

Financial protection in health care across the West African Economic and Monetary Union: a multidimensional analysis

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Summary

Background As in much of Africa, the heavy reliance on out-of-pocket payments for health care in West African Economic and Monetary Union (UEMOA) countries exposes households to financial risk. We aimed to measure the level of financial protection in health—a core dimension of universal health coverage—by integrating financial hardship and barriers to financial access; assess equity in financial protection; and evaluate the effectiveness of financial protection mechanisms, with a focus on health insurance.

Methods In this multidimensional analysis, we analysed repeated cross-sectional data from the Harmonised Household Living Conditions Survey (EHCVM) for all eight UEMOA countries in 2018–19 and 2021–22. To measure the level of financial protection, we constructed a composite indicator of financial protection combining forgone care for financial reasons; catastrophic health expenditure (CHE; >10% of household budget); and impoverishing health expenditure (IHE; relative to national poverty lines). To examine inequalities in financial protection, we used concentration indices to assess household socioeconomic characteristics. To estimate the associations between health insurance and forgone care, as well as between insurance and health expenditures, we used inverse probability of treatment weighting with 18 covariates, including age, sex, education level, economic activity, reason for care need or illness, disability status, and wealth quintile.

Findings The EHCVM covered 119 189 households (736 902 individuals) across the two time periods. In 2021–22, 54 645 696 (39·8%) people across the UEMOA did not have financial protection, ranging from 32·6% (Niger) to 50·3% (Guinea-Bissau). Relative to 2018–19, financial protection worsened in six of the eight countries. Components of the composite indicator included forgone care for financial reasons, which affected 10 028 269 (7·3%) people, and financial hardship, affecting 52 751 775 (38·4%) people. 13 631 980 (9·9%) people reported CHE and 47 742 509 (34·8%) reported IHE; these categories are not mutually exclusive. In both time periods, medicines accounted for more than 50% of health spending in most countries; among households with CHE, medicines share often decreased in favour of outpatient or inpatient care (by <13·7 percentage points; $p < 0·0001$). Forgone care was highest for individuals with ophthalmic needs (11·9% in 2021–22), exceeding those with non-communicable diseases (5·7%). Insurance coverage reduced from 6·8% to 5·7% ($p < 0·0001$) and remained concentrated among wealthier populations (ie, pro-rich; concentration indices 0·29–0·65). Insurance was associated with reduced odds of forgone care (country-specific odds ratios ranged from 0·03 [95% CI 0·00–0·15] to 0·90 [0·86–0·95]) and a reduced budget share of health spending among households with coverage (reductions of 30·1–68·7%; $p < 0·0001$).

Interpretation Our findings suggest that absence of financial protection in the UEMOA is four times higher than conventional estimates, confirming the inadequacy of standard indicators in African contexts. The paradox of effective yet minimal and pro-rich insurance coverage substantiates the failure of contributory models in informal economies. These findings call for adopting indicators that integrate financial access barriers, massively increasing public financing through non-contributory fiscal approaches, and ensuring the inclusion of essential medicines in protection mechanisms.

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Introduction

Financial protection in health—understood as the assurance that everyone can obtain needed care without financial hardship—is a core component of universal health coverage.¹ However, measurement indicators of financial protection in health remain contested,² especially in low-income settings where conventional tools struggle to capture the full complexity of the phenomenon.^{3,4}

The most widely used indicator, catastrophic health expenditure (CHE), has well documented conceptual and methodological limitations.^{3–9} Designed to identify households devoting an excessive share of their budget to direct payments (typically $\geq 10\%$), CHE poorly reflects the circumstances of the poorest households. For households already at subsistence level, even modest outlays can threaten essential consumption without breaching

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For the French translation of the abstract see [Online](#) for appendix 1

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Research in context

Evidence before this study

To identify existing evidence on financial protection measurement and effectiveness in African contexts, we systematically searched PubMed and the grey literature, without language restrictions, for articles on financial protection in health in African countries, West African Economic and Monetary Union (UEMOA) countries, and low-income and middle-income countries (LMICs) published between Jan 1, 2014, and Aug 31, 2025, using terms related to financial protection ("financial protection", "catastrophic health expenditure", "impoverishment", "unmet need", "forgone care") and out-of-pocket payments ("out of pocket", "health spending*", "out-of-pocket payment*", "out of pocket payment*", "out-of-pocket expenditure*", "out of pocket expenditure", and "health expenditure*"). Studies focused on specific diseases or subpopulations were excluded. Our literature search yielded three categories of evidence: global monitoring reports establishing conceptual frameworks; studies and reviews revealing measurement gaps in LMIC contexts; and limited country-specific studies for the UEMOA. WHO–World Bank global monitoring reports on universal health coverage (latest in 2023) conceptualised financial protection along two dimensions: financial hardship among those who pay (catastrophic and impoverishing expenditures) and financial barriers leading to forgone care. Reports since 2021 reframed health impoverishment to capture not only transitions into poverty but also deepening poverty—salient in settings with widespread pre-existing poverty. 2022 scoping review covering 155 studies in LMICs reported that, among 42 African studies, analyses focused almost exclusively on financial hardship, rarely capturing access barriers. WHO's 2022 African regional report noted crucial data gaps and cautioned that conventional methods might mislead in high-poverty contexts. Conventional approaches, including budget share and capacity to pay, have documented limitations. They can be pro-rich (underestimating hardship among the poorest individuals who spend most resources on survival needs), underestimating hardship among poorer households who devote most resources to subsistence. In Africa, where poverty is prevalent, such methods can yield reassuringly low catastrophic expenditure rates, not because of protection but due to forgone care or measurement limitations. In the UEMOA, evidence remains sparse. Country-specific studies do not exist for several countries (eg, Niger and Guinea-Bissau) and available information is often derived from global reports with dated inputs. Regarding health insurance—the predominant pathway pursued towards universal coverage in the UEMOA—a 2021 multi-country analysis found effective coverage below 8%,

concentrated among wealthier groups (ie, formal sector workers and high-consumption quintiles). Notable progress has tended to occur where tax-funded, non-contributory financing predominates, raising questions about contributory models in largely informal, high-poverty economies.

Added value of this study

This study provides a comprehensive multidimensional analysis of financial protection across all eight UEMOA countries, generating detailed, country-specific evidence where previous studies were scarce or absent. Addressing known limitations—eg, an exclusive focus on financial hardship, methods that can understate need, and minimal evaluation of protection mechanisms—we developed a composite indicator that integrates both dimensions of financial protection: financial hardship and barriers to financial access. This measure indicated that approximately four in ten people do not have financial protection, compared with the estimate of around one in ten with conventional indicators based on catastrophic expenditure. Applying methodological advances yielded estimates closer to lived realities. We also embedded a rigorous assessment of social protection using quasi-experimental methods (inverse probability weighting) to adjust for observed differences between households with and without insurance coverage, showing the paradox of individually effective insurance with low, pro-rich coverage that constrains impact at the population level.

Implications of all the available evidence

Taken together with existing evidence, our findings suggest that prevailing approaches to measuring and promoting financial protection in Africa substantially underestimate the scale of the problem. Policy implications are three-fold. First, monitoring systems should be revised to adopt indicators capturing both financial hardship and forgone care for financial reasons, alongside locally adapted tools complementing global metrics. Second, in settings characterised by high informality and poverty, contributory insurance alone seems insufficient; expanding tax-funded, non-contributory financing is likely to represent a more equitable route to universal protection. Resources currently devoted to complex contributory schemes with low, pro-rich reach could be more effectively allocated to strengthening heavily subsidised or free public provision, including essential medicines. Third, research should prioritise operationalising standardised measurement of access barriers, developing and validating context-appropriate methods, and rigorously evaluating non-contributory financing models to build an actionable evidence base for African contexts.

conventional thresholds. Impoverishing health expenditure (IHE), an indicator that assesses whether direct payments push households into poverty (or deepen existing poverty), offers a complementary but still partial perspective.^{1,3,6} Fundamentally, both CHE and IHE only describe households that actually use health care; these

indicators miss people who face financial barriers and, subsequently, forgo care.^{1,3,10}

These challenges are particularly acute in African contexts.^{3,11} The West African Economic and Monetary Union (UEMOA), eight countries most among the world's most low-income countries, illustrates this

problem. Health financing in the UEMOA is chronically constrained: health spending per capita ranks among the world's lowest; the public share of total health expenditure is limited; and households bear a large share through out-of-pocket payments. In settings characterised by widespread poverty and the predominance of an informal economy, these structural features call into question both standard measurement approaches and prevailing financial protection strategies.^{3,6,7,11} Informal workers' earnings are low, irregular, and outside payroll systems, preventing both regular insurance payments and employer cost-sharing. With no safety nets or predictable income, out-of-pocket payments are equally out of reach. This dual constraint leaves households with few options, to either forgo care or risk financial hardship.

Assessment is also hampered by evidence gaps. Existing studies, often dated or geographically limited, do not permit a reliable appraisal of the true magnitude of health-related financial difficulties.^{3,9,12} Several countries, such as Guinea-Bissau and Niger, remain particularly under-documented. Beyond these empirical gaps, most methodological applications focus narrowly on CHE,^{3,7} neglecting not only IHE but also, more problematically, forgone care, which remains largely unexplored in African settings.³ This partial lens raises concerns about the validity and policy usefulness of available estimates.

In parallel, UEMOA countries have pursued ambitious agendas for universal health coverage, with health insurance as the preferred instrument.^{13,14} However, evidence on the suitability of this model for contexts marked by high informality and limited household resources remains scarce.^{15,16}

This study addresses these gaps through an in-depth analysis of financial protection in the UEMOA by use of harmonised household surveys fielded before and after the COVID-19 pandemic (2018–19 and 2021–22). First, we aimed to develop a composite indicator integrating both dimensions of financial protection: financial barriers to access (forgone care) and financial hardship from out-of-pocket payments (CHE and IHE).¹ We also examined these dimensions separately to provide a nuanced picture of distinct forms of inadequate protection. Second, we aimed to analyse inequalities in financial protection by household socioeconomic characteristics. Third, we aimed to evaluate the effectiveness of the principal financial protection mechanisms in the region, with a focus on health insurance.

Methods

Study design

In this multidimensional analysis, we used repeated cross-sectional data from the Harmonised Household Living Conditions Survey (EHCVM) for the eight UEMOA countries in 2018–19 and 2021–22. The UEMOA is a free-trade and free-movement area in west Africa (surface area 3 512 233 km²; approximately 138 million inhabitants)

comprising Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo, which share a common currency (African Financial Community [CFA] franc). A brief profile of UEMOA countries and their health and social protection systems is provided in appendix 2 (p 2).

See Online for appendix 2

The EHCVM is nationally representative and uses stratified two-stage sampling, with weights calibrated to national population totals. The EHCVM is the official source of statistics for poverty and living conditions in UEMOA countries. Data were collected by national statistical institutes under the joint coordination of the World Bank and UEMOA, following the methodology from the World Bank's Living Standards Measurement Study,¹⁷ and are available in anonymised form through the World Bank Microdata Repository.¹⁸ Survey methods are detailed in appendix 2 (p 6). Because this study relied exclusively on secondary anonymised and publicly accessible data, no additional ethics approval was required.

Indicators

We examined three domains of financial protection: the level of protection, equity in protection, and effectiveness of protection mechanisms. Absence of financial protection arises through two pathways.¹ First, people can face financial barriers to access and, therefore, forgo the care they report needing.^{3,5,10,19} Second, among individuals who obtain care, out-of-pocket payments can cause financial hardship, compromising living standards by crowding out other essential consumption.^{8,18} This hardship is commonly reflected in CHE or IHE.^{8,20}

Based on this definition, an individual was classified as financially unprotected if they experienced at least one of the following: forgone care due to financial reasons; CHE (at the 10% threshold); or IHE. Each person contributed only once to the composite indicator, even if multiple difficulties were present. Financial difficulties referred to a sub-composite indicator capturing financial hardship among individuals who actually used care: households experiencing either CHE (>10% of total consumption) or IHE (relative to national poverty lines). Forgone care for financial reasons referred to individuals who needed care but did not seek it due to cost. Together, these two components formed the composite indicator of financial protection. Forgone care was measured among individuals who reported needing care in the 30 days preceding the survey. Cases were classified as financially driven when non-use was attributed to costs being too high or a shortage of money.

CHE followed the Sustainable Development Goal approach: out-of-pocket health payments exceeding 10% of total annual household consumption. We additionally report CHE at the 25% threshold to facilitate comparability with studies using this more stringent criterion and to identify households facing the most

extreme financial burden. The 10% threshold served as our primary indicator for the composite measure, whereas detailed country-specific estimates for both thresholds are provided in appendix 2 (p 17). Although recognised as imperfect, this indicator is informative when combined with complementary measures that capture different aspects of financial protection: IHE to identify households pushed into or deeper into poverty, forgone care to capture those excluded from services due to cost, and spending composition analysis to reveal whether medicines, outpatient, or inpatient care drives the burden.

IHE captures the out-of-pocket payments that push a household below the national poverty line or deepen existing poverty, measured cross-sectionally by comparing consumption with and without health expenditures at a given point in time. Following the 2021 WHO–World Bank methodology, we included in our primary analysis all poor individuals (those living below national poverty lines) incurring any health expenditure (not only those pushed into poverty), reflecting a shift from traditional approaches that provides a more comprehensive insight into health-related impoverishment in high-poverty settings. We separately report the incidence and intensity of this poverty gap. The conceptual and methodological implications of this approach, along with comparisons between traditional and revised methods, are discussed extensively in appendix 2 (pp 9–11), with detailed results in appendix 2 (p 16). Poverty thresholds were constructed by use of a cost-of-basic-needs approach (appendix 2 p 9).

Inequalities by socioeconomic status were analysed by use of concentration indices ranging from –1 (maximum concentration among the poorest households) to 1 (maximum concentration among the richest households; appendix 2 p 14). Households were ranked into quintiles by annual consumption per capita. Indices were computed for forgone care, CHE, and insurance coverage by scheme type.

In UEMOA countries, health insurance (contributory or non-contributory) is presented as the main policy instrument deployed to improve financial health protection.^{13,21} Contributory health insurance refers to that requiring premium payments from beneficiaries, whereas non-contributory health insurance is financed through government budgets without direct beneficiary payments. We assessed the association between health insurance and two outcomes: reduced financial barriers to access (forgone care) and reduced household financial burden (share of health expenditure in the household budget). The EHCVM allowed for the identification of individuals with employment-linked insurance schemes or private commercial health insurance (covering mainly formal sector employees and those who could afford private insurance). The EHCVM also identified coverage through mechanisms extending protection to the informal sector and vulnerable groups (eg, poor individuals in some countries, people with disabilities,

children often younger than 5 years, older people, and pregnant women), such as health mutuals or free care offered by the state (hereafter referred to as extension schemes; appendix 2 p 11).

Statistical analysis

We constructed a multinomial variable distinguishing no forgone care, forgone care for financial reasons, and forgone care for other reasons (appendix 2 p 11).

To estimate the associations between insurance and forgone care, we used inverse probability of treatment weighting (IPTW) to create a pseudo-population balanced on observed covariates, approximating randomisation. Propensity scores were estimated via logistic regression including 18 covariates: individual factors (age, sex, relationship to household head, marital status, religion, education, and economic activity); health factors (reason for need or illness, hospitalisation in the previous 12 months, and disability); and household factors (urban or rural residence, household size, wealth quintile, and characteristics of the household head). In models focusing on a specific scheme type, other insurance types were included as covariates.

Weights targeted the average treatment effect on individuals who had received treatment. IPTW weights were capped at 20 to limit the influence of extreme values and were multiplied by original sampling weights to account for the complex design. Effects on forgone care were estimated by weighted quasi-binomial regression involving the combined weights; effects on the budget share of health spending (out-of-pocket on total consumption [ie, the individual's share of direct payments relative to total household expenditure]) were estimated by weighted linear regression. SEs were computed through Taylor linearisation to reflect stratification and clustering (appendix 2 p 12).

All analyses incorporated the complex survey design (districts as primary sampling units; regions as strata) and design weights. Models used a quasi-binomial specification for binary outcomes with SEs linearised through the Taylor method.

Robustness was assessed through three sensitivity analyses (appendix 2 p 13): E-values to quantify the minimum strength of unmeasured confounding required to explain away observed effects; alternative IPTW caps (from 20 to 10) to test sensitivity to the truncation threshold; and overlap weights as an alternative causal estimator that emphasises areas of common support, rather than arbitrary truncation. Post-weighting covariate balance was verified with standardised mean differences. Data management and survey estimations were performed in Stata (version 18); IPTW impact analyses, concentration indices, and sensitivity analyses were conducted in R (version 4.5.0).

Role of the funding source

There was no funding source for this study.

Results

The EHCVM covered 119 189 households (736 902 individuals) across the two time periods (appendix 2 p 15). In 2021–22, among 369 971 survey respondents in 59 871 households, 19 182 (51·9%) were women and 178 079 (48·1%) were men. During this time period, the surveyed population was generally young (median age 17 years [IQR 8–35]) and resided in rural areas (214 801 [58·1%]). In 2021–22, 546 456 (39·8%) people across the UEMOA did not have financial protection. By country, estimates ranged from 32·6% (Niger) to 50·3% (Guinea-Bissau; figure 1). Relative to 2018–19, financial protection had worsened in six of the eight countries. From 2018–19 to 2021–22, financial

protection had worsened the most in Burkina Faso (+10·9 percentage points; $p<0·0001$) and improved the most in Niger (–13·1 percentage points; $p<0·0001$).

Regarding components of the composite indicator, forgone care for financial reasons affected 10 028 269 (7·3%) people and financial hardship affected 52 751 775 (38·4%) people in 2021–22, split into CHE (13 631 980 [9·9%]) and IHE (47 742 509 [34·8%]). These components are not mutually exclusive; each individual contributed once to the composite.

IHE, affecting more than a third of the overall population, was the dominant challenge and worsened in most countries, notably in Burkina Faso (+10·5 percentage points; $p<0·0001$), Mali (+7·0 percentage points;

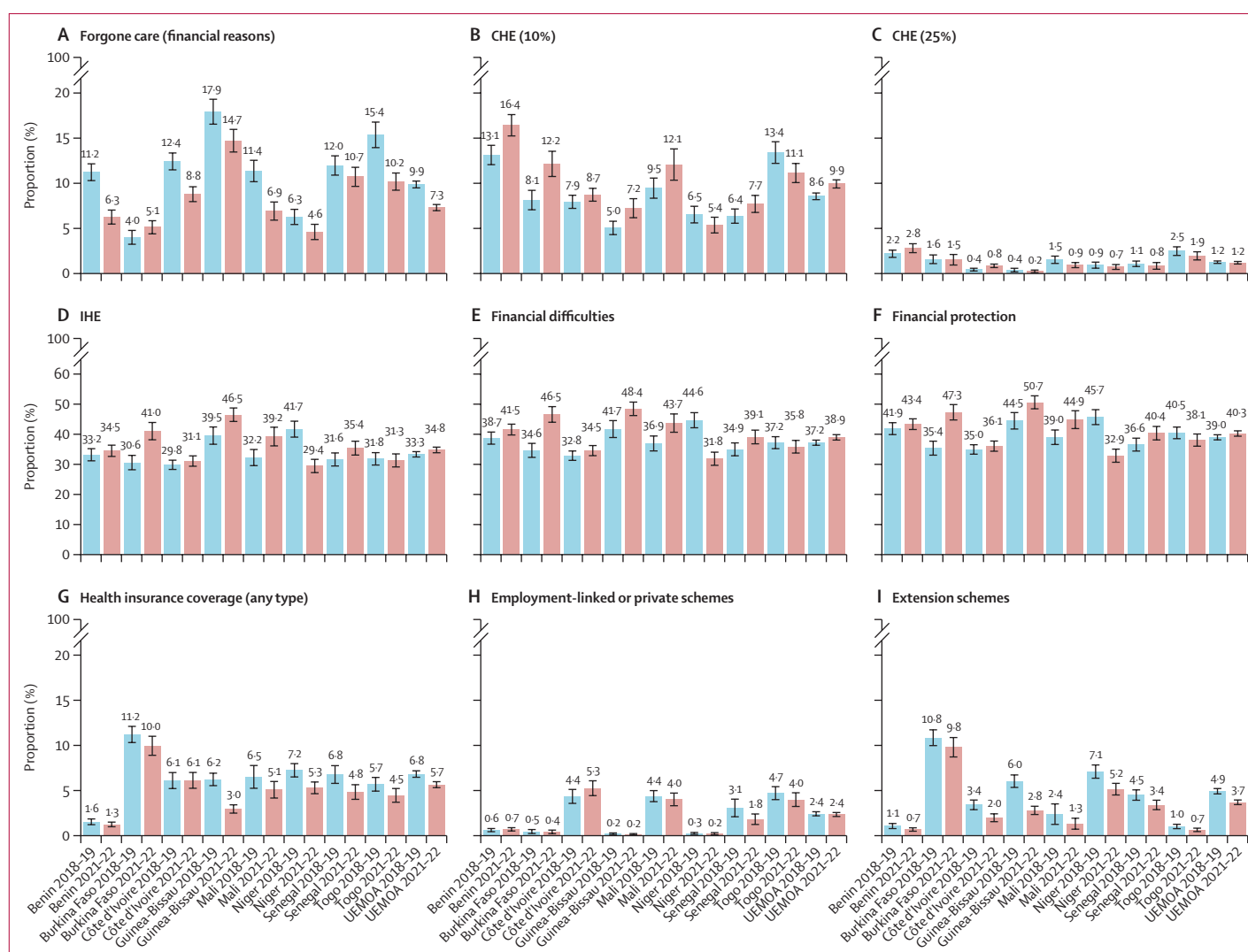


Figure 1: Financial protection indicators by UEMOA country and year

Nine financial indicators are provided: forgone care (A); CHE, referring to health spending that exceeds specific thresholds of household consumption, at the 10% threshold (B); CHE at the 25% threshold (C); IHE, referring to health spending that pushes households into poverty or deepens existing poverty (D); financial difficulties, referring to households experiencing CHE (>10% of total consumption) or IHE (E); financial protection, referring to households facing financial difficulties or forgoing care for financial reasons (F); any type of health insurance coverage (G); employment-linked insurance (H); and extension schemes, referring to health coverage schemes designed to extend coverage to the informal sector or vulnerable groups (community-based health insurance and fee exemptions; I). Error bars represent 95% CIs. UEMOA=West African Economic and Monetary Union. CHE=catastrophic health expenditure. IHE=impoverishing health expenditure.

$p=0.0009$), and Guinea-Bissau (+6.9 percentage points; $p=0.0005$), with improvement only reported in Niger (−12.2 percentage points; $p<0.0001$).

The incidence of CHE (at the 10% threshold) increased by 1.4 percentage points in the UEMOA between time periods, from 8.6% (10 779 276 people) in 2018–19 to 9.9% (13 631 980 people) in 2021–22 ($p<0.0001$). By contrast, at the 25% threshold, CHE affected 1.2% of the population (1628 510 people) in 2021–22, with no significant change from 2018–19 ($p=0.54$). At this more stringent threshold, only one country showed a significant change: Côte d'Ivoire (+0.5 percentage points; $p=0.0008$). This eight-fold difference in prevalence (13 631 980 at the 10% threshold vs 1628 510 people at the 25% threshold) showed that, although nearly one in ten households faced CHE at the 10% threshold, only one in 80 experienced extreme catastrophic spending at the 25% threshold. Detailed

country-specific estimates are provided in appendix 2 (p 17).

In six of the eight countries, CHE (at the 10% threshold) was more concentrated among poorer households (with negative and moderate concentration indices), reaching −0.18 ($p<0.0001$) in Guinea-Bissau. Burkina Faso (+0.05; $p<0.0001$) and Niger (+0.05; $p=0.0055$) were exceptions, with CHE slightly more concentrated among wealthier households (ie, those with positive concentration indices indicating higher prevalence as household consumption increases; figure 1).

Regarding the structure of spending among households with CHE (at the 10% threshold), medicines accounted for more than half of health expenditure in most countries, up to 75.9% in Mali in 2021–22 (appendix 2 p 17). Although medicines also dominated in households without CHE, their share fell when CHE occurred, with significant reductions in five countries, notably

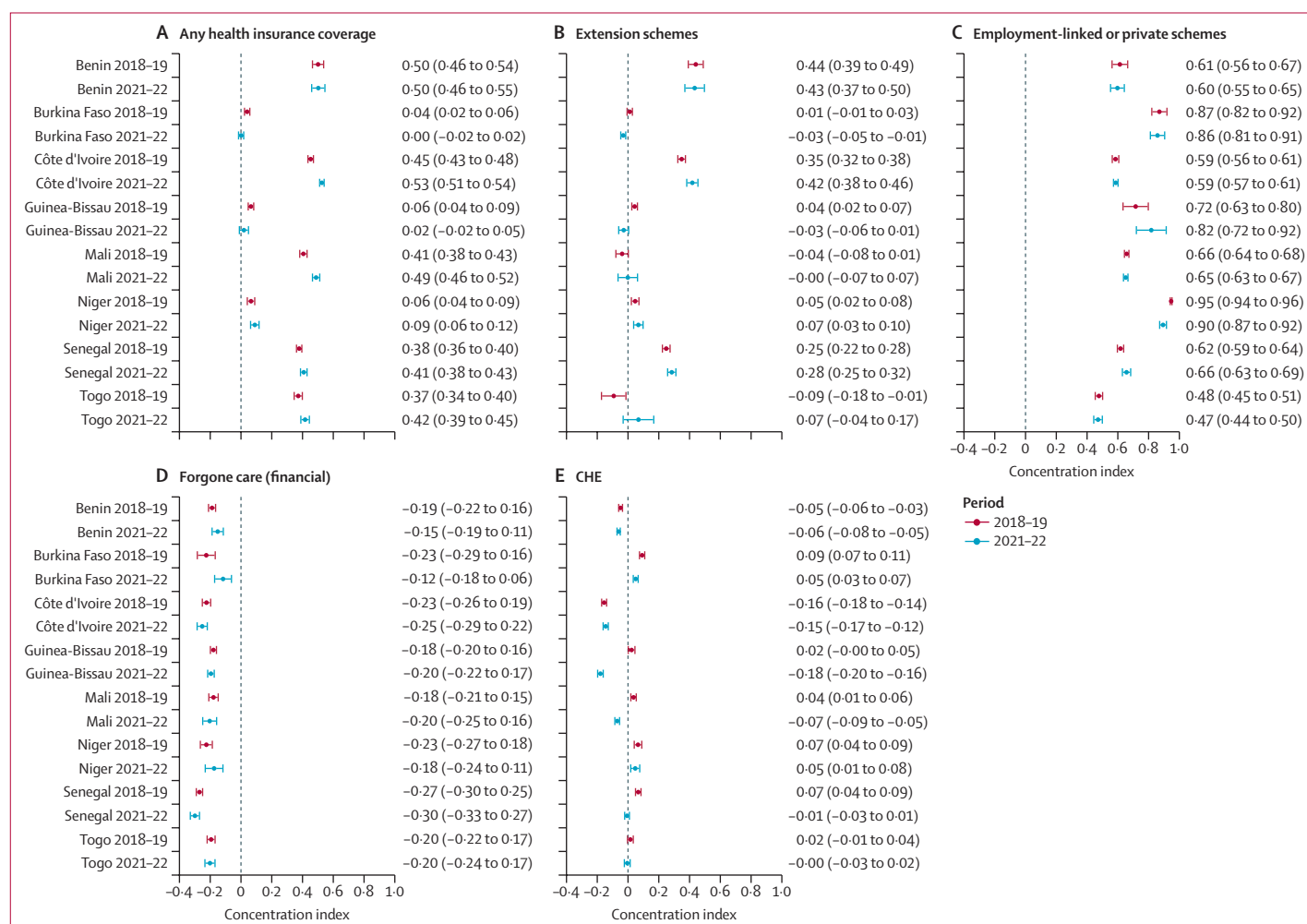


Figure 2: Concentration indices for health indicators by UEMOA country and year

Concentration indices are provided for any health insurance coverage (A); extension schemes, referring to health coverage schemes designed to extend coverage to the informal sector or vulnerable groups (community-based health insurance and fee exemption; B); employment-linked or private insurance schemes (C); financial forgone care (E); and CHE (F). Indices range from −1 to 1, where 0 indicates equal distribution across wealth groups. For indices below 0, distribution is more concentrated among the poor (pro-poor). For indices above 0, distribution is more concentrated among the rich (pro-rich). UEMOA=West African Economic and Monetary Union. CHE=catastrophic health expenditure.

Burkina Faso (−13.7 percentage points; $p<0.0001$) and Senegal (−9.0 percentage points; $p<0.0001$), offset by increases in outpatient or inpatient care. Benin showed an atypical profile: a relatively low share of medicines (34.4% [95% CI 32.1–36.7]) and a dominant share of outpatient care (44.6% [95% CI 42.4–46.8]).

Compared with worsening financial hardship, forgone care decreased from 13 414 264 (9.9%) people to 10 028 269 (7.3%) people between 2018–19 and 2021–22 ($p<0.0001$; figure 1). The largest decreases were in Benin (−4.9 percentage points; $p<0.0001$) and Mali (−4.5 percentage points; $p<0.0001$), although levels remained high in Guinea-Bissau (81 491 [14.7%]) and Senegal (414 406 [10.7%]). Forgone care disproportionately affected poorer populations in 2021–22 (concentration indices from −0.12 in Burkina Faso to −0.30 in Senegal; all $p<0.0001$; figure 2). By type of need, individuals with ophthalmic conditions consistently showed the highest rates of forgone care (17.2% in 2018–19 and 11.9% in 2021–22 at the regional level; appendix 2 p 19), a pattern observed in every country. This pattern was particularly marked in Mali (from 22.1% to 20.1%) and Guinea-Bissau (from 21.6% to 17.1%). Individuals with non-communicable diseases had the lowest rates of forgone care (from 6.7% to 5.7%).

Health insurance was associated with significantly lower odds of forgone care among individuals with any type of coverage in all eight countries (figure 3; appendix 2 p 20). Odds ratios (ORs) adjusted by IPTW were consistently less than 1, with relatively modest effects in Togo (OR 0.89 [95% CI 0.82–0.96]) and Guinea-Bissau (0.90 [0.86–0.95]), and strong effects for extension schemes in Côte d'Ivoire (0.03 [0.00–0.15]), Togo (0.07 [0.01–0.51]), and Mali (0.20 [0.06–0.63]). Insured households also devoted a smaller budget share to health spending than households without coverage of any type (figure 4). Across all schemes, reductions reached −39.3% in Côte d'Ivoire ($p=0.0010$) and −34.5% in Togo ($p<0.0001$). Extension schemes showed the largest reductions, reaching −68.7% in Togo ($p<0.0001$), −46.5% in Mali ($p<0.0001$), and −30.1% in Côte d'Ivoire ($p=0.0007$).

Despite these individual-level benefits, insurance coverage was low, with 7 771 843 (5.7%) people with coverage in 2021–22, down from 9 213 838 (6.8%) people in 2018–19 (appendix 2 p 20). Insurance coverage was also concentrated among wealthier populations, especially for employment-linked and private insurance schemes (concentration indices 0.65 in Mali and 0.59 in Côte d'Ivoire; both $p<0.0001$; figure 2). Extension

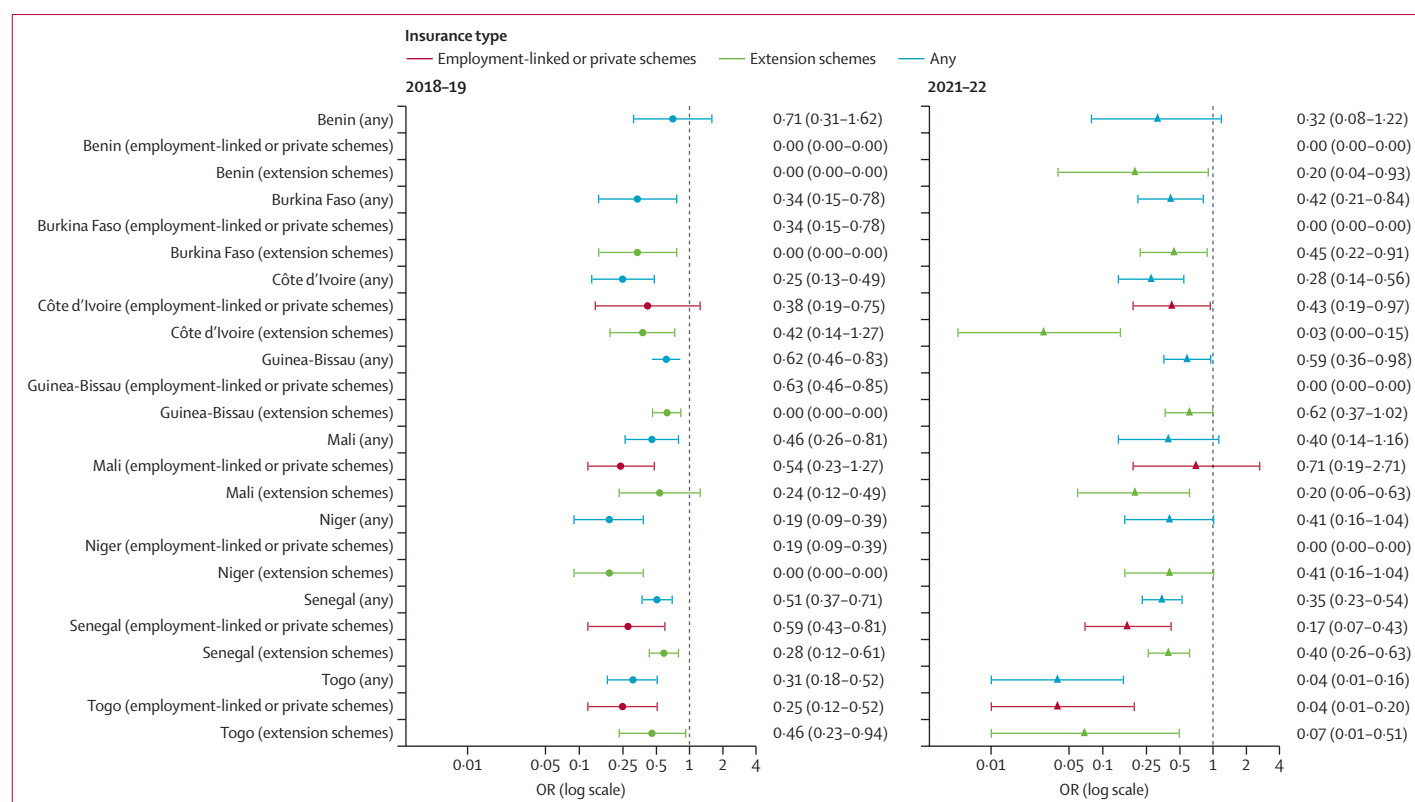


Figure 3: Associations between type of health insurance scheme and financial forgone care in UEMOA countries, 2018–19 and 2021–22

Extension schemes refer to health coverage designed to extend coverage to the informal sector or vulnerable groups (community-based health insurance and fee exemptions). The reference category represents no insurance coverage. ORs of less than 1 indicate a protective effect (reduced likelihood of forgone care); ORs of 0 indicate no observations in that category. OR=odds ratio. UEMOA=West African Economic and Monetary Union.

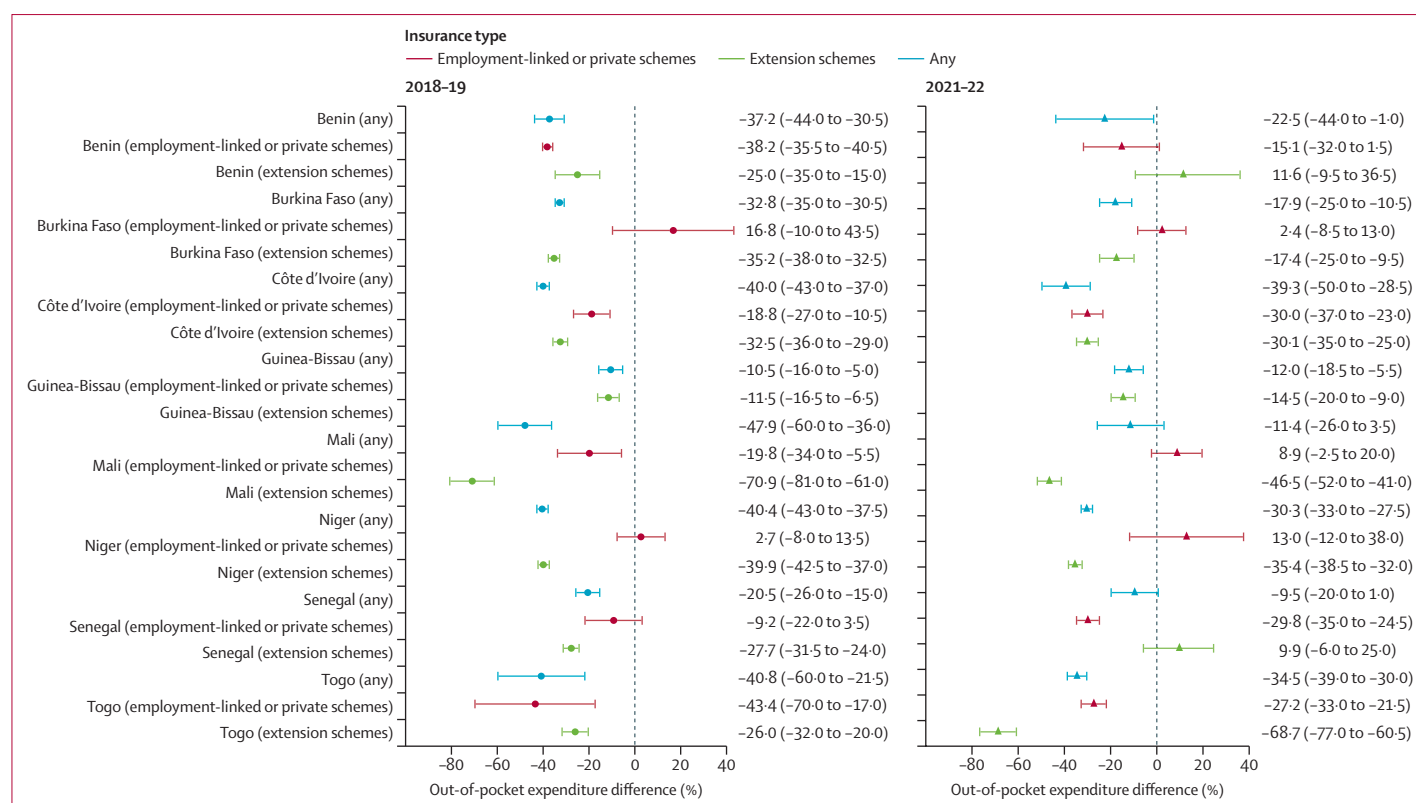


Figure 4: Associations between type of health insurance scheme and out-of-pocket health expenditure in UEMOA countries, 2018-19 and 2021-22

Extension schemes refer to health coverage designed to extend coverage to the informal sector or vulnerable groups (community-based health insurance and fee exemptions). Percentage differences represent out-of-pocket expenditure with insurance compared with expenditure without. Values on the left of the dashed line indicate a positive association with insurance type (reduced expenditure); values on the right indicate a negative association with insurance type (increased expenditure). UEMOA=West African Economic and Monetary Union.

schemes also remained concentrated among wealthier populations in several settings (eg, Senegal 0.29; $p < 0.0001$). Burkina Faso was the main exception (-0.03 ; $p = 0.0027$), indicating near-equitable distribution.

These findings were robust in the sensitivity analyses (appendix 2 p 24). Alternative weighting (10% truncation; overlap weights) yielded estimates consistent with the primary analyses. E-values were all above 2.5 and mostly above 5.0, implying that unusually strong unmeasured confounding would be required to nullify the observed associations (appendix 2 p 20). Post-weighting balance was satisfactory in more than 90% of models (standardised mean differences < 0.1); remaining imbalances ($0.1-0.2$) were low in number and mainly concerned employment-linked and private insurance models, reflecting the difficulty of balancing markedly dissimilar groups (appendix 2 p 23).

Discussion

This study yields three principal findings. First, low protection against financial risk in health was observed across the UEMOA in 2018-19 and 2021-22. Second, our observations illuminate pronounced socioeconomic inequalities in this region, with difficulties concentrated among the poorest individuals. Third, a paradox was

noted, whereby social health protection was associated with improved protection for beneficiaries, yet covered a small wealthier share of the population, limiting its impact at the population level.

Our composite indicator shows that almost 40% of people in the UEMOA experienced financial difficulties in 2021-22 due to out-of-pocket payments or because they faced financial barriers that led them to forgo care. This picture, less reassuring than that conveyed in much of the literature based on African contexts,^{1,3,9,11} is not an overstatement. Published studies commonly report CHE rates in Africa (at the 10% threshold) of around 10%,⁹ sometimes placing African countries in apparently better positions than upper-middle-income countries (15.3% in the 2023 global report¹), including China (24.3%).¹ The usual explanation, under-utilisation of services in Africa,³ contains truth but also underscores fundamental shortcomings of the CHE indicator. A tool designed to reflect financial hardship that yields more favourable results precisely where access is constrained is unlikely to be fit for purpose in these contexts.^{5,7,19} Therefore, methodological revision—akin to the adjustments adopted in the WHO European region—seems warranted, rather than acceptance of estimates that understate the problem.^{5,10,19,22}

We explicitly addressed three well documented critiques and incorporated recent methodological advances, still rarely applied in African studies.²³ First, equating CHE with absence of financial protection is conceptually incomplete.³ Many studies report CHE as the sole indicator of financial protection, sometimes adding IHE as if the combination of CHE and IHE was exhaustive.⁹ This approach suffers a comprehensiveness problem: financial hardship from out-of-pocket payments (CHE and IHE) is only one facet; financial access barriers leading to forgone care constitute the other facet and are routinely ignored.^{1,3,10}

Second, even within the utilisation domain, conventional calculation methods tend to understate hardship.^{3,6,7,23} For CHE, the Sustainable Development Goal approach (out-of-pocket >10% of total household consumption) remains the most used method;³ however, this approach is fundamentally inequitable, underestimating hardship among poorer households whose subsistence needs limit their capacity to allocate 10% to health. So-called capacity-to-pay methods have been proposed to deduct incompressible spending.²⁴ A WHO approach in the 2000s subtracted a standard subsistence amount for food,²⁴ but its treatment of households with negative capacity introduced a paradoxical bias that could disadvantage the poorest.⁵ An alternative approach deducts the poverty line from total consumption and deems households with out-of-pocket payments equivalent to more than 40% of the remainder, or with total consumption below the line, as experiencing hardship.⁶ The WHO European region applies a similar logic adapted to its context, reinforcing the need for context-sensitive measurement.^{5,10,19}

Third, standard IHE measurements historically counted only households falling below the poverty line because of out-of-pocket payments, neglecting already poor households who are pushed deeper into poverty and appear only in the poverty gap, a metric less salient to decision makers.^{1,3} With the traditional measure of incidence, a very poor household paying for care is not counted as below the poverty line, whereas a household just above the line that subsequently drops below is.^{3,7,24} This measure obscures the reality that any out-of-pocket payment among already poor households entails intolerable trade-offs between health and other basic needs. Encouragingly, since 2021, WHO and the World Bank have expanded the IHE concept to include deepening poverty,¹ correcting a problematic property of the previous metric, whereby raising the poverty line could reduce measured impoverishment, which is counterintuitive for a protection indicator.²⁵

Beyond methods, the choice of poverty threshold strongly conditions results. International lines often misfit local contexts and can exacerbate underestimation. In Senegal, for example, prevalence rises from 6·4% with the US\$2·15 purchasing power parity line to 34·4% with the national line, illustrating how standard

indicators can mask the true magnitude of inadequate financial protection.

Guided by these critiques and advances, we constructed a more comprehensive approach. We measured financial access barriers alongside utilisation-related hardship, yielding both an overall figure (39·8%) and component-specific insights. This design provides a truer account of inadequate financial protection in the region.

The mechanisms underpinning these findings reflect structural weaknesses in health financing across the UEMOA. With health spending per capita ranging from US\$30·6 (Mali) to \$92·4 (Côte d'Ivoire), below commonly cited benchmarks such as \$127, systems are chronically underfunded.²⁶ The public share of current health expenditure is low compared with the median 51·7% (eg, 42·8% in Burkina Faso and 9·9% in Togo),²⁷ falling short of the Abuja target of allocating 15% of budgets to health-care spending.²⁸ As a result, households shoulder a large out-of-pocket burden (up to 69% in Togo), which mechanically heightens financial risk in settings where almost 41% of the population already lives below the poverty line.

Against this backdrop, a regional strategy centred on contributory health insurance warrants re-examination. We found that effective coverage was 5·7%, consistent with self-reported estimates from household surveys across Africa,¹⁴ but at odds with higher administrative figures often cited by programmes.¹³ Persistent divergence between survey-based and administrative estimates raises questions about measurement, implementation quality, and the gap between political ambition and delivery, echoing evidence that entitlements on paper are not always realised in practice.^{21,29}

Beyond measurement challenges, contributory insurance itself merits scrutiny in low-income and middle-income settings.³⁰ Contributory schemes, designed for formal labour markets with regular contributions, are structurally misaligned with economies dominated by informality and low, variable incomes.^{13,14,31,32} Comparative data from 36 African countries indicate that systems primarily financed by contributions have not exceeded 10% effective coverage, whereas the few regional successes rely heavily on tax-funded (non-contributory) financing.¹⁴ Our results underscore a double inequity: insurance benefits skew to the wealthiest, whereas the poorest, excluded from coverage, face the greatest risks of CHE–IHE and forgone care.

This situation calls for three essential ruptures. First, reliance on contributory insurance as the primary pathway for financial protection and universal health coverage in highly informal economies should be substantially reduced, whereas tax-funded entitlements should be prioritised instead.^{13,14,30,32} Second, essential medicines, often occupying more than 50% of out-of-pocket payments, should be systematically included in protection packages.³³ Third, progressive taxation to guarantee free essential services for the poorest 40% of

individuals should be mobilised. Without such changes, the UEMOA risks perpetuating a system that leaves individuals most in need unprotected.

Our study has several limitations. Although the second wave (2021–22) occurred after the COVID-19 pandemic, we did not set out to estimate the effects of COVID-19; residual socioeconomic disruptions might have influenced dynamics and cannot be fully disentangled with data from two time periods. Our measure of forgone care captured only part of the phenomenon; it did not observe care rationing, borrowing, or other coping strategies.¹ More comprehensive surveys that also capture partial forgone care (reduced treatment duration, skipped doses, and delayed follow-ups), alongside financial coping mechanisms, would support finer measurement. Furthermore, despite the use of IPTW, overlap-weight analyses, high E-values, and good balance on observed covariates, unmeasured confounding (eg, health preferences, risk attitudes, social capital, or proximity to quality health facilities) cannot be ruled out.

In conclusion, our multidimensional approach reveals that approximately 40% of the UEMOA population does not have financial protection, a reality obscured by conventional indicators (eg, CHE). Progress towards universal health coverage in Africa will require measurement that captures what matters, substantially greater public financing, and protection mechanisms adapted to local economic realities.

Contributors

MSL, CTD, and AF conceptualised the study and methods. MSL and CTD led the literature review. MSL conducted statistical analysis and AF verified the overall reproducibility of the results. IS, HN, CTD, MCB, E-HA, JG, and MM accessed and verified the underlying data used in this study. MSL, CTD, MCB, AF, and E-HA wrote the original draft. IS, HN, JG, and MM contributed to finalising the manuscript. All authors contributed to the interpretation of results. All authors had full access to all the data in the study and had final responsibility for the decision to submit for publication.

Declaration of interests

We declare no competing interests.

Data sharing

Data collected for this study are publicly available on the World Bank Microdata Library. The scripts for reproducing our statistical analyses are available at the following address: https://github.com/yylles/fp_uemoa.

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References

- 1 WHO, World Bank. Tracking universal health coverage: 2023 global monitoring report. Geneva: World Health Organization and International Bank for Reconstruction and Development–The World Bank, 2023.
- 2 Reddock J. Seeking consensus on universal health coverage indicators in the Sustainable Development Goals. *J Health Serv Res Policy* 2017; **22**: 178–82.
- 3 Rahman T, Gasbarro D, Alam K. Financial risk protection from out-of-pocket health spending in low- and middle-income countries: a scoping review of the literature. *Health Res Policy Syst* 2022; **20**: 83.
- 4 Wagstaff A. Measuring catastrophic medical expenditures: reflections on three issues. *Health Econ* 2019; **28**: 765–81.
- 5 Cylus J, Thomson S, Evetovits T. Catastrophic health spending in Europe: equity and policy implications of different calculation methods. *Bull World Health Organ* 2018; **96**: 599–609.
- 6 Wagstaff A, Eozenou PHV. CATA meets IMPOV: a unified approach to measuring financial protection in health. SSRN 2016; published online April 20. <https://ssrn.com/abstract=2434346> (preprint).
- 7 Grépin KA, Irwin BR, Sas Trakinsky B. On the measurement of financial protection: an assessment of the usefulness of the catastrophic health expenditure indicator to monitor progress towards universal health coverage. *Health Syst Reform* 2020; **6**: e1744988.
- 8 Wagstaff A, Flores G, Hsu J, et al. Progress on catastrophic health spending in 133 countries: a retrospective observational study. *Lancet Glob Health* 2018; **6**: e169–79.
- 9 Eze P, Lawani LO, Agu UJ, Acharya Y. Catastrophic health expenditure in sub-Saharan Africa: systematic review and meta-analysis. *Bull World Health Organ* 2022; **100**: 337–51J.
- 10 Thomson S, Cylus J, Al Tayara L, et al. Monitoring progress towards universal health coverage in Europe: a descriptive analysis of financial protection in 40 countries. *Lancet Reg Health Eur* 2023; **37**: 100826.
- 11 WHO Regional Office for Africa. Tracking universal health coverage in the WHO African region, 2022. Brazzaville: WHO Regional Office for Africa, 2022.
- 12 Atake EH, Amendah DD. Porous safety net: catastrophic health expenditure and its determinants among insured households in Togo. *BMC Health Serv Res* 2018; **18**: 175.
- 13 Ly MS, Bassoum O, Faye A. Universal health insurance in Africa: a narrative review of the literature on institutional models. *BMJ Glob Health* 2022; **7**: e008219.
- 14 Barasa E, Kazungu J, Nguhiu P, Ravishankar N. Examining the level and inequality in health insurance coverage in 36 sub-Saharan African countries. *BMJ Glob Health* 2021; **6**: e004712.
- 15 Flourence M, Jarawan E, Boiangiu M, El Yamani FEK. Moving toward universal health coverage with a national health insurance program: a scoping review and narrative synthesis of experiences in eleven low- and lower-middle income countries. *PLoS Glob Public Health* 2025; **5**: e0003651.
- 16 Degroote S, Ridde V, De Allegri M. Health insurance in sub-Saharan Africa: a scoping review of the methods used to evaluate its impact. *Appl Health Econ Health Policy* 2020; **18**: 825–40.
- 17 Union Économique et Monétaire Ouest-Africaine. Note de communication des résultats de la Deuxième Enquête Harmonisée sur les Conditions de Vie des Ménages (EHCVM). <https://phmecv.uemoa.int/index.php/publications?download=19> (accessed Oct 30, 2025).
- 18 The World Bank. Living Standards Measurement Study (LSMS). <https://microdata.worldbank.org/index.php/catalog/lsmss/?page=1&sk=EHCVM&ps=15&repo=lsmss> (accessed Oct 20, 2025).
- 19 Thomson S, Evetovits T, Cylus J, Jakab M. Monitoring financial protection to assess progress towards universal health coverage in Europe. *Public Health Panorama* 2016; **02**: 357–66.
- 20 Wagstaff A, Flores G, Smits MF, Hsu J, Chepynoga K, Eozenou P. Progress on impoverishing health spending in 122 countries: a retrospective observational study. *Lancet Glob Health* 2018; **6**: e180–92.
- 21 Ly MS, Faye A, Ba MF. Impact of community-based health insurance on healthcare utilisation and out-of-pocket expenditures for the poor in Senegal. *BMJ Open* 2022; **12**: e063035.
- 22 Cylus J, Thomson S, Tayara LA, et al. Assessing the equity and coverage policy sensitivity of financial protection indicators in Europe. *Health Policy* 2024; **147**: 105136.
- 23 Sas Trakinsky B, Irwin BR, Guéné HJL, Grépin KA. An empirical evaluation of the performance of financial protection indicators for UHC monitoring: evidence from Burkina Faso. *Health Policy OPEN* 2020; **1**: 100001.
- 24 Xu K, Klavus J, Kawabata K, et al. Household health system contributions and capacity to pay: definitional, empirical, and technical challenges. In: Murray CJL, Evans DB, eds. Health system performance assessment: debates, methods and empiricism. World Health Organization, 2003: 533–63.

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- 25 Ataguba JE. Assessing financial protection in health: does the choice of poverty line matter? *Health Econ* 2021; **30**: 186–93.
- 26 WHO Regional Office for Africa. Financial risk protection towards universal health coverage in the WHO African region: report of the Secretariat. Brazzaville: WHO Regional Office for Africa, 2022 (in French).
- 27 WHO. Global Health Expenditure Database. <https://apps.who.int/nha/database/Select/Indicators/en> (accessed Oct 30, 2025).
- 28 McIntyre D, Meheus F, Røttingen JA. What level of domestic government health expenditure should we aspire to for universal health coverage? *Health Econ Policy Law* 2017; **12**: 125–37.
- 29 Traoré S, Some WAL, Ouattara CA, Traoré IT, Méda ZC, Savadogo GLB. Paiement additionnel malgré la gratuité des soins au Burkina Faso. *Sante Publique* 2023; **35**: 307–14.
- 30 Yazbeck AS, Soucat AL, Tandon A, et al. Addiction to a bad idea, especially in low- and middle-income countries: contributory health insurance. *Soc Sci Med* 2023; **320**: 115168.
- 31 Yazbeck AS, Savedoff WD, Hsiao WC, et al. The case against labor-tax-financed social health insurance for low- and low-middle-income countries. *Health Aff (Millwood)* 2020; **39**: 892–97.
- 32 Watson J, Yazbeck AS, Hartel L. Making health insurance pro-poor: lessons from 20 developing countries. *Health Syst Reform* 2021; **7**: e1917092.
- 33 Defourny J, Failon J. Les déterminants de l'adhésion aux mutuelles de santé en Afrique subsaharienne: un inventaire des travaux empiriques. *Mondes En Dev* 2011; **153**: 7–26.