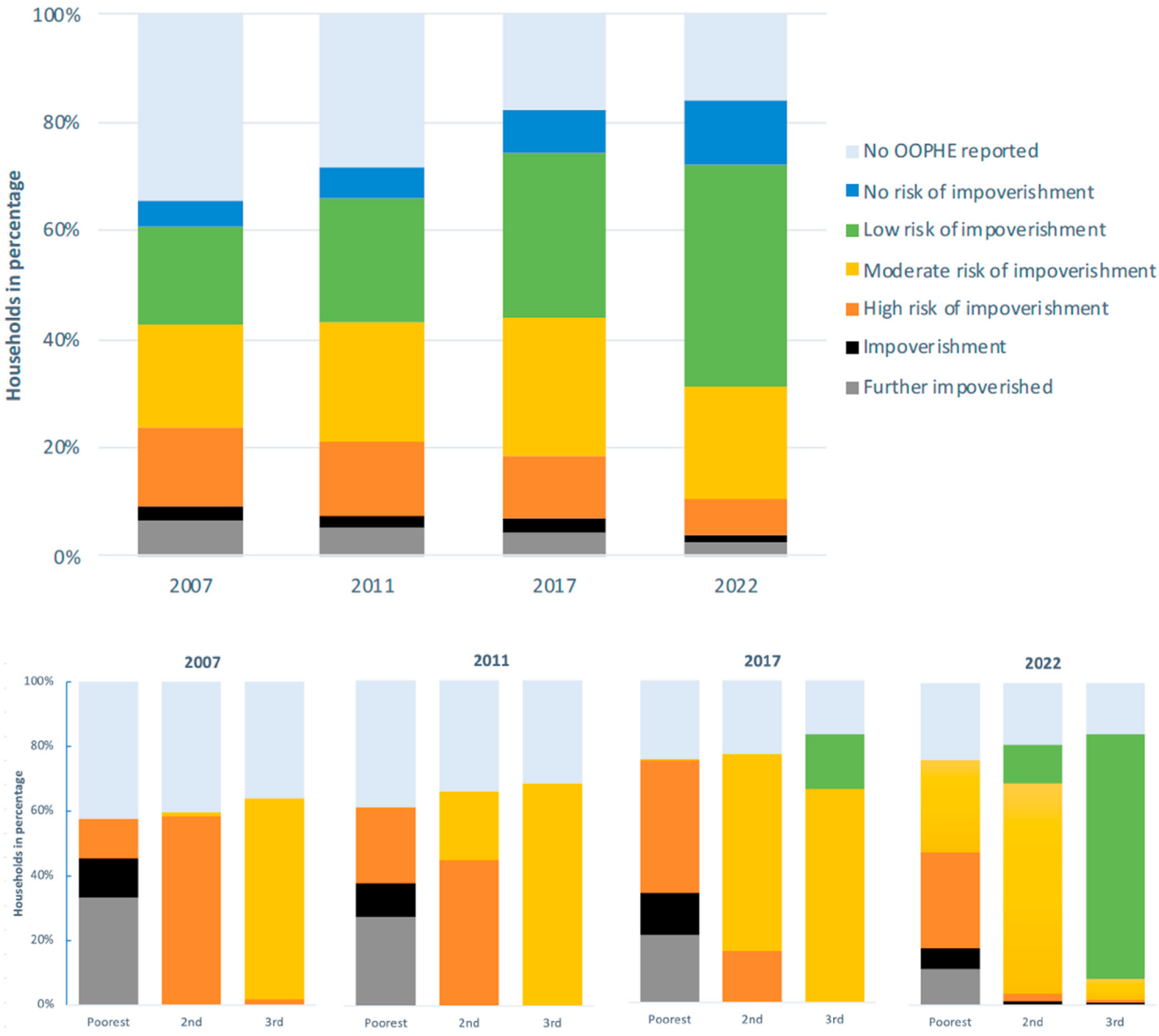
Method	Study introducing indicator	Household resource used as a benchmark for assessing OOPHE	Basic requirements for calculating ability to pay in healthcare	Thresholds used to identify CHE	Sensitivity of the indicator to the distribution of CHE	International agencies using it
Share of total budget	Berki[15] (1986)	Total household expenditure if available, otherwise total income	No	10% and 25%	Pro-rich indicator and underestimates hardship among low-income households	World Health Organization; World Bank
Fixed and ad hoc expenditure on food	Xu et al[18] (2003)	Household expenditure minus a fixed amount of subsistence food expenditure. In cases where the household is below the fixed subsistence level, actual food expenditure is used.	Average food expenditure per person (equivalent) among households whose proportion of food of total expenditure is between the 45th and 55th percentiles	40%	Underestimates CHE households at the bottom of the expenditure distribution	World Health Organization
Fixed expenditure on food, housing, and utilities	Thomson et al[12]	Total household expenditure minus a fixed amount of subsistence expenditure on food, rent, and utilities; applied to all households, so that some households may have a negative ability to pay	Expenditure on food, rent, and utilities per person (equivalent) between the 25th and 35th percentile of total expenditure per person (equivalent)	40%	Corrects underestimation of poor households with CHE	World Health Organization Regional Office for Europe
Fixed expenditure on a basket of goods and services that satisfies basic food and nonfood needs	The present study	Total household expenditure minus a fixed amount of the absolute poverty line corresponding to the basket of goods and services that satisfy basic food and nonfood needs	International poverty line for upper middle-income countries (US$5.5 per day per capita, in 2011 PPP)	20% and 40%	Corrects underestimation of poor households with CHE and overestimation of CHE of rich households	Potential use in upper middle-income countries or countries that have recently transitioned to high-income status

CHE indicates catastrophic health expenditure; OOPHE, out-of-pocket health expenditure; PPP, purchasing power parity.

impoverishment reflects the basket of goods and services that meet basic food and nonfood needs. This absolute poverty line applied to the 3 EPF samples is equivalent to US$5.5 pdpp in 2011 PPP, which is equivalent to $73 153 Chilean pesos per capita per month in December 2016.

Despite the increase in OOPHE between 2007 and 2022 in Chile, overall impoverishment declined from 2.4% in 2007 to 2.1% in 2011 and then increased slightly to 2.6% in 2017 and subsequently declined to 1.7% in 2022. The Ministry of Health's 2011 official impoverishment measures are lower than ours (0.43%), despite using the same survey. Comparisons are difficult because the Ministry of Health defines impoverishment "when total household expenditure is greater than or equal to the household's subsistence expenditure and, at the same time, when out-of-pocket health expenditure is subtracted from total household expenditure, the result is less than the subsistence expenditure, ie, it is not sufficient to meet the needs considered to be subsistence".[23] The decline is particularly pronounced for households that were already poor and incurred OOPHE, with the proportion of households that experienced further impoverishment due to OOPHE decreasing progressively from 6.7% in 2007 to 2.4% 15 years later. The same trend can be observed for households at high risk of falling into poverty after an OOPHE, from 14.4% in 2007 to 6.6% in 2022.

Figure 1. Chilean population by risk of impoverishment after paying the OOPHE for the years 2007, 2011, 2017, and 22. (Panel 1) Groups of households by risk of impoverishment after paying the OOPHE. (Panel 2) Risk of impoverishment after paying the OOPHE in the first 3 income quintiles groups.



OOPHE indicates out-of-pocket health expenditure.

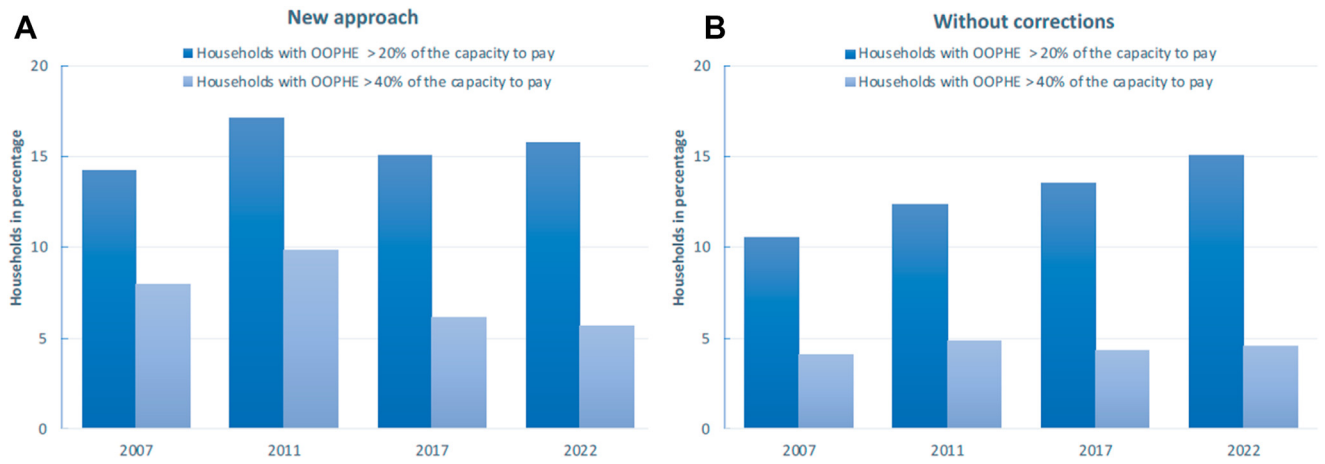
This could be explained partially by the increase in real household income over this period at the lower end of the income distribution and using the same absolute poverty line in all 3 periods analyzed. In spite of these slight improvements shown by the results of the application of this financial protection measure in Chile, there is still a significant proportion of the population whose OOPHE has a negative impact on their economic well-being. In 20, 1 in 5 households had an OOPHE, which meant (1) being in a situation of high risk of impoverishment and (2) falling into poverty (becoming poorer) or becoming even poorer (poor people who had an OOPHE).

In addition, a significant proportion of the bottom 3 income quintiles have no OOPHE (Fig. 1, panel 2). Although these may be households that effectively had no health problems that led to an OOPHE in that year, there may also be households that had a health problem but did not incur an OOPHE due to household budget constraints. In this case, our measures of deprivation risk would be underestimated.

Catastrophic Health Spending in Chile

Figure 2 shows the CHE for 2007, 2012, 2017, and 2022 using both our financial protection measure and the conventional measure without adjustment for 2 levels of reduction in the capacity to pay. Our approach (Fig. 2A) indicates a significant increase in both CHE thresholds by to 2011, reaching 17.2% at the 20% capacity to pay threshold and 9.9% at the 40% threshold. Using 20% as the threshold, we see a slight increase in CHE from 14.3% in 2007 to 15.8% in 2022. If we consider a more demanding threshold (40%) for classifying an OOPHE as a CHE, the trend is reversed, with the CHE decreasing from 8.0% in 2007 to 5.7% in 2022. In contrast to the results of our measure, the measure without corrections (Fig. 2B) shows a markedly different trend depending on

Figure 2. Households with catastrophic health expenditure (CHE) using our method for different thresholds and without corrections for underestimation of poor households' CHE and overestimation of rich households' CHE. Source: Own elaboration based on Household Budget Surveys 2007, 2012, 2017, and 2022.



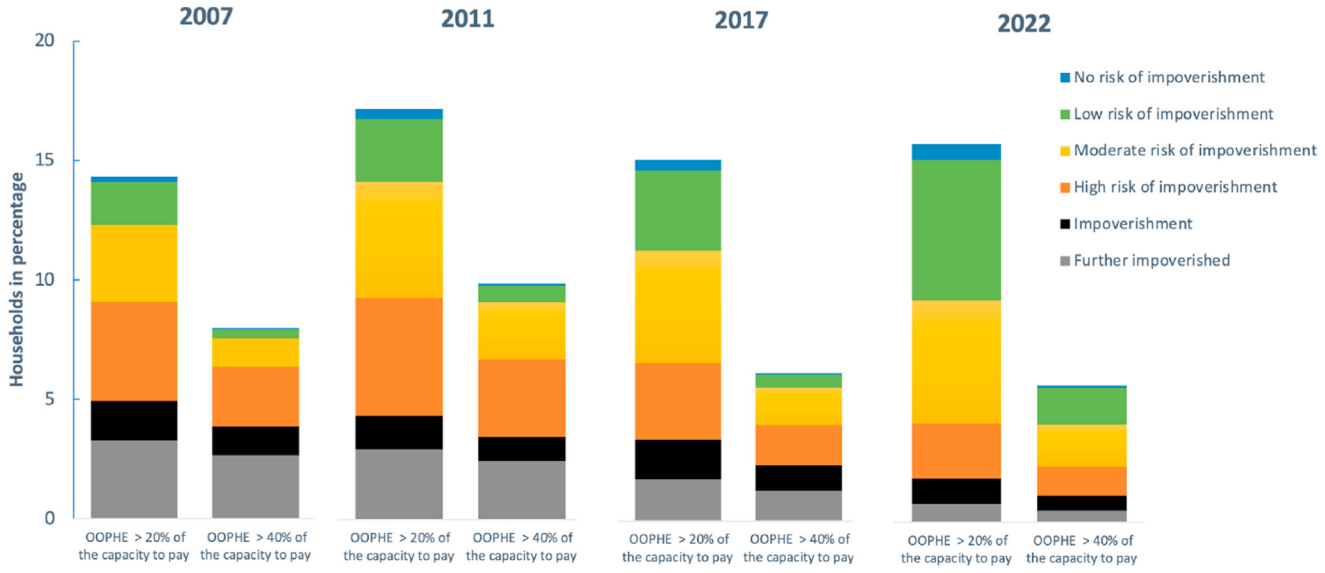
the thresholds used. At the 20% threshold, there is a progressive increase in catastrophic expenditure, whereas at the 40% threshold, the trend diverges significantly. Furthermore, the uncorrected CHE seems insensitive to major economic and health shocks, such as the 2007 to 2008 financial crisis and the 2020 to 2021 pandemic.

CHEs are concentrated in households with a high and moderate risk of impoverishment (Fig. 3). By the 2022 survey, a third of CHEs measured at the 20% capacity to pay threshold were at moderate risk of impoverishment, whereas a quarter of CHEs were households at high risk of impoverishment. Over the decade, the CHE of households at low risk of impoverishment increased from 12.6% in 2007 to 39.0% in 2022. Using the threshold of 40% of the ability to pay, we observed a more even distribution of the CHE between households that became poorer and those that fell into poverty (approximately 20%) and between households at high and moderate risk of impoverishment (approximately 25%). The CHE of households at low risk of impoverishment also increases over time, reaching 25.3% in 2022.

As we pointed out in the methodological section, our measure of CHE has 2 important implications for its results. First, it considers that the loss of economic welfare due to OOPHE is different for poor and nonpoor households. Thus, it corrects for the underestimates of the conventional measures used by the World Bank and WHO by making the financial hardship of poorer households more visible relative to richer households. Second, it requires the OOPHE of richer households to represent a larger proportion of their budget than that of poorer households before it can be classified as CHE.

The distribution by household per capita income quintiles, using the budget share method, shows that, at the 10% OOPHE threshold, CHE distribution is progressive, meaning that high-

Figure 3. Households with catastrophic health expenditure using our method for different impoverishment risk thresholds for 2007, 2011, 2017, and 20. Source: Own elaboration based on Household Budget Surveys 2007, 2012, 2017, and 20.



income households are more likely to face economic hardship. At the 25% threshold, CHE becomes less progressive and trends toward proportionality over time, although in 20 the poorest quintile still had a lower CHE (4.3%) than the richest quintile (5.7%) (see Appendix Figure 1 (panel 1A) in Supplemental Materials found at https://doi.org/10.1016/j.vhri.2025.101086).

Using our method, the distribution is consistently regressive, meaning that poorer households are more likely to experience financial hardship. Although the CHE in the poorest quintile was 19.5%, using a cutoff of 20% of the ability to pay in the richest quintile, the CHE was 9.2 (see Appendix Figure 1 (panel 1B.1) in Supplemental Materials found at https://doi.org/10.1016/j.vhri.2025.101086). Using a more demanding threshold (40% of the ability to pay), the CHE was 9.84% in the first income quintile and 2.55% in the fifth quintile (see Appendix Figure 1 (panel 1B.2) in Supplemental Materials found at https://doi.org/10.1016/j.vhri.2025.101086). In this way, our measure provides a clearer and more obvious navigation map of where policy should focus to improve the financial protection of households.

The share of OOPHE in total household expenditure is similar across households when applying the World Bank approach (see Appendix Figure 1 (panel 2A) in Supplemental Materials found at https://doi.org/10.1016/j.vhri.2025.101086). In contrast, our approach (panel 2B) shows a consistently progressive distribution at both thresholds, offering a measure of financial protection that aligns with public health policy objectives based on the normative principles of equity and targeted interventions.

Incidence of CHE by Household Characteristics and Its Determinants

The descriptive statistics show that, in 2017, female-headed households aged 61 years and older had a higher incidence of CHE at the thresholds of 20% and 40% of payment capacity. In addition, household heads with higher levels of education had a lower incidence of CHE. The results of the multivariate analysis to predict the effect of socioeconomic and demographic characteristics of households on CHE confirm these findings, except for higher education, which would have no effect on CHE. More information on the descriptive and multivariate analyses of CHE can be found in the Appendices (see Tables 1 and 2 in the Supplemental Materials available at https://doi.org/10.1016/j.vhri.2025.101086).

Discussion

The size and differential impact of OOPHE are relevant for families and for the legitimacy of health systems such as Chile's, which achieves near-universal coverage through public and private insurance. In the context of rising OOPHE, more households are directly financing their care, ie, health interventions that are not or only partially covered by insurance. This relevance also extends to other LAC countries, which, like Chile, face moderate to high levels of socioeconomic inequality and significant OOHE, much of it on medicines, but with varying levels of financial protection.[24]

This increases the likelihood that households will experience financial pressure from health expenditure and can affect well-being if paying for medical services becomes a catastrophic expense or the household falls into poverty. Measures of household financial protection against health expenditure allow public health officials to know where to focus their efforts in implementing social policies and health services that address the economic problems of different population groups.

We argue that, in emerging economies, conventional indicators of the financial protection afforded by health expenditure do not adequately capture the impact of this expenditure on individual households that may contribute less in absolute terms but are more impoverished in relative terms or are at high or moderate risk of becoming more impoverished. Although the conventional measure of impoverishment does not capture the impact of OOPHE on the well-being of households close to the poverty line, the measure of catastrophic expenditure—using the total household share method—overestimates economic hardship for richer households and underestimates it for poorer households.

Our measures provide relevant information on household welfare losses associated with out-of-pocket expenditure for the design and monitoring of social policies aimed at providing households with financial protection against OOPHE. In particular, our indicators identify households in terms of their vulnerability to OOHE and also allow progress to be made in identifying health services that contribute to OOHE and whose extension of coverage could be recommended to policy makers. Taking into account high household incomes when measuring CHE helps to identify those in advantaged households who are most likely to face financial difficulties due to health expenditure. It allows these households to be characterized by family composition, health needs, occupation, and the services they use, providing essential information for decision makers to target priority groups and implement financial protection measures for both poor and higher-income groups.[12]

The proposed approach seems to reflect the impact of national public policies and events such as the extended COVID-19 health emergency. The decrease in CHE between 2012 and 2017 is likely to be associated with key financial protection policies in Chile. The Pharmaceutical Law I, enacted in February 2014, introduced reforms such as the mandatory prescription of bioequivalent medicines and the maintenance of a minimum stock of generic medicines. The Explicit Health Guarantees (GES, for its acronym in Spanish), which cover outpatient medicines and limit or exempt copayments for prioritized treatments, have been strengthened by the Pharmacy Fund for Chronic Noncommunicable Diseases in Primary Health Care (FOFAR, for its acronym in Spanish)[25] created to address the shortage of outpatient medicines for the treatment of chronic diseases in the public health network. The increase in CHE in 2021 to 20 may be related to the treatment of COVID-19-related health problems, their sequelae, or a rebound in hospitalizations during the final phase of the health emergency.[26,27] The impact of these national public policies, or similar strategies in countries comparable to Chile, could be further analyzed using the proposed measures.

Analyses of financial protection in health spending should also develop other lines of research related to 2 factors in the health system that affect household out-of-pocket expenditure. The first is changes in effective healthcare coverage. Delays in receiving healthcare may lead people to seek alternatives, which may increase their out-of-pocket expenditure. Second is the level of unmet basic needs due to difficulties in accessing healthcare. The proportion of households with no out-of-pocket expenditure would increase if households in need of health services were able to access them. However, these effects may be modulated as public health coverage increases, particularly for out-of-pocket expenditure on medicines.

Conclusion

This research provides concrete tools for monitoring and analyzing the financial vulnerability of countries that have achieved progressive poverty reduction and significant improvements in population health indicators but still face substantial levels of

social inequality, including large populations that are highly vulnerable to economic shocks.[14]

Author Disclosures

Author disclosure forms can be accessed below in the Supplemental Material section.

Supplemental Material

Supplementary data associated with this article can be found in the online version at https://doi.org/10.1016/j.vhri.2025.101086.

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