



Equity in healthcare financing: A review of evidence

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ABSTRACT

This review summarises empirical studies on the progressivity and redistributive effects of healthcare financing mechanisms. The evidence varies significantly across countries and financing sources. Tax-based systems exhibit high progressivity, as direct taxes contribute to a favourable redistribution toward low-income households, often offsetting the regressive nature of indirect taxes. Social insurance systems are found to be progressive but may be regressive in practice due to contribution ceilings and exemptions for high-income earners. This creates disparities where high-income taxpayers benefit from social protection while contributing less proportionally to their total income, limiting the overall positive redistributive effect on income inequalities. Most health systems with co-payments use flat rates rather than income-based rates, disproportionately affecting lower-income individuals and potentially leading to catastrophic expenses. This review highlights a lack of recent research on healthcare financing in high-income countries, while recent studies in low- and middle-income countries align with commitment to deliver universal health coverage. Continuous analysis of the redistributive effects of the health system is essential to ensure that health financing systems not only fund healthcare effectively but also contribute to broader social equity goals.

1. Background

The mechanisms through which healthcare is financed can mitigate or exacerbate overall inequalities. In health systems where healthcare is financed through taxation or public funds, the burden of healthcare costs is distributed across the population based on their ability to pay through progressive taxation. This can reduce social and economic inequalities by providing essential healthcare services to all citizens regardless of their income level. However, in health systems where healthcare is primarily financed through private financing such as out-of-pocket payments (OOPs), access to healthcare is tied to ability to pay and can potentially widen income inequalities. High OOPs for healthcare can disproportionately affect low-income households, pushing them into poverty and increasing overall income inequalities. In contrast, systems with lower OOPs or comprehensive healthcare coverage can help alleviate financial strain on low-income households, contributing to income redistribution.

This article aims to assess the progressivity of health system financing and its overall redistributive effect on society. Equity of

healthcare financing is critical for fair healthcare system; it ensures that healthcare resources are distributed according to healthcare needs rather than ability to pay. This review focuses on the co-benefits of healthcare financing in reducing broader social and economic inequalities, thereby it relates to SDG 10, which targets overall inequalities.

Another pathway through which healthcare financing can contribute to increasing incomes and lowering economic disparity in the long run is related to enhancing financial protection. When financial barriers are minimized, access to essential health services, especially for lower income groups, reduces income-related inequalities in healthcare access, which, in turn, leads to better health outcomes thereby enhancing education and socioeconomic opportunities. This indirect pathway highlights how equity in healthcare financing can lead to equity in health outcomes and access. As we focus here on the relationship between healthcare payments and income and/or ability to pay, the health benefits from healthcare spending on the utilization of health services are not covered (see [1,2] for a review). Furthermore, several of the indirect mechanisms through which health may affect income were

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covered in this special issue: childhood health impacting schooling [3], the earnings-health relationship [4], and ill-health causing poverty [5].

This narrative review combines the finding of 57 papers and shows how equity in the financing of healthcare has been studied in high-income countries (HICs) from the late nineties [6–12], followed with studies in low- and middle-income countries (LMICs), especially in Asia-Pacific [13–15] and recently in the rest of the world [16–19]. We find that the progressivity and redistributive effects of health financing mechanisms vary significantly across countries and with financing sources. Direct taxes are generally progressive, i.e. poorer households contribute a smaller proportion of income to finance healthcare compared to richer households, while indirect taxes tend to be regressive. OOPs are always regressive as they disproportionately burden lower-income households, and this is even more marked in LMICs. Social insurance and private health insurance reveal mixed effects, depending on specific national policies and structures. Overall, this review emphasizes that designing health financing policies that prioritise equity in healthcare financing through progressive taxation can significantly reduce income disparities. Furthermore, public health financing particularly benefits low-income households, which face heavier healthcare costs, and thus enhances income redistribution.

2. Methods

A literature search was performed on papers published since the seminal paper of Wagstaff et al., [20] on equity in healthcare financing. The search aimed to identify research articles documenting the impact of health financing on income inequalities. The search terms combined health-related terms with a list of income- and policy-related terms. More details are provided in Appendix A.

Titles and abstracts from the papers retrieved were examined to determine their relevance. Only papers meeting the criteria of being (1) written in English, (2) published in relevant academic journals or book chapters, (3) providing empirical results disaggregated by financing sources, and (4) employing indices measures, were deemed eligible for inclusion. We did not impose any restrictions on the years of publication, however the selection of empirical analyses measuring progressivity, or the redistributed effects of income tax led us to select publications *ex-post* seminal papers [12,20,21]. A total of 57 papers were considered for the review.

As the redistributive effect of a healthcare financing system depends not only on its progressivity but also on the extent of the overall redistribution resulting from it [8], studies were categorized on these two issues. They were then sub-divided into the main sources of healthcare finance to assess how well different forms of health financing sources perform in terms of income protection. Three health financing sources were considered: taxes, social insurance, and private financing mechanisms such as private insurance premiums and OOPs.

3. Results

3.1. Conceptual framework

Healthcare systems use different types of sources to finance healthcare services. In a tax-based health system payments for healthcare are linked to a variety of taxes (income, sales or specific health-related taxes) while in a social health insurance system consists of contributions from employers and employees. Private financing mechanisms include private health insurance premiums where individuals or employers pay for insurance, and direct healthcare payments made at the point of use.

It is important to distinguish between three main types of contributions: contributions linked to utilisation (such as OOPs, cost-sharing, and non-covered services), mandatory contributions not related to use (e.g., taxes, per capita premiums, and income-based contributions), and voluntary contributions (such as voluntary health insurance, which may

reduce OOP expenses or expand service coverage depending on the context).

Protecting individuals from healthcare payments leading to financial hardship is a key policy objective shared worldwide as evidenced with the universal health coverage (UHC) target of the SDGs (Target 3.8 in SDG3). This underlines the importance given to fairness in financial contribution, according to which the distribution of healthcare payments should be aligned with the distribution of household income and ability to pay rather than healthcare needs and utilization. When a progressive financing system is implemented, higher-income individuals contribute more to the healthcare system reducing the disparity in disposable income between the rich and the poor through tax redistribution. Progressive financing sources do not inherently reduce pre-tax income inequalities; instead, the reduction occurs after taxation and redistribution. When progressive taxes or contributions fund public services like healthcare, the post-tax income distribution becomes more equal. Additionally, the provision of UHC coverage disproportionately benefits lower-income individuals, enhancing equity in healthcare financing. The distributional consequences of public healthcare payments differ from private healthcare payments [22]. With a tax-financing system, the financial burden is shared among the whole population within a single scheme applying to all. However, risk sharing is limited in social health insurance, as contributions are often proportional to income. Under private insurance, premiums are risk-rated pooling individuals within the same risk status. Finally, direct healthcare payments are linked to healthcare use and there is no risk pooling.

Two equity implications of healthcare financing are of key relevance for health policy in this context.

The foremost policy issue is the extent to which each financing source promotes vertical equity whereby households with unequal incomes appropriately contribute unequally to financing healthcare [12]. Vertical equity identifies whether a particular financing source is progressive (i.e. payments rise as income increases), regressive (i.e. payments fall as income increases), or proportional (i.e. the proportion of income devoted to healthcare payments is the same regardless of income). Vertical equity is measured with a Kakwani progressivity index, which measures the extent to which a tax system departs from proportionality [23]. The Kakwani index is derived from comparing the distribution of healthcare payments according to income (the Lorenz curve) with overall income inequalities in the population (the concentration curve) (Fig. 1A). The Lorenz curve plots the cumulative proportion of the population from the poorest to the richest against the proportion of income before taxes, while the concentration curve plots their proportion of taxes-related contributions. The 45° line represents perfect equality, where each percentile of the population receives or pays an equal share of income or taxes. The Kakwani index is based on the size of the area between the two curves and derives from the difference between the concentration index of taxes and the Gini coefficient of pre-tax income. The values of a Kakwani index spread over the interval [−2; 1]. It is positive (respectively negative) when the distribution of healthcare payments according to income is less (more) unequal than the distribution of income, hence the financing system is progressive (regressive). When the two distributions overlap, the index equals to 0 and health financing is proportional to income. A Kakwani index of 0 can also be observed when the two distributions cross. This may happen when a health system is progressive for lower income and regressive for higher income (or the reverse). It is recommended to supplement any Kakwani calculation with a graphical representation.

One key property of the Kakwani index is its ability to reflect the overall progressivity of a healthcare financing system as a weighted sum of the indices for individual financing sources. This means that the total progressivity index is influenced by the relative contributions of each source, including taxes, premiums, and OOPs. Evaluating each source separately helps to understand their specific impact on the system's overall equity, providing a clearer picture of how different financing mechanisms respectively contribute to vertical equity. Policymakers

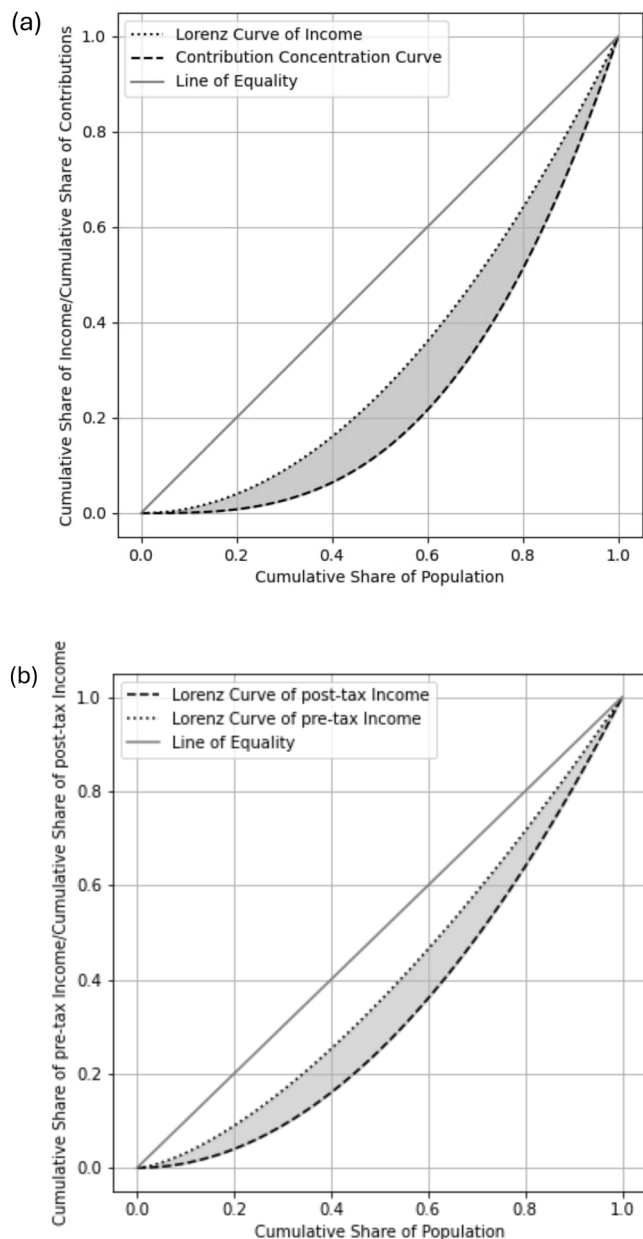


Fig. 1. Redistributive effects of a healthcare financing system. (A) The Kakwani progressivity index. (B) The income redistributive effect.

generally prefer progressivity in healthcare financing, favouring systems where the poorest contribute proportionally less than the richest. Conversely, a system where the poorest contribute proportionally more than the richest is typically deemed unacceptable. The progressivity of any financing sources can be assessed.

The second issue is the extent to which healthcare payments affect income and income inequalities in a country [24]. Health financing affects income inequalities since healthcare use is financed by household income, whether in the form of prepayment (taxes, health insurance contributions, health insurance premiums), co-payments, or OOPs at the time of healthcare use. Equity in healthcare financing consists in understanding the income redistributive properties of health financing sources and judging how income groups contribute to the health financing system [20]. As under progressive financing sources higher-income individuals contribute a larger proportion of their income, this leads to a redistribution of income from the rich to the poor thereby narrowing the income gap after taxation. On the other hand,

healthcare systems that rely heavily on OOPs disproportionately impoverish low-income households compared to high-income households tend to increase income inequalities. Graphically, the income redistributive effect represents the area between two Lorenz curves of income distribution before and after public health financing and other payments have been made (Fig. 1B). It is measured as the arithmetic difference between pre-payment income inequalities and post-payment income inequalities, which are both measured by a Gini coefficient. A positive difference displays a pro-poor income redistribution where inequalities in post-payment income is lower than in pre-payment. Conversely, a negative difference displays a pro-rich income redistribution, while a proportional income redistribution is observed when the difference is equal to 0.

It is important to distinguish progressivity from redistribution: while progressivity measures the degree to which healthcare payments deviate from proportionality, redistribution refers to the effect of these payments on overall income inequalities. A progressive financing system does not necessarily guarantee a reduction in income inequalities; the actual redistributive impact depends on the relative size of the payments and their distribution across income groups.

3.2. Vertical effect of healthcare financing sources

3.2.1. Tax-based health system

The literature usually studies the vertical effect of tax-based systems separately for direct and indirect taxes. Direct taxation generally includes income, corporate, vehicle, or profit taxes while indirect taxes include VAT, luxury goods tax, excise tax, and import tax.

Tax-based health systems where healthcare is primarily funded through direct and indirect taxation are not as common in LMICs as they are HICs. LMICs often face challenges in collecting tax revenue and implementing sustainable tax-funded systems. In all the tax-based health systems countries surveyed, the Kakwani index of direct taxes is positive, indicating that this financing source is progressive. However, the magnitude of the index varies: there is strong progressivity in the UK, Ireland, and Germany, and across HICs, the Kakwani indices are on average equal to $V = 0.27$ [6,7]. In LMICs, direct taxes also are progressive. In Mauritius and Sierra Leone, direct taxes are strongly progressive ($V = 0.30$) [17,25]. There is also a positive vertical effect ($V = 0.22$) in Argentina [26]. The progressivity of direct taxes arises from the nature of these taxes and the design of tax brackets where rates increase as income increases, ensuring that those with greater financial capacity contribute proportionally more.

In both HICs and LMICs, indirect taxes are always regressive because consumption presents a higher proportion of income for poor people. In HICs, the Kakwani indices of indirect taxes is between $V = -0.15$ and $V = -0.03$ with the UK being the most regressive ($V = -0.15$) [27,28]. Across LMICs, the Kakwani indices are between $V = -0.14$ and $V = -0.04$ [16,17,25,26,29]. However, in Egypt, indirect taxes are progressive ($V = 0.14$), which comes from indirect taxes being applied to luxury goods only, basic consumption goods being exempt [30].

3.2.2. Social health insurance

The progressivity of social health insurance systems depends on the way revenue is collected and how insurance is covered. Given that contributions are generally deducted from earnings [30] with ceilings [29], social insurance systems are potentially less progressive than tax-funded systems [31].

In HICs, social insurance is generally progressive with Kakwani indices between $V = 0.01$ and $V = 0.02$ [6]. However, in some countries, social health insurance systems are regressive, displaying Kakwani indices between $V = -0.0072$ and $V = -0.01$. This is the case of Germany and the Netherlands [6] and Japan, South Korea, and Taiwan [32]. The regressivity comes from the fact that high income earners in these countries are exempted from sickness fund schemes and there are contribution ceilings.

Regarding LMICs, the progressivity of social health insurance systems appears heavily related to the transition to UHC and the share of OOPs within the total healthcare expenses. In China, health financing from general taxes rose steadily from 15.69 % in 2002 to 22.31 % in 2007. However, the progressivity of health insurance varies across regions [33]. Basic Medical Insurance in cities and counties is progressive ($V = 0.3900$) while the New Rural Cooperative Medical Care System in towns and villages is regressive ($V = -0.1400$). The primary factor causing the disparity between urban and rural health insurance is the premium-setting policy. The Chinese health reform prioritized expanding coverage to include the uninsured within the insurance programme and this expansion resulted in poorer individuals in rural areas contributing relatively more to insurance as premiums were set irrespective of capacity to pay. This 'one size fits all' approach led to inequity in financing. Conversely, those covered by the urban scheme paid premiums proportional to income, which ensured a more equitable system. Indonesia experienced similar patterns when moving toward UHC with the Jaminan Kesehatan Nasional scheme [29]. After the implementation of the scheme, the Kakwani index was $V = -0.116$. The regressivity came from the nature of the contributions where the government imposed a fixed rate on employees from both public and private sectors (5 % of monthly income) with a ceiling amount on salary for assessed contributions leading poorer households to face higher financial burden. In Palestine, governmental health insurance, that covers over 60 % of the Palestinian households, appears slightly progressive ($V = 0.1201$ in the West Bank and $V = 0.1100$ in the Gaza Strip) but the progressivity is offset by OOPs, which represent approximately 40 % of the total expenditures leading to overall regressive health financing ($V = -0.0680$ in the West Bank and $V = -0.0470$ in the Gaza Strip) [34,35].

3.2.3. Private health financing

Private financing mechanisms include private health insurance premiums where individuals or employers pay for insurance and direct healthcare payments are made at the point of service. Private sources of financing, especially OOPs, are expected to be regressive as low-income households consume relatively more healthcare than high-income households and contribute with a larger share of disposable income. However, the progressivity of the distribution of premiums depends on the nature of the private insurance. If the private insurance represents an important source of healthcare financing, the distribution tends to be moderately to highly regressive as lower income households are disproportionately in poorer health than richer and need higher premiums. If private insurance complements public health financing as an insurance against co-payments, the distribution is progressive in systems where high-income earners have opted out from social health insurance, and regressive in systems where private insurance is compulsory. In the latter, private insurance premiums are usually independent of income.

It is crucial to consider not only the indirect effects of OOP payments on access to care via income effects, but also their direct impact. OOP payments create financial barriers, leading individuals, particularly in private or mixed systems, to forgo necessary care. Evidence suggests that user charges can result in healthcare renunciation or catastrophic healthcare expenses, especially among vulnerable populations, even within insured systems [36,37]. While these mechanisms may offer short-term cost containment, they risk undermining long-term equity by delaying or preventing access to care, thus creating inefficiencies in the system. This trade-off between cost containment and accessibility highlights an important consideration in evaluating financing mechanisms.

One must be cautious when interpreting the vertical effect in the context of private insurance and direct payments. Using the Kakwani index to evaluate the equity of a financing system can be problematic. The index only measures the progressivity or regressivity of financing in relation to income. Hence, it does not account for access to care, and it does not reveal how healthcare services are distributed across income groups.

In nations where private insurance is supplementary and predominantly purchased by wealthier individuals, as observed in Germany, Italy, Palestine, and South Africa, the Kakwani indices are generally positive and between $V = 0.0013$ and $V = 0.019$ [6,28,16,34]. On the contrary, poorer individuals, in most cases, rely solely on basic public insurance and do not have the means to purchase supplementary private insurance. The lack of a lower number of private insurance subscriptions among the poor compared to the rich leads to a positive Kakwani index. However, in countries, such as the US and Switzerland where a substantial portion of the population buys private insurance, private health insurance tends to be regressive with Kakwani indices between $V = -0.0121$ and $V = -0.0080$ [6,38]. In Switzerland, basic health insurance is mandatory for all and regulated by private insurers [39].

OOPs decrease the available disposable income, thereby restricting access to healthcare services and exacerbating disparities between the poor and the rich. There is a consensus that OOPs are an inequitable mechanism for health financing especially when they represent a high share of total health expenditures and thus pose a risk of catastrophic healthcare expenditures.

In HICs, OOPs are found to be regressive. In Hungary, where access is universal, OOPs on healthcare have a negative Kakwani index $V = -0.22$; households from the lowest income quintile spend a share of income three times higher on OOPs (6–7 %) than the highest income quintile (2 %) [40]. In Australia, where access is also universal, one study [41] analyzed how OOPs for Medicare-subsidized out-of-hospital services and prescription medicines were distributed across households based on their ability to pay. Australia has a mixed public and private healthcare system. Their universal health insurance scheme, Medicare, provides free public hospital care and subsidizes private hospital care as well as a range of out-of-hospital services and prescribed medications. In 2019–2020, OOPs represented approximately \$29.8 billion. Medicare has implemented measures to contain high costs for low-income households, including bulk-billing and safety nets that accumulate costs over the calendar year and either increase benefits or reduce co-payments once thresholds are reached. The study found that OOPs, as a percentage of equivalised household disposable income, decreased from 1.16 % in the lowest income decile to 0.63 % in the highest decile for Medicare Benefits Schedule service (MBSs), and from 1.35 % to 0.35 % for Pharmaceutical Benefits Scheme medicines (PBSm). Despite these subsidies, the co-payments for MBSs exhibits mild regressivity ($V = -0.06$), while co-payments for PBSm show pronounced regressivity ($V = -0.24$).

In India, healthcare is financed through a combination of public and private sources [43]. The public sector is responsible for providing healthcare services to most of the population, particularly those who cannot afford private healthcare. On the other hand, the private sector caters to those who can afford to pay for healthcare services. Despite government efforts to increase healthcare funding, India's public health expenditure remains low compared to similar countries, and a significant portion of healthcare financing comes from OOPs. The distribution of OOPs disproportionately pushes the most vulnerable households into poverty in all the districts; the Kakwani indices ranged from $V = -0.06$ to $V = -0.35$. In all the districts, people were paying more for health relative to their economic status, and inequity in financing was even more marked in rural districts. However, in several LMICs, such as Cameroon, Chile, Malaysia, studies assessing OOPs show positive Kakwani indices (between $V = 0.03$ and $V = 0.09$) displaying higher direct private health expenses in richer households compared to poorer households [42–44]. Unlike Malaysia and Chile, Cameroon has not yet achieved comprehensive UHC. Despite some public financing, a significant portion of health financing relies on households' co-payments, thereby limiting access to care, particularly for the poorest. This exacerbates disparities in healthcare utilization, as wealthier households consume more services while poorer households struggle to afford OOPs and often forego necessary care.

The healthcare financing system in Chile is mixed, incorporating

both public and private health insurance [44]. Despite achieving nominal UHC (with 72 % of the population covered through FONASA), Chileans with low incomes face significant financial barriers to accessing healthcare as indirect costs such as copayments are not covered by insurance. As a result, richer individuals tend to utilize the system more.

Malaysia also employs a dual-tiered approach combining public and private services [43]. As of 2019, 97 % of the Malaysian population had health coverage, either through the public or private sectors. However, this duality also creates disparities in terms of access and quality of care, with higher costs and perceived higher quality in the private sector. Low-income households often face limitations in accessing expensive private healthcare services, leading them to utilize subsidized public services, which can vary in quality and be overburdened. Conversely, wealthier households tend to prefer more costly private healthcare facilities, which are perceived to offer superior quality. Consequently, OOPs are concentrated among the more affluent households.

3.3. Redistributive effect of healthcare financing sources

The redistributive effect of a tax (denoted as RE) is assessed by the difference between the pre-tax and post-tax Gini coefficients. A positive RE value indicates that the tax reduces inequality, while a negative RE value signifies that the tax increases inequality.

3.3.1. Tax-based health system

The redistributive effect of tax-based system was found positive and pro-poor in twelve OECD countries with direct taxation positive redistributive effect offsetting the negative redistributive effect of indirect taxation [6]. Tax-based system therefore reduces income inequalities. It is worth noting that the pro-poor redistributive impact of tax-based health systems is larger in the US (RE = 0.0059) than in tax-financed healthcare systems in Europe, such as in Finland (RE = 0.0044) and the UK (RE = 0.0035) [6,45]. Medicaid in the US was designed specifically to support those financially disadvantaged, however Finland and the UK have universal healthcare systems that provide services to all citizens regardless of income. While this ensures universal access in health services, it also leads to redistributive effects being spread across the entire population, diluting the specific pro-poor impact compared to the targeted approach seen in the US. With the Affordable Care Act, it is possible that nowadays the differences in regressivity are less marked. While the redistributive effects are large, the share of tax-based healthcare is limited, and the US significantly relies on private insurance and high OOPs in general. Hence, there are still important income inequalities in the US [9,46,47].

In LMICs, direct taxes play a crucial role in redistributing income in all countries, however the effect of indirect taxes on income inequalities vary across countries. In Zambia, the redistributive effect is pro-poor for both direct taxes (RE = 0.0053) and indirect taxes (RE = 0.0046); as taxes make up 60.8 % of total health financing, they play a crucial role in redistributing income [19]. Furthermore, direct taxes are based on per capita tax payments, meaning they are paid by individuals regardless of household size. Positive redistributive effects of indirect taxes are also observed in Tanzania (RE = 0.07) and Ghana (RE = 0.01) where indirect taxes are linked to extensive VAT exemptions on products such as agricultural goods, which are mainly consumed by the poor, and to the progressivity of import duties [38,48]. In South Africa, taxes represent a share of 38.2 % of total healthcare financing and while direct taxes results in significant pro-poor income redistribution (RE = 0.0072), the redistributive effects of financing health services through indirect taxes are negative (RE = -0.0025). Despite this, the overall impact of total taxes (direct and indirect) on financing health services results in a notable reduction in income inequality, with a combined redistributive effect of RE = 0.0048 [16]. Similarly, in Argentina the redistributive effect of direct taxes is positive for both 1997 (RE = 0.2670) and 2002 (RE = 0.1870) and the reduction over the period comes from direct taxes being less progressive in 2002 compared with 1997 due to inflation

leading to an increase in the proportions of taxpayers. The contribution of the richest decile decreased from 88.2 % of total direct taxes to 70.8 % in 2002. Indirect taxes thus increased income inequalities (RE = -0.0920 in 1997 and RE = -0.1010 in 2002) [26]. The pro-rich indirect taxes can be attributed primarily to the non-discriminatory nature of indirect taxes and variations in household consumption patterns.

3.3.2. Social health insurance

The redistributive effect of social health insurance is only estimated by Bilger [49] for Switzerland. Government expenditure accounts for 15.2 % of healthcare financing and social health insurance causes a negative and large redistributive effect (RE = -0.0098) among all basic financing sources. The increase in inequality caused by social health insurance results from the fact that health insurance premiums are not set on income levels and so, premiums represent a larger budget share for the poor households compared to rich ones.

3.3.3. Private health financing

The redistributive effect of private health financing is well studied in HICs and LMICs, with OOPs showing a negative impact as poorer households allocate a larger income share to healthcare. Significant pro-rich redistribution is observed in Switzerland (RE = -0.0124), Austria (RE = -0.0121), Palestine (RE = -0.037 in West Bank; RE = -0.0247 in Gaza), Nigeria (RE = -0.0355), and Canada (RE = -0.2105) [34, 49–52]. OOPs heighten financial burdens for poorer households, reducing their spending on other welfare-enhancing goods.

The redistributive impact of private insurance depends on its voluntary or mandatory nature and income-level coverage. In Italy, Portugal, and the UK, voluntary private insurance (covering 21 % of healthcare costs) is concentrated among wealthier households, causing a small positive redistributive effect (RE = 0.001 to RE = 0.002).

In Switzerland, nearly the entire population is covered by a mandatory basic health insurance managed by private insurers. However, this insurance is regulated by the government and mandatory for all residents. Premiums are not income-based but vary according to age, canton of residence, and choice of deductible [53] in order to ensure universal access to healthcare. Flexibility in the choice of deductible can help reduce premium costs. However, this choice introduces a regressive element as wealthier individuals can more easily afford higher deductibles with a negative redistributive effect (RE = -0.0124) [9,49]. This issue is particularly pronounced among the poorest, who can spend as much as 5.5 % of their income on OOPs, compared to only 2.1 % for the wealthiest [56]. Furthermore, hospital private rooms fall under voluntary supplemental insurance [53,57].

While in Switzerland, premiums are regulated, and individuals can reduce their premium costs by opting for higher deductibles, the Dutch system includes a collective risk equalization scheme that reduces variation in premiums and lessens the regressive impact of high deductibles. This scheme provides a more equitable distribution of financial risks across income groups; however, wealthier individuals are still more likely to opt for higher deductibles [53,57]. While the scheme helps reduce premium disparities, the system still shows a regressive trend, as the wealthier more easily bear the risks associated with higher deductibles [56]. In contrast, income-based social contributions in France limit private insurance's redistributive effect (RE = -0.002) [9, 54]. Categorizing insurance as mandatory or voluntary clarifies its effects, with regulated systems like those in Switzerland and the Netherlands resembling social health insurance schemes [54].

In South Africa, private health insurance reduces income inequality (RE = 0.0103), and the income redistributive effect from private health insurance contributions is greater than from total taxes [16]. Complementary private health insurance plays a significant role in healthcare funding accounting for about 50 % of total health financing. This situation stems partly from high economic inequality (Gini index ~0.70). Higher-income households afford better, faster services, while lower-income households rely on the often overburdened and

variable-quality public system. Complementary private insurance is an attractive option for those seeking to bypass challenges in the public system, thereby significantly contributing to the overall financing of healthcare in South Africa [24]. Similar results are observed in Argentina where a positive redistributive effect ($RE = 0.0538$) stems from the high cost of private health insurance, unaffordable for most poor households [26].

4. Discussion

This study has highlighted the redistributive role of health financing and how equitable healthcare financing can play a significant role in reducing post-taxation income inequalities. Tax-based systems exhibit high progressivity as direct taxes contribute to a favourable redistribution towards low-income households and usually offset indirect taxes, which often tend to be regressive. Hence, tax-based systems generally lead to reduced income inequalities. Social insurance systems, that are common in many HICs and some MICs, are found to be progressive by design but may be regressive in practice due to contribution ceilings and exemptions for high-income earners. This creates disparities where high-income taxpayers may benefit from social protection while contributing less proportionally to their income, limiting the overall positive redistributive effect on income inequality. Private payments, including health insurance premiums and OOPs, are often regressive. Most health systems with co-payments use flat rates rather than income-based rates and this disproportionately affects those with lower incomes. The regressive impact of co-payments would be mitigated if they were adjusted to patients' income. Regressive co-payments can lead to catastrophic expenses for low-income households, thus restricting equitable access to healthcare [55]. Policy options to improve equity should thus consider adjusting mandatory contributions (e.g., income-based taxes and social insurance premiums) to increase progressivity, while reforms in cost-sharing mechanisms (e.g., co-payments and OOPs) should focus on reducing the financial burden on lower-income households to enhance both progressivity and access.

A crucial point for discussion is the rich variety of institutional settings across different countries and how these variations can significantly impact the interpretation of the results. Health financing systems are embedded within broader social, economic, and political contexts that shape their design and implementation. For instance, the effectiveness of tax-based systems in reducing income inequalities varies depending on the overall tax structure, the efficiency of tax collection, and the extent of social transfers. Similarly, the progressivity of social insurance systems is influenced by the specific rules governing contributions and benefits, such as the presence of contribution ceilings or exemptions. Moreover, the impact of private payments and co-payments on equity in healthcare access differs widely with the regulatory environment, availability of supplemental private insurance, or cultural attitudes towards healthcare financing. In countries where there is a strong tradition of public provision of healthcare, the role of private payments may be less pronounced, whereas in countries with a more market-oriented approach, OOPs play a larger role in shaping care access. It is important to note that while equity in financing can support equitable access, the two issues are distinct; addressing inequities in financing mechanisms is a necessary but not sufficient condition to ensure equal access to healthcare services. When interpreting the results of this review, policymakers and researchers must consider the specific institutional context of each country to develop tailored strategies that effectively address inequities in healthcare financing. This approach ensures that the policies are not only theoretically sound but also practically applicable within the unique framework of each healthcare system.

While most studies used Kakwani progressivity indices to assess the equity of healthcare financing mechanisms, it is not an ideal measure as it may be misleading [29]. While a positive Kakwani index suggests a progressive distribution of healthcare payments relative to income, it

fails to account for access to healthcare services. In some healthcare systems, especially in LMICs, positive Kakwani indices for OOPs were observed. This 'artificial' progressivity occurs because healthcare services are disproportionately utilized by wealthier individuals. Poorer individuals contribute less to total OOPs because they forego necessary healthcare due to financial constraints. The supposed progressivity of OOPs thus, does not translate into reduced income inequalities or improved equity in health financing but exhibits the burden of healthcare expenditure, which pushes low-income households into poverty. Relying solely on progressivity indices to gauge equity in healthcare financing is therefore limiting and underlines the necessity to complement indices calculation with measurements of healthcare access and utilization across different income groups.

This review emphasised the lack of recent research on equity in healthcare financing in HICs. Recent studies of equity in healthcare financing focused on LMICs where healthcare reforms are implemented, or transition to UHC is planned or on-going. The scarcity of recent studies on healthcare financing in HICs may be attributed to the achievement of universal health coverage long ago. Still, analyses of vertical equity and redistributive effects are valuable in established UHC systems. UHC ensures that all individuals have access to necessary healthcare services without financial hardship, but it does not automatically guarantee equitable financing or the elimination of inequalities in access and outcomes. Vertical and redistributive effects analyses provide critical insights into how health financing mechanisms impact different income groups and how these impacts can be optimized to enhance equity.

This gap is particularly surprising considering the increasing availability of databases on poverty and income such as Euromod and EU-SILC, which would allow renewed studies across European countries decades after the EU-funded ECuity project led in the late nineties. The burden of healthcare costs can disproportionately affect lower-income households if the system relies heavily on regressive financing mechanisms such as flat-rate co-payments or high OOPs [56]. By examining vertical equity, policymakers can identify whether the financing system is truly progressive, i.e. higher-income groups contribute a larger share of their income, or if it places a heavier burden on those least able to afford it. Redistributive effects analysis, on the other hand, evaluates how effectively healthcare financing reduces overall income inequalities. This involves looking at how different financing sources such as taxes, social insurance contributions, or OOPs, and benefit allocations, influence income distribution after healthcare expenses are accounted for. Understanding redistributive effects helps ensure that health financing systems not only fund healthcare effectively but also contribute to broader social equity goals.

5. Conclusion

The literature shows that equitable healthcare financing can play a role in reducing financial barriers to healthcare access and reducing income disparities. Health payments have a substantial effect on the economic welfare of households, especially when OOPs threaten living standards and lead to catastrophic health payments.

Through the implementation of progressive financing mechanisms and the expansion of UHC, societies can move closer to more equitable healthcare systems. Policies should aim to reduce financial barriers to healthcare access for low-income populations through targeted subsidies, exemptions for essential healthcare services, or expanding insurance coverage to include vulnerable groups. By ensuring that healthcare systems are designed to be progressive and inclusive, policymakers can address both health and economic disparities, contributing to more equitable and prosperous societies.

CRedit authorship contribution statement

Emilia Luyten: Writing – review & editing, Writing – original draft,

Methodology, Data curation, Conceptualization. **Sandy Tubeuf**: Writing – review & editing, Writing – original draft, Supervision, Methodology, Conceptualization.

Declaration of competing interest

The authors declare there is no conflict of interests.

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Supplementary materials

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