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Public Health Care Financing Policy and Welfare Economics: An Analysis of Punjab's Sehat Sahulat Program in light of Global Markets

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Abstract: This paper examines international public health insurance (PHI) models through a theoretical lens, visualizing cross-country data (2010- 2020) on the Universal Health Coverage (UHC) Index, out-of-pocket (OOP) expenditure, catastrophic spending, and poverty to empirically test Kenneth Arrow's uncertainty framework. The correlations demonstrates that countries with stronger risk pooling—such as Germany, France, Thailand, and Turkey—achieve high UHC scores with minimal household impoverishment, validating Arrow's prediction that unregulated OOP reliance amplifies financial risk. Building on this comparative foundation, the paper develops a case study of Punjab's Sehat Sahulat Program (SSP), situating it within Arrow's framework and the broader tradition of welfare economics. The study pursues objectives of analyzing the global rationale for PHI adoption, evaluate impacts on equity and access, identify challenges, benchmark SSP against international reformers, and integrate cross-cutting themes of digitization, climate resilience, gender equity and overall SDGs. Findings show Pakistan and other low income countries trapped in a high-OOP, low-UHC quadrant with persistent catastrophic expenditures, poverty effects, and fragmented schemes, while reform-driven middle-income countries shows tangible gains through deeper and broader coverage. These reforms are vital to advancing UHC, ensuring equity, and enabling PHI to deliver sustainable welfare gains in the low middle incomes countries and especially Pakistan.
Keywords: Health financing, Universal Health Coverage (UHC), Sehat Sahulat Program (SSP), Public Health Insurance (PHI), Out of Pocket Expenditure (OOP), Welfare Economics, Arrow's theory of Uncertainty, Risk Pooling

1. Introduction

The welfare economics of public health supports human well-being, enhances societal productivity, and strengthens the effective deployment of social capital. Human capital[1], a central determinant of national income, is closely tied to the health and welfare of individuals;

[1] Schultz, T. W. (1961). *Investment in Human Capital.* American Economic Review.

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conversely, improvements in population health reinforce economic performance. In 1960s, Gary Becker's theory of human capital[2], alongside Schultz's pioneering work (1961), provides the theoretical grounding for analyzing healthcare as a form of investment. Health facilities, much like "normal goods[3]," exhibit rising demand with increasing income, and health services follow this economic pattern.

Investment in healthcare has therefore captured the attention of economists and policymakers alike. As a merit good[4], healthcare requires state intervention to correct market failures, generate positive externalities, and prevent exploitation by private providers. In practice, most countries rely on a mix of public and private insurance systems to guarantee uninterrupted health services. For example, the United States relies heavily on private insurance, while countries such as the United Kingdom, Denmark, Norway, New Zealand, Germany, Canada, and Taiwan[5], along with some low-income nations in Sub-Saharan Africa, recognize healthcare as a fundamental human right and provide universal or subsidized coverage through public financing and social insurance models. Historical precedents, such as Otto von Bismarck's 1883 Health Insurance Law[6], demonstrate the enduring value of risk pooling and insurance in ensuring equitable access to care. Today, Germany maintains a statutory health insurance system covering the majority of its population, comparable in function to Medicaid in the United States.

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[2] Soares, R. R. (2015). Gary Becker's contributions in health economics. *Journal of Demographic Economics*, *81*(1), 51-57.

[3] Normal goods are goods for which demand increases as consumer income rises.

[4] A merit good is a good that is socially desirable and tends to be under-consumed if left to the free market, often warranting government provision or subsidy.

[5] Firmansyah. (2024). Health insurance and public health: Analyzing the impact of financing and policy on healthcare access. *Jurnal Riset Kualitatif dan Promosi Kesehatan, 3*(1), 41–49. Wajahat. (2020). Public Financial Management and the SDGs a case study of Business Accounting and Finance, Government College University, 10, Jan, 2020 – 05 Aug, 2025.

[6] Busse, R., Blümel, M., Knieps, F., & Bärnighausen, T. (2017). Statutory health insurance in Germany: A health system shaped by 135 years of solidarity, self-governance, and competition. *The Lancet, 390*(10097), 882–897. https://doi.org/10.1016/S0140-6736(17)31280-1

The economics of healthcare also highlight the importance of risk pooling in the face of clinical uncertainty and expenditure shocks. Health insurance mitigates out-of-pocket expenditures by distributing risk, thereby stabilizing household welfare. This also make parallel with health economics principles, which highlight that optimal consumption occurs when marginal benefits equal marginal costs, both at the individual and systemic level. Globally, such frameworks have informed healthcare reforms and have been integrated into sustainable development efforts, particularly under the United Nations' Sustainable Development Goals (SDGs). Goal 3 of the SDGs places health at the center of global development, emphasizing universal access, improved quality of care, and reduced inequalities. The increasing role of digitization and artificial intelligence (AI) in health systems, along with cross-cutting themes such as gender and climate change, further shape the evolving setting of public health insurance policy.

In Pakistan, these global policy debates take on a critical dimension. The country faces persistent challenges of low health coverage, inadequate infrastructure, and high out-of-pocket expenditures that push millions into poverty each year. While healthcare expenditure remains low around 0.9% of the total GDP, with a PSDP budget of Rs. 103.5 billion, pertaining the gaps as the WHO guidelines suggest that the health spending must be **around 5% of GDP**[7], this leading to gaps remain in ensuring equitable, transparent, and efficient access. The health infrastructure aids 1,696 hospitals and 5,434 basic health units[8], although critical health indicators continue to raise alarms, such as an infant mortality rate of 50.1 per 1,000 births (2023) and a life expectancy of 67.6 years[9]. Pakistan's experience during the COVID-19 pandemic demonstrated resilience in crisis response, yet systemic weaknesses continue to constrain universal coverage.

[7] Ministry of Finance, Government of Pakistan. (2025). *Pakistan economic survey 2024–25*. Retrieved from Ministry of Finance website: https://www.finance.gov.pk/survey_2025.html

[8] **World** Bank. (2023). *World Development Indicators*. World Bank. https://databank.worldbank.org/source/world-development-indicators

Punjab's healthcare initiatives are supported out through the Punjab Health Initiative Management Company (PHIMC), focusing mainly on providing health coverage and easing the financial burden of medical expenditures for beneficiaries. The Universal Health Insurance Program/Sehat Sahulat Program is currently being implemented under the Public Sector Development Program (PSDP). For the fiscal year 2025, the PSDP allocation for this project is set at Rs 54 million, aimed at decreasing out-of-pocket healthcare expenses for vulnerable sectors of the population, utilizing a combination of both public and private service delivery. The developments in the health insurance program have resulted in substantial government savings of thirty-three billion rupees[10].

The motivation for this research is rooted in analyzing the global public health insurance models, evaluating their equitable and efficient structures to ensure cost-effectiveness, while also connecting these systems with overarching themes such as gender, climate, and data governance mechanisms to mitigate issues of information asymmetry and moral hazard. It also aims to develop a comparative analysis of successful PHI models across the world and drafting recommendations for Pakistan to roll out such models across the country- developing the case study of Sehat Sahulat program[11]. This addresses the equity concerns ensuring vertical and horizontal effectiveness and fairness. Global research on health insurance is extensive, but studies focusing on lower-middle-income countries—especially at the sub-national level in Punjab—are limited, emphasizing the need for this analysis. Accordingly, the research examines, the economic challenges of Punjab's Sehat Sahulat Program, and its capacity to address risk pooling, adverse selection, and fiscal space. Drawing on theoretical constructs from the Kenneth Arrow's work on uncertainty and expected utility[12], along with theories of moral hazard,

[10] Punjab Health Initiative Management Company. (2024, July 29). *14th meeting of the Standing Committee of the Cabinet on Universal Health Insurance held on July 29, 2024*. PHIMC. Retrieved [date you accessed it], from https://phimc.punjab.gov.pk/node/1201

[11] Ali, F., Idrees, R.N., Shakil, M.H. *et al.* Impact assessment of Sehat Sahulat Program: a qualitative study of the government of Pakistan. *Qual Quant* (2025). https://doi.org/10.1007/s11135-025-02317-1

[12] Arrow, K. J. (1963). "Uncertainty and the welfare economics of medical care." *American Economic Review, 53*(5), 941–973

principal-agent dynamics, and the public good nature of health[13], the study situates SSP within broader debates on health financing reforms.

The objectives of the study are fivefold: (i) to analyze the rationale for adopting public health insurance around the world; (ii) to assess its fiscal sustainability; (iii) to evaluate its impact on equity, access, and health outcomes; (iv) to identify governance and implementation challenges globally; and (v) to benchmark SSP against international best practices (vi) to link the emerging cross cutting themes of digitization, climate and gender with public health insurance models. The ultimate aim is to provide policy recommendations for strengthening Pakistan's health financing system, advancing UHC, and ensuring that public health insurance delivers meaningful welfare gains across society.

1. Research Gap

2.1. Empirical evidence of these gaps across regions and program

While health financing has improved globally, there are still problems with how impoverishment due to out-of-pocket (OOP) expenses is measured. Different countries practice different methods to assess poverty, making comparisons difficult[14]. Evidence is also thin on how differences in prepaid contributions and social security systems shape financial protection, while methodological weaknesses exists in addressing missing household survey data. In sub-Saharan Africa, fragmented financing structures undermine both equity and efficiency, yet little research identifies effective risk-pooling strategies, integration of frameworks, or sustained OOP reduction. China's experience similarly exposes inequities: OOP spending remains regressive despite expanded insurance, with insufficient analysis of how benefit package design, rural–

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[13] Schramme T. Health as Complete Well-Being: The WHO Definition and Beyond. Public Health Ethics. 2023 Jul 27;16(3):210-218. doi: 10.1093/phe/phad017. PMID: 38333767; PMCID: PMC10849326.

[14] S. Docrat, D. Besada, S. Cleary, C. Lund, "The impact of social, national and community-based health insurance on health care utilization for mental, neurological and substance-use disorders in low- and middle-income countries: a systematic review," Health Economics Review, 2020. https://doi.org/10.1186/s13561-020-00268-x.

urban disparities, and consumption patterns mediate protection outcomes. Mental health care, moreover, is rarely examined in relation to insurance reforms, as most studies assess service utilization without probing how scheme design links to financing and mental health outcomes[15]. Even the New Cooperative Medical Scheme, while improving service use, reveals persistent provincial and income-based inequities, with inadequate inquiry into how reimbursement rates, regional governance, and long-term protection mechanisms interact to reinforce or alleviate these divides. Collectively, these gaps underscore the need for context-sensitive, equity-driven research that integrates fragmented systems, addresses marginalized populations, and incorporates political economy insights to build more sustainable financing reforms. This research paper addresses this by empirically benchmarking SSP against cross-country UHC, OOP, and poverty indicators, highlighting how Pakistan's outcomes deviate from international reform capabilities.

2.2. Governance shows why reforms succeed or fail

Recent transformations in health financing highlight the growing role of governance and evidence-informed policy-making as determinants of reform trajectories. Beyond technical design of economics principles, the success of financing models increasingly depends on how governments mobilize institutional capacity, regulate provider incentives, and align reforms with broader socio-political programs[16]. China's late-2000s transition is a critical illustration: abandoning a rigidly centralized and bureaucratic framework, it adopted an insurance-driven universal coverage model that was reinforced by structural hospital reforms, signaling a recalibration of state roles from direct provider to strategic purchaser and regulator. This governance shift not only extended coverage but also rectified tensions between efficiency, equity, and sustainability, underscoring that historical trajectories shape the distributive

[15] M. Chen, W. Chen, Z. Yu-xin, "New evidence on financing equity in China"s health care reform - A case study on Gansu province, China," BioMed Central, 2012

[16]Zhou, Q., Liu, G.G. & Krumholz, S. Is Chinese National Health Insurance Effective in the Face of Severe Illness? A Perspective from Health Service Utilization and Economic Burden. *Soc Indic Res* **132**, 1307–1329 (2017). https://doi.org/10.1007/s11205-016-1330-5

consequences of reforms[17]. Situating contemporary health policies within such governance transitions is consequently essential to understanding their long-term implications for equity, system resilience, and health outcomes[18]. This paper addresses this by analyzing how weak institutional design and fragmented governance limit SSP's effectiveness, illustrating lessons from successful reforms in international best practices.

2.3. PHI design shows the conceptual blind spots

While public health insurance (PHI) is often presented as a pathway to equity and universal coverage, moving beyond its scope to the underlying principles of equity, efficiency, and sustainability in health systems, empirical evidence endorses that its effectiveness critically depends on the underlying institutional and conceptual design. Countries with comprehensive PHI schemes sometimes underperform because they neglect the principles to address Arrow's foundational insights on uncertainty, asymmetric information, and risk-pooling, weak incentive alignment persist, undermining both fiscal sustainability and service delivery[19]. While equity remains crucial, the analytical trial lies in operationalizing it—designing mechanisms that redistribute resources across income groups, regions, and risk pools without undermining fiscal sustainability.

For instance, systems that prioritize broad enrollment targets without robust mechanisms for provider accountability or cost containment often experience escalating expenditures with limited gains in health outcomes. Similarly, insurance models that focus narrowly on financial protection but overlook structural inequities in service distribution continue regional and class-based disparities. Thus, the paradox arises that even apparently comprehensive PHI systems can reinforce inefficiencies and inequities

[17] J. Kutzin, "Anything goes on the path to universal coverage? No.," World Health Organization, 2012. https://doi.org/10.2471/blt.12.113654
[18] A. Maeda, E. Arajo, C. Cashin, J. Harris, N. Ikegami, M. R. Reich, "Universal Health Coverage for Inclusive and Sustainable Development: A Synthesis of 11 Country Case Studies," None, 2014. https://doi.org/10.1596/978-1-4648-0297-3
[19] D. Erlangga, S. Ali, K. Bloor, "The impact of public health insurance on healthcare utilisation in Indonesia: evidence from panel data," Springer Science+Business Media, 2019. https://doi.org/10.1007/s00038-019-01215-2

when the conceptual foundations of health economics—risk pooling, expected utility under uncertainty, and the public good nature of health—are not adequately embedded in policy design[20]. Health financing research neglects the interface between design, governance, and political economy, which explains determined failures of PHI in LMICs despite reforms.

This paper addresses this by representing how SSP's inpatient-only design reflects these blind spots and by proposing an incorporated framework that links fiscal sustainability, governance, and equity with modern stressors such as AI, climate shocks, and gender inequities.

3. Theoretical backing of the public health insurance models:

3.1. Strong conceptual model for the public health insurance model:

Kenneth Arrow[21] (1963) showed that healthcare markets are fundamentally different from standard competitive markets due to uncertainty and unequal access to information. Illness is unpredictable, and medical knowledge is distributed unevenly among doctors, insurers, and patients. These characteristics lead to market failures, resulting in inefficiencies in unregulated private markets.

3.1 Asymmetric Information

Providers hold more information than patients and insurers, leading to supplier-induced demand, over-treatment, and inefficiencies. SSP's panel hospitals often overbill, exaggerate diagnostics, or induce admissions, with weak monitoring enabling rent-seeking.
Implication: SSP fails structurally because it expanded insurance without structuring governance capacity to counteract informational rents.

Figure 1 in Appendices

[20] D. A. Osei, F. Masiye, F. Tediosi, G. Fink, "Purchasing for high-quality care using National Health Insurance: evidence from Zambia," Health Policy and Planning, 2023. https://doi.org/10.1093/heapol/czad022

[21] Arrow, K. J. (1978). Uncertainty and the welfare economics of medical care. In *Uncertainty in economics* (pp. 345-375). Academic Press.

3.2. Adverse Selection

Arrow identified that if enrollment is optional or uneven, high-risk individuals dominate pools, driving up costs and undermining sustainability. SSP is universal in theory, but in practice, awareness and access are uneven. Utilization is focused among higher-risk and urban populations, creating imbalances.

Implication: SSP underperforms because it fails to secure broad, balanced participation and does not effectively integrate informal sector households into a sustainable pool.

3.3 Moral Hazard

Insurance reduces the direct cost of care, promising higher utilization, sometimes unnecessary. Evidence points to repeated claims, overutilization in tertiary hospitals, and unnecessary admissions, while preventive care is ignored since it is not covered.

3.4 Externalities and the Public Good Nature of Health

Health services, especially preventive ones, generate positive externalities (e.g., herd immunity, productivity). Left to markets, these services are under-provided. SSP is treatment-oriented, focused on curative inpatient services, while high-return preventive interventions like immunization, maternal health, and early screening remain underfunded.

Collectively, these factors warrant government action through regulation, subsidies, or public insurance. Public health insurance[22] is justified on five bases: (1) risk pooling through universal coverage, (2) equity by incorporating the poor and those in informal employment, (3) efficiency by distributing costs across the tax base, (4) regulatory measures to alleviate information disparities, and (5) acknowledgment of health as a public good that provides wide social benefits.

[22] Fischer, T., Frölich, M., & Landmann, A. (2023). Adverse selection in low-income health insurance markets: Evidence from an RCT in Pakistan. *American Economic Journal: Applied Economics*, *15*(3), 313-340.

3.5. Other Foundational Theories

These theories provide the intellectual backbone for understanding why health insurance is both necessary and effective in Pakistan:

Theory	Application to Public Health Insurance Models
Welfare Economics Theory[23]	Health insurance generates positive externalities and acts as a public good. State intervention is warranted to correct market failures like imperfect information, adverse selection, and moral hazard. Catastrophic health expenditures push million into poverty annually, validating the need of such and other programs as instruments of social welfare.
Risk Pooling and Risk Sharing Theory	It highlights that small private pools fails under high-risk concentration, whereas universal schemes spread costs across populations to ensure sustainability. Public health insurance operationalizes this by pooling government funds to protect weak households and reduce individual fiscal shocks.
Rawlsian Approach[24]	Access to healthcare is a basic right, positioning SSP not merely as welfare but as a distributive social justice and equity device.

These theoretical traditions deepen the rationale. However, these theories often assume strong fiscal and administrative capacity, which Pakistan (Punjab's health sector) lacks, creating a theory–practice gap.

3.6 Economic and Health Insurance Models

Different models of health insurance contextualized for Pakistan:

[23] Pigou, A. C. (1920). *The economics of welfare*. London: Macmillan.
[24] Bommier, A., & Stecklov, G. (2002). Defining health inequality: why Rawls succeeds where social welfare theory fails. *Journal of health economics*, *21*(3), 497-513.

Model	Relevance to Pakistan
Bismarck Model (Social Health Insurance)[25]	Funded via payroll taxes. Coverage is limited (~5% of formal sector).
Beveridge Model (National Health System)[26]	Funded through general taxation, aiming for universal coverage. SSP approximates this model but remains incomplete.
Private Insurance Market Model	Voluntary, premium-based insurance. Limited to middle/high-income groups due to affordability constraints.

These economic and insurance models offer further context. The Bismarck model is inapplicable beyond Pakistan's small formal sector, while the Beveridge model provides a closer analogue to SSP but suffers from fiscal constraints and weak tax compliance, likewise the case is with the private insurance remains regressive, catering only to elites. Thus, Pakistan's hybrid system borrows elements without fully comprehending the strengths of any model, raising sustainability crises.

3.7. Behavioral and Institutional Theories

These explain the operational inefficiencies and governance challenges:

Theory	Pakistan Context
Information Asymmetry	Patients and providers know more than insurers, leading to overbilling, fraud, and inefficiencies in SSP panel hospitals **(Akerlof, 1970).**
Public Choice	Insurance policy design influenced by political

[25] Tulchinsky TH. Bismarck and the Long Road to Universal Health Coverage. Case Studies in Public Health. 2018:131–79. doi: 10.1016/B978-0-12-804571-8.00031-7. Epub 2018 Mar 30. PMCID: PMC7149836.

[26] Beveridge, W. (1942). *Social insurance and allied services (The Beveridge Report)*. London: His Majesty's Stationery Office.

Theory[27] (PCT)	motives and donor preferences; SSP expansion sometimes aligns with electoral promises.
Institutional Theory[28]	Strong governance and monitoring are crucial. Weak institutional capacity in Pakistan leads to leakage, inequity, and sustainability challenges.

These theories also expose why performance lags. Akerlof's information asymmetry manifests in SSP hospitals through overbilling and fraud. PCT explains why developments align with electoral cycles rather than actuarial logic. Institutional theory endorses the idea that without enforcement and accountability, even well-planned schemes leak resources and fail to protect the vulnerable. Finally, **recognizing health as a public good[29] (non-rival and non-excludable)** e.g., **vaccination, epidemic control, maternal care** highlights services the market systematically underprovides. Pakistan's struggles with polio and maternal mortality exemplify why public financing is crucial, but also why weak delivery systems challenge returns.

4. Scope and data quality considerations

Some data gaps hinders robust analysis, with UHC Service Coverage Index data ending in 2018 and OOP data only available until 2020, limiting continuity in time-series assessment. While the study adopts a descriptive approach grounded in welfare economics rather than causal inference, concerns remain about harmonization across global repositories, uneven national reporting, and the omission of informal and non-monetary payments. Moreover, indicators like the UHC Service Coverage Index capture service availability and use but ignores the care

[27] Buchanan, J. M., & Tullock, G. (1962). *The calculus of consent: Logical foundations of constitutional democracy*. Ann Arbor: University of Michigan Press.

[28] **Institutional Theory** explains how organizational structures, practices, and behaviors are shaped by formal rules, social norms, and cultural expectations within their institutional environment, emphasizing legitimacy, conformity, and the influence of established institutions

[29] Ziegler, S., Srivastava, S., Parmar, D. *et al.* A step closer towards achieving universal health coverage: the role of gender in enrolment in health insurance in India. *BMC Health Serv Res* **24**, 141 (2024). https://doi.org/10.1186/s12913-023-10473-z

quality, highlighting the need for more comprehensive metrics for policy design.

The results are contextualized within Arrow's theoretical model, allowing for a combination of empirical findings and conceptual discussions related to public health insurance and government intervention in healthcare markets.

Indicator name	Short Form	Definition	Source
1. Financial hardship: population pushed below a relative poverty line by household health expenditures - 60% of median daily per capita consumption or income (%, national, rural, urban)	Population with impoverishing health expenditures, at a relative poverty line (60% of median daily per capita consumption or income)	The percentage of the population for whom the total household expenditure or income, inclusive of health-related spending, meets or exceeds the poverty threshold, while the total consumption expenditure or income, excluding health expenses, falls below that threshold. Household consumption or income, health expenditures, and the relative poverty threshold are all assessed based on their daily per capita values. To derive representative figures per individual, the household's sample weight is multiplied by the size of the household; if the sample is self-weighting, only the household size is utilized as the weight. The relative poverty line, which varies by country, is established at 60% of the median daily per capita consumption or income in each nation. This measure highlights the relationship between SDG target 1.2, which aims to eradicate poverty globally, and SDG target 3.8, which focuses on achieving Universal Health Coverage.	Global Health Observatory (WHO)[30]

[30] World Health Organization. (n.d.). *Global Health Observatory data repository*. World Health Organization. https://www.who.int/data/gho

Financial hardship: increase in poverty gap due to household health expenditures, expressed as a proportion of the $3.20 a-day poverty line	Poverty gap due to out-of-pocket health spending, expressed as a proportion of the 2011 PPP $3.20 a day poverty line	The rise in the poverty gap resulting from household health expenditures aligns with the increase in the average shortfall of consumption or income from a poverty line due to household health expenses. This increase in the average shortfall is represented as a percentage of the poverty line. Household consumption or income, health-related expenditures, and poverty lines are all expressed in terms of their daily per capita values. To derive representative figures per person, the household's sample weight, multiplied by the number of people in the household, is utilized. If the sample is self-weighting, then only the household size is considered as the weight. The international poverty line, set at $3.20 a day per capita in 2011 purchasing power parity (PPP), is referenced (denoted as $3.20-a-day). This line reflects the common benchmark used for evaluating national poverty levels in lower-middle-income nations. International poverty lines are adjusted to local currency units (LCUs) using the 2011 PPP exchange rates and consumer price indices (CPIs).	Global Health Observatory (WHO)
Out-of-	OOP%CH	Share of current health	Global

pocket expenditure as percentage of current health expenditure (CHE) (%)	E	expenditure funded from household out-of-pocket payments	Health Observatory (WHO)
Universal Health Coverage Index	UHC – Index	Coverage of essential health services (defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, non-communicable diseases and service capacity and access, among the general and the most disadvantaged population). The indicator is an index reported on a unit less scale of 0 to 100, which is computed as the geometric mean of 14 tracer indicators of health service coverage. These 14 indicators span reproductive, maternal, newborn, and child health; infectious diseases and non-communicable diseases; as well	Sustainable Development Goals[31]

[31] United Nations, Department of Economic and Social Affairs, Statistics Division. (2024, January 8). *Universal Health Coverage (UHC) service coverage index [Official estimate]*. United Nations. https://data.who.int/indicators/i/3805B1E/9A706FD

		as health system capacity, including both infrastructure and workforce. By assessing service delivery for general and marginalized populations—such as services for family planning, antenatal care, immunization, and disease treatment—this index provides a standardized, evidence-based approach for evaluating health coverage.	

Financial hardship: population with household expenditures on health greater than 10% of total household expenditure or income (SDG 3.8.2) (%, national, rural, urban)	Population with household health expenditures greater than 10% of total household expenditure or income (SDG 3.8.2)	The proportion of the population with household expenditure on health exceeding 10% of total household expenditure or income.	
Health infrastructure: provincial hospitals, density per 100 000 population	Density of provincial hospitals	Number of provincial hospitals from the public and private sectors, per 100,000 population.	Global Health Observatory (WHO)
Pakistan Health Budget	% of GDP	% of GDP	Economic Survey of Pakistan 2024- 25[32]

[32] Economic Adviser's Wing. (2019–2024). *Pakistan economic survey*. Ministry of Finance, Government of Pakistan. https://www.finance.gov.pk

Punjab Health Budget	In millions	Expenditure done on health sector	Punjab Budget 2024-25[33]
Health Key Indicators		1. Prevalence of HIV 2. Neonatal mortality rate 3. Maternal mortality ratio 4. Life expectancy at birth 5. Infant mortality 6. Incidence of TB 7. Immunization	World Bank Development Indicators [34] UNICEF[35]

4.1 Financing versus household impact

i) UHC OOP Catastrophic Link

Cross-country evidence in figure.2 shows a strong negative correlation between UHC performance and out-of-pocket (OOP) reliance illustrating Arrow's prediction that the countries with stronger pooling, Germany, France, and the UK sustain UHC scores above 80 with OOP below 15%, reflecting robust risk pooling under social or tax-based insurance. By contrast, Pakistan, Bangladesh, and India exhibit UHC scores below 60 alongside OOP levels exceeding 50%, exposing households to catastrophic expenditures. This reliance on direct payments systematically drives vulnerability, as seen in Bangladesh, Ghana, and pre-Ayushman Bharat India, where large shares of households exceed the 10% threshold

[33] Government of Punjab. (2018–2025). *Punjab budget documents: Health sector allocations*. Finance Department, Government of the Punjab. https://finance.punjab.gov.pk

[34] World Bank. (n.d.). *World development indicators*. The World Bank. https://databank.worldbank.org/source/world-development-indicators

[35] UNICEF. (n.d.). *Data warehouse*. United Nations Children's Fund. https://data.unicef.org

for catastrophic spending. Effective risk pooling through prepayment schemes thus proves critical for insulating households from financial shocks.

Figure 2nd in the Appendices

4.1. Insurance Depth, Breadth, and Poverty Impact

Beyond service coverage, the design of public health insurance (PHI) determines its impact on poverty reduction. France, Germany, and the UK report negligible health-induced impoverishment, while reform-driven programs in Thailand[36], Turkey[37], and Mexico demonstrate substantial declines in poverty after broadening and deepening their coverage. Conversely, Pakistan continues to show widening poverty gaps due to shallow risk pooling, limited benefit packages, and exclusion of vulnerable groups. Comparative lessons reveal that universal health coverage alone is insufficient: only insurance models that align coverage breadth (population included) and depth (services provided) with financial sustainability can meaningfully reduce poverty risks.

Figure 3rd in the Appendices

4.2. Equity Dimension:

The effect of healthcare expenses on the poverty gap is influenced by both the coverage breadth (the population included) and the coverage depth (the benefits provided) of PHI. Thailand and Turkey—where insurance encompasses a broad spectrum of preventive and curative services—show little to no increase in poverty gaps. In contrast, Ghana's National Health

[36] Tangcharoensathien, V., Pitayarangsarit, S., Patcharanarumol, W., Prakongsai, P., Sumalee, H., Tosanguan, J., & Mills, A. (2013). Promoting universal financial protection: how the Thai universal coverage scheme was designed to ensure equity. *Health Research Policy and Systems*, *11*(1), 25.

[37] Ökem, Z. G., & Çakar, M. (2015). What have health care reforms achieved in Turkey? An appraisal of the "Health Transformation Programme". *Health Policy*, *119*(9), 1153-1163.

Insurance Scheme and Mexico's Seguro Popular[38] mitigate catastrophic risks but still have limitations due to narrow service offerings. Pakistan continues to experience rises in the poverty gap, revealing structural weaknesses in risk pooling, limited benefits, and exclusion issues.

By examining indicators of financial risk protection alongside UHC and OOP trends, it becomes clear that universal coverage alone, without robust financial pooling mechanisms, is inadequate. Effective PHI models mitigate both catastrophic expenses and poverty risks by ensuring alignment of coverage breadth, benefit depth, and financial stability. This systematically tests how PHI financing shifts household risk**.**

5. Linking Universal Health Coverage and Financial Protection: Insights from Public Health Insurance Models

The Universal Health Coverage (UHC)[39] Service Coverage Index, which aligns with SDG Indicator 3.8.1. UHC includes aspects like service availability, quality, and accessibility, this analysis highlights financial protection due to the following reasons:

- The WHO categorizes financial protection as a fundamental component of UHC.
- Public health insurance (PHI) models are designed to pool risk and reduce out-of-pocket expenditures.
- In lower-middle-income countries (LMICs), healthcare costs frequently drive families into poverty.

Figure 4th in the Appendices

5.1 Universality of UHC Index:

[38] García-Díaz, R., Sosa-Rubi, S. G., Serván-Mori, E., & Nigenda, G. (2018). Welfare effects of health insurance in Mexico: The case of Seguro Popular de Salud. *PloS one*, *13*(7), e0199876.

[39] World Health Organization. (2024, January 8). *UHC service coverage index*. https://data.who.int/indicators/i/3805B1E/9A706FD

PHI initiatives such as the Punjab's SSP use the UHC Index to assess if financial protection strategies are improving access, plummeting out-of-pocket spending, and progressing equity. However, most studies examine service delivery or financing in isolation, limiting a holistic understanding of UHC progress. The Index captures service availability and access but overlooks the depth of financial protection and the equity of public health insurance design, creating a blind spot where coverage may expand numerically yet still expose households to impoverishment.

Comparative evidence from Thailand and Mexico shows that integrating risk-pooling with redistributive financing can transform UHC outcomes, while Arrow's warning about uncertainty and asymmetric information underscores why poorly designed insurance cannot deliver true welfare gains. Against this backdrop, this research uses the UHC Index as a standardized, globally recognized metric but addresses its limitations by contextualizing findings with poverty and catastrophic spending indicators, thereby bridging the gap between access and financial protection.

Figure 6, illustrates trends in the UHC Index from 2000 to 2021 for twelve countries, underscoring disparities in access. Countries with high incomes like the UK, Germany, France, the US, and the Netherlands sustain high indices (approximately 79–80), which indicates strong healthcare and insurance infrastructures. Middle-income nations such as Thailand, Mexico, and Turkey reveal significant progress—Thailand's index increased from 43 to 80, and Mexico's rose from 56 to 75—demonstrating the impact of public insurance in broadening coverage[40]. Low-income countries including Rwanda, Ghana, India, and Bangladesh are making slow but steady advancements (for instance, Rwanda's index increased from 19 to 49, India from 30 to 63, and Bangladesh from 23 to 52), showing gradual access improvements for marginalized groups.

Comparative data reinforces this focus. Countries like Bangladesh and Thailand have made strides in UHC, yet some households still face

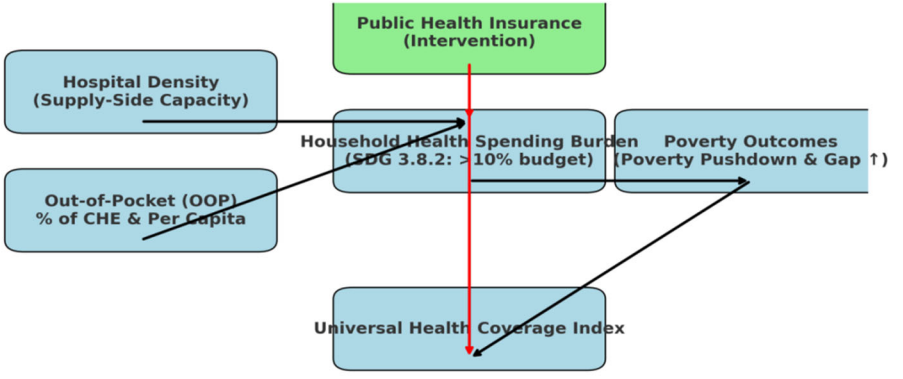
[40] Mathauer, I., Vinyals Torres, L., Kutzin, J., Jakab, M., & Hanson, K. (2020). Pooling financial resources for universal health coverage: options for reform. *Bulletin of the World Health Organization*, *98*(2), 132–139. https://doi.org/10.2471/BLT.19.234153

impoverishment due to healthcare costs, indicating deficiencies in financial protection. Pakistan displays a downward trend in UHC alongside ongoing poverty repercussions, reflecting systemic issues within its PHI framework. In contrast, Germany and France uphold high levels of UHC with minimal poverty effects, showcasing the success of their well-established insurance and tax-funded systems.

In conclusion, the data highlight an inverse relationship between the expansion of UHC and its impact on poverty. For LMICs, improving PHI necessitates not only broader service coverage but also robust financial protection systems. Public health insurance models serve as vital mechanisms for promoting UHC, especially in nations moving from limited to nearly universal coverage.

Figure 5th in the Appendices

5.2. Rational Link to Insurance Models



Contextual Model: Public Health Insurance & Financial Protection

5.3. Comparative Typology of PHI for LMICs

Model	Key Features	Strengths	Challenges

Beveridge[41] (Tax-Funded, Universal)	Universal coverage financed by taxation; state-owned providers **Case studies:** UK (NHS), Spain, Italy, Nordic states	Free at point of service; equity; low admin costs; high patient satisfaction	Long wait times; limited choice; funding pressures; bureaucracy
Bismarck (Social Insurance)[42]	Compulsory insurance via "sickness funds"; financed by employer–employee payroll contributions **Case studies:** Germany, France, Japan, Belgium, Switzerland	High-quality care; broad provider choice; short waits; efficiency via competition	High admin costs; aging population pressures; complex fund management
National Health Insurance (NHI)[43]	Single-payer insurance with private providers; universal access through taxation and contributions **Case studies:** Canada, south Korea, Taiwan, France, Japan	Administrative simplicity; equity in access; strong bargaining power; high-quality care	Risk of underfunding; delays; weak innovation incentives; rural inequities

[41] Cichon, M., & Normand, C. (1994). Between Beveridge and Bismarck: Options for health care financing in Central and Eastern Europe. *World Health Forum, 15*(4), 323–328. https://iris.who.int/bitstream/handle/10665/45367/WHF_1994_15(4)_p323-328.pdf

[42] Scholz, W. (2015). Financing social security out of contributions: About origins, present discussions and prospects of a success story. *International Social Security Review*, *68*(4), 3-24.

[43] Nghiem, S., Graves, N., Barnett, A., & Haden, C. (2017). Cost-effectiveness of national health insurance programs in high-income countries: A systematic review. *PLoS One*, *12*(12), e0189173.

Private Health Insurance	Voluntary, premium-based insurance; competitive providers **Case studies:** USA (pre-ACA), Gulf states	Innovation; consumer choice; advanced technology access		Exclusion of poor; high OOP costs; inequity
Community-Based Health Insurance (CBHI)	Local pooling by households/NGOs; donor and government subsidies **Case studies:** Rwanda, Ghana, Ethiopia[44], India (rural)	Inclusion of marginalized groups; local ownership; rural access gains		Limited scalability; reliance on community participation; sustainability issues
Mixed / Hybrid	Combines compulsory savings (Medisave), insurance (MediShield Life), and government subsidies Singapore	Efficient; fiscally sustainable; promotes personal responsibility	Higher OOP for middle class; gaps in some services	

6. Healthcare system in Pakistan: a review of Punjab

6.1 Pakistan's Health System: Progress and Gaps

Pakistan's health budget has increased over the period of time but its relative to GDP ratio presents a different case study, that the overall

[44] Yilma, Z., Mebratie, A., Sparrow, R., Dekker, M., Alemu, G., & Bedi, A. S. (2015). Impact of Ethiopia's community based health insurance on household economic welfare. *The World Bank Economic Review*, *29*(suppl_1), S164-S173.

situation is not much viable such that it allocates less than 1% of its GDP to health—ranking among the lowest in South Asia. Although there have been gradual advancements in infrastructure, workforce, and health indicators, the system continues to grapple with ongoing challenges: inadequate funding, substantial out-of-pocket expenses, unequal access, and poor service quality in rural regions.

Figure 6th in the Appendicies

Furthermore, the GDP of punjab for health is substantially increased post 2010, the 18th amendemnet, making the province responsible for the key indicators[45]. This amendment made it the responsibility of Punjab to oversee crucial health indicators, such as service delivery, accessibility, and equity in healthcare. As a result, the province acquired greater independence in the planning, funding, and execution of health policies, allowing for more focused interventions and localized strategies to meet specific needs. This transition also highlighted the importance of provincial governance in maintaining accountability and efficiency in resource use within the health sector. 7.1 million People received medical treatment under Universal health Insurance Program during 2023-24[46].

Figure 7th in the Appendicies

7. Discussion:

7.1 The Need for a Public Health Insurance System in Pakistan

Out-of-pocket (OOP) expenses, while slightly decreased from 67.7% to 56.2% of total health spending, still remain considerable and cannot solely be linked to the limited extent of the Sehat Sahulat Program (SSP), which only began operations in Punjab in 2020. This highlights the pressing

[45] Government of Punjab, Finance Department. (2024, June 10). ***Budget FY 2024–25*** [PDF]. Government of Punjab. **https://finance.punjab.gov.pk/system/files/WP24-25.pdf**

[46] Government of Punjab, Finance Department. (2024, June 10). *Budget FY 2024–25* [PDF]. Government of Punjab. https://finance.punjab.gov.pk/system/files/WP24-25.pdf

necessity for a comprehensive public health insurance (PHI) system that reallocates financial risk from households to collective funding mechanisms, safeguarding vulnerable communities from devastating health-related costs.

7.2 Persistent Poverty Issues Despite Reduced OOP

Although there has been a slight decline in out-of-pocket (OOP) spending, health vulnerabilities related to poverty continue to be a concern, with the percentage of households living below the poverty line rising from 1.49% in 2010 to 2.41% in 2013. Existing financing systems do not offer sufficient financial security, leaving larger families, elderly individuals, and low-income households at risk. An inclusive framework for public health insurance (PHI) is crucial to guarantee fair access to healthcare and shield these vulnerable groups from health-related financial hardship.[47]

Figure 8th in the Appendices

7.3 Limited UHC Progress Lacks Adequate Risk Protection

The data shows that Pakistan's total density of district/rural hospitals is extremely low—0.37 per 100,000 population in 2010, declining slightly to 0.35 in 2013[48]. This limited health infrastructure indicates a severe gap in physical access to healthcare in rural areas, compounding the already high out-of-pocket (OOP) spending and vulnerability to catastrophic health expenditure (CHE). Current social health protection programs like SSP cover primarily inpatient care, leaving outpatient services largely unprotected. Inadequate facilities and narrow insurance coverage together underscore that PHI in Pakistan is largely theoretical, highlighting the

[47] World Health Organization. (2023, September 18). *Tracking universal health coverage: 2023 global monitoring report.* World Health Organization https://iris.who.int/bitstream/handle/10665/374059/9789240080379-eng.pdf?sequence=1

[48] World Health Organization. (n.d.). *Health infrastructure: Hospitals, density per 100,000 population*. Global Health Observatory. Retrieved September 8, 2025, from https://www.who.int/data/gho/data/indicators/indicator-details/GHO/total-density-per-100-000-population-hospitals

urgent need for a well-structured, comprehensive system that expands both coverage and infrastructure to mitigate health-related poverty[49].

Figure 9th in the Appendices

7.4 Low Fiscal Commitment as an Obstacle to UHC

Pakistan's minimal health investment (~1% of GDP) contrasts sharply with OECD norms (7–10%) and the levels required for meaningful coverage. Insufficient fiscal commitment constrains the expansion of SSP and other PHI initiatives, forcing households to rely on OOP spending and exacerbating financial vulnerability. Sustainable PHI requires increased government allocation and efficient resource utilization to ensure comprehensive risk coverage and progress toward UHC.

Figure 10th in the Appendiceis

7.5 Health Outcomes and Workforce:

The Universal Health Insurance Program, funded under the Public Sector Development Program (PSDP)[50], has received an allocation of Rs. 54 million for FY2025[51], aimed at providing coverage for 34 million families across 360 hospitals. Nonetheless, significant challenges such as financing limitations, quality of services, and issues concerning maternal and child health persist.

These insights highlight the pressing need for a comprehensive public health insurance system in Pakistan. The data indicates that while some progress has been achieved, public health insurance models, particularly the Sehat Sahulat Program, are still nascent and lacking in depth. The inadequate fiscal investment coupled with limited coverage hinders the

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[49] World Bank. (2021). Pakistan development update: Reviving fiscal space for health. Washington, DC: World Bank.

[50] Rudiger, A. (2016). Human rights and the political economy of universal health care: designing equitable financing. *Health and human rights*, *18*(2), 67

[51] Pakistan Economic Survey 2024–25. (2025). Ministry of Finance, Government of Pakistan. Retrieved from https://www.finance.gov.pk/survey_2025.html

system's ability to produce the intended financial protection and poverty alleviation results. A transition towards risk sharing, enhanced coverage, and increased fiscal support is necessary to tackle the health financing issues faced by the populace. Reinforcing public health insurance will be vital in reducing out-of-pocket expenses, curbing catastrophic spending, and ensuring equitable access to healthcare, thereby improving financial protection and alleviating poverty in the future.

Workforce: 319,572 physicians, 54,123 dentists, 138,391 nurses, 49,554 midwives/LHVs, and 24,584 pharmacists—though their distribution is uneven

Outcomes: Life expectancy averages 67.6 years, with infant mortality at 50 per 1,000 live births (whereas the regional average is about 30), and DPT3 immunization rates at 86%.

Figure 11th in the Appendices

7.6 Obstacles in the Implementation of the Sehat Sahulat Program

Despite the Sehat Sahulat Program (SSP) having high aspirations, it encounters notable difficulties in its execution. Low utilization is attributed to insufficient public awareness, a lack of enrolled facilities, and administrative shortcomings. Certain districts exhibit enrollment deficits ranging from 22% to 74%, with only one hospital catering to thousands of families. Additionally, the SSP's emphasis on inpatient services overlooks outpatient care, which constitutes nearly 80% of catastrophic health expenditures (CHE). To offer comprehensive financial protection, it is crucial to extend coverage to include outpatient and preventive care. These findings are limited by data constraints (like SCI data only available until 2018), dependence on general indicators, and a descriptive methodology; therefore, they should be viewed as contextual evidence backing theoretical assertions rather than definitive causal evidence.

7.7 Dynamics of Health Insurance and Policy Implications

The landscape of health insurance in Pakistan is characterized by fragmentation, with insufficient coverage extending beyond public programs like SSP and the Employees Social Security Institutions. Private

and corporate insurance primarily caters to the formal employment sector, leaving a considerable portion of the middle class and informal workers without coverage. Although SSP has successfully broadened access, it grapples with issues regarding sustainability, governance, and instances of service denial[52]. Endorsed by international organizations such as the World Bank, WHO, and IMF, the SSP is pivotal to the pursuit of UHC in Pakistan. To enhance its effectiveness, there is a need for sustainable funding, improved targeting through Proxy Means Tests (PMT), capacity development of service providers, and strengthened cooperation among government, private sectors, and civil society organizations.

7.7.1 Types and Mechanisms of Public Health Insurance Financing

(i). Social Health Insurance (SHI)

Social Health Insurance systems in numerous low- and middle-income countries (LMICs) gather risks through compulsory contributions linked to payroll, enhancing access while raising concerns about equity due to uniform or regressive rates and challenges associated with the informal economy[53]. Implementation is further complicated by administrative difficulties, governance issues, and vested interests; debates surrounding SHI in South Africa exemplify these political and technical challenges (McIntyre, 2003). Research indicates that SHI tends to benefit wealthier populations when there are insufficient exemptions for those in need, underscoring the importance of engaging stakeholders to balance technical feasibility with political practicality[54].

(ii). National Health Insurance (NHI)

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[52] Saleem, S. (2023). Power, politics, and public health: understanding the role of healthcare expenditure in shaping health outcomes in Pakistan for policy enhancement. *Politica*, *2*(1), 58-72.

[53] A. Asante, N. Man, V. Wiseman, "Evaluating Equity in Health Financing Using Benefit Incidence Analysis: A Framework for Accounting for Quality of Care," Applied Health Economics and Health Policy, 2020. https://doi.org/10.1007/s40258-020-00597-2

[54] . Tangcharoensathien, W. Patcharanarumol, A. Kulthanmanusorn, N. Saengruang, H. Kosiyaporn, "The Political Economy of UHC Reform in Thailand: Lessons for Low- and Middle-Income Countries," Taylor & Francis, 2019. https://doi.org/10.1080/23288604.2019.1630595

National Health Insurance programs finance healthcare at a national level via taxation to improve risk-sharing and work towards universal coverage. The success of these programs relies on robust institutions and political will. Nepal's NHI Program suffers from low enrollment, high dropout rates, and political interference[55] (Khanal et al., 2023), while Pakistan's Sehat Card Plus has made strides in inpatient services but struggles with underfunding and inequities (Siddiqi et al., 2024). China exhibits broader coverage and enhanced benefits; however, it continues to deal with high out-of-pocket expenses (Chen et al., 2017).

(iii). Community-Based Health Insurance (CBHI)

Community-Based Health Insurance plans are voluntary and managed by communities, aiming to assist informal sector workers by pooling local risks (Docrat et al., 2020). They boost the utilization of services among rural and marginalized groups but face challenges like limited risk pooling, high dropout rates, and weak regulatory frameworks[56]. Continued out-of-pocket spending limits financial protection, indicating that CBHI serves as a partial remedy that needs to be integrated with national policies and supported by subsidies for long-term sustainability (Nguyen et al., 2023).

7.8 Solutions Specific to Pakistan

- **Broaden Coverage and Access:** Extend the Social Safety Program (SSP) to include outpatient, emergency, and rural care; consider mobile registration and online enrollment.
- **Strengthen Infrastructure:** Expand the number of hospitals, clinics, and beds; hire and train more health professionals.

[55] G. N. Khanal, B. Bharadwaj, N. Upadhyay, T. Bhattarai, M. Dahal, R. Khatri, "Evaluation of the National Health Insurance Program of Nepal: are political promises translated into actions?," Health Research Policy and Systems, 2023. https://doi.org/10.1186/s12961-022-00952-w

[56] O. Tayo-Ladega, T. Abdullahi, K. Islam, "Factors Militating Against Public Health Financing In Nigeria: An Empirical Review," None, 2021. https://doi.org/10.46281/AIJMSR.V7I2.1073

- **Improve Financial and Resource Allocation**: Increase funding, ensure its effective usage, and adopt performance-based financing to boost the quality of services.
- **Improve Governance and Monitoring:** Enhance coordination between federal and provincial levels; employ digital tracking for claims and fraud; establish transparent accountability systems.
- **Leverage Technology:** Implement telemedicine, digital health records, and mobile applications; utilize AI analytics for predicting demand, optimizing resources, and detecting fraud.

8. Conclusion

This study has shown that public health financing models across the world helped to improve the poverty dynamics and the health indicators, these observations are extrapolated for the case study of the Sehat Sahulat Program (SSP). It plays a crucial role in the larger effort to decrease out-of-pocket costs, enhance financial protection, and progress toward Universal Health Coverage (UHC). By placing Pakistan's experience in the context of broader theoretical frameworks such as Kenneth Arrow's principles of uncertainty, welfare economics, risk pooling, and equity, the research illustrates that public health insurance transcends mere welfare support, acting instead as a vital response to significant market failures. Comparative insights from nations like Thailand, Turkey, Mexico, and Germany indicate that sustainable health insurance reforms achieve the greatest success when underpinned by strong fiscal backing, transparent governance, and the integration of both preventive and curative health services. In contrast, Pakistan's focus on limited inpatient coverage, accompanied by low healthcare spending (approximately 1% of GDP), fragmented governance, and variable access, underscores the discrepancy between ambition and actuality.

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References

Asante, A., Price, J., Hayen, A., Jan, S., & Wiseman, V. (2016). Equity in health care financing in low- and middle-income countries: A systematic review of evidence from studies using benefit and financing incidence analyses. *Public Library of Science.* https://doi.org/10.1371/journal.pone.0152866

Ashraf, S., Ashraf, Z., & Yaqoob, M. (2025). *Comparative analysis of the health care systems of Pakistan and Nepal*. https://doi.org/10.61919/j6evtz02

Askarzade, E., Gorji, H. A., & Arabloo, J. (2024). The role of supplementary insurance in achieving universal health coverage: A comprehensive review. *Medical Journal of The Islamic Republic of Iran.* https://doi.org/10.47176/mjiri.38.28

Beveridge, W. (1942). *Social insurance and allied services (The Beveridge Report)*. London: His Majesty's Stationery Office.

Bommier, A., & Stecklov, G. (2002). Defining health inequality: why Rawls succeeds where social welfare theory fails. *Journal of health economics*, *21*(3), 497-513.

Busse, R., Blümel, M., Knieps, F., & Bärnighausen, T. (2017). Statutory health insurance in Germany: A health system shaped by 135 years of solidarity, self-governance, and competition. *The Lancet, 390*(10097), 882–897. https://doi.org/10.1016/S0140-6736(17)31280-1

Chen, M., Chen, W., & Yu-xin, Z. (2012). New evidence on financing equity in China's health care reform: A case study on Gansu province, China. *BMC Health Services Research, 12*, 466. https://doi.org/10.1186/1472-6963-12-466

Cichon, M., & Normand, C. (1994). Between Beveridge and Bismarck: Options for health care financing in Central and Eastern Europe. *World Health Forum, 15*(4), 323–328. https://iris.who.int/bitstream/handle/10665/45367/WHF_1994_15(4)_p323-328.pdf

Docrat, S., Besada, D., Cleary, S., & Lund, C. (2020). The impact of social, national and community-based health insurance on health care utilization for mental, neurological and substance-use disorders in low- and middle-income countries: A systematic review. *Health Economics Review.* https://doi.org/10.1186/s13561-020-00268-x

Dussault, G., & Franceschini, M. C. (2006). Not enough there, too many here: Understanding geographical imbalances in the distribution of the health workforce. *BioMed Central*. https://doi.org/10.1186/1478-4491-4-12

Erlangga, D., Suhrcke, M., Ali, S., & Bloor, K. (2019). The impact of public health insurance on health care utilisation, financial protection and health status in low- and middle-income countries: A systematic review. *PLoS ONE.* https://doi.org/10.1371/journal.pone.0219731

Firmansyah. (2024). Health insurance and public health: Analyzing the impact of financing and policy on healthcare access. *Jurnal Riset Kualitatif dan Promosi Kesehatan, 3*(1), 41–49.

Goniewicz, K., Burkle, F. M., & Khorram-Manesh, A. (2025). Transforming global public health: climate collaboration, political challenges, and systemic change. *Journal of Infection and Public Health*, *18*(1), 102615.

Gottret, P., & Schieber, G. (2006). *Health financing revisited: A practitioner's guide*. Washington, DC: World Bank. https://doi.org/10.1596/978-0-8213-6585-4

Housawi, A., & Lytras, M. D. (2025). Data governance in healthcare organizations. In *Next Generation eHealth* (pp. 13-32). Academic Press.

Hsiao, W. C., & Shaw, R. P. (2007). *Social health insurance for developing nations*. Washington, DC: World Bank. https://doi.org/10.1596/978-0-8213-6949-4

Jabeen, R., Rabbani, U., & Abbas, N. (2021). Financing mechanisms applied for successful universal health coverage in Malaysia, Thailand and Singapore - Lessons for Pakistan. https://doi.org/10.47391/jpma.204

Khan, S., Cresswell, K., & Sheikh, A. (2023a). The German Development Bank as a policy entrepreneur for social health protection: A case study of the development and implementation of the Sehat Sahulat Programme in Khyber Pakhtunkhwa, Pakistan. *Journal of Global Health Reports*. https://doi.org/10.29392/001c.75413

Kutzin, J. (2012). Anything goes on the path to universal coverage? No. *World Health Organization.* https://doi.org/10.2471/blt.12.113654

Lancet Countdown / Climate & Health reports (impacts & indicators). The Lancet

Liu, G. G., Vortherms, S. A., & Hong, X. (2017). China's health reform update. *Annual Reviews.* https://doi.org/10.1146/annurev-publhealth-031816-044247

Maeda, A., Arajo, E., Cashin, C., Harris, J., Ikegami, N., & Reich, M. R. (2014). Universal health coverage for inclusive and sustainable development: A synthesis of 11 country case studies. *World Bank.* https://doi.org/10.1596/978-1-4648-0297-3

Malviya, S. (2025). AI-Powered Data Governance for Insurance: A Comparative Tool Evaluation. *International journal of data science and machine learning*, *5*(01), 280-299

McIntyre, D. (2003). A tale of two visions: The changing fortunes of social health insurance in South Africa. *Oxford University Press.* https://doi.org/10.1093/heapol/18.1.47

Molina, R., Pinto, M., Henderson, P., & Vieira, C. (2000). Spending and financing in health care: Situation and trends. *Revista Panamericana de Salud Pública/Pan American Journal of Public Health.* https://doi.org/10.1590/S1020-49892000000700010

Nghiem, S., Graves, N., Barnett, A., & Haden, C. (2017). Cost-effectiveness of national health insurance programs in high-income countries: A systematic review. *PLoS One*, *12*(12), e0189173.

Nishtar, S. (2009). *The mixed health system syndrome*. World Health Organization. https://doi.org/10.2471/blt.09.067868

OECD — Health Data Governance / Health data governance for the digital age. OECD+1

OECD Health at a Glance 2023: https://www.oecd.org/en/publications/health-at-a-glance-2023_e04f8239/

OECD Health Statistics: https://www.oecd.org/en/data/datasets/oecd-health-statistics.html

Osei, D. A., Masiye, F., Tediosi, F., & Fink, G. (2023). Purchasing for high-quality care using national health insurance: Evidence from Zambia. *Health Policy and Planning.* https://doi.org/10.1093/heapol/czad022

Pakistan-specific studies: Professional Med J (awareness/utilization of Sehat cards) and district studies on SSP uptake. The ProfessionalPMC

Pigou, A. C. (1920). *The economics of welfare*. London: Macmillan.

Razzaq, S., Zahidie, A., & Fatmi, Z. (2022). Estimating the pre- and post-diagnosis costs of tuberculosis for adults in Pakistan: Household economic impact and costs mitigating strategies. *Global Health Research and Policy*. https://doi.org/10.1186/s41256-022-00259-x

Scholz, W. (2015). Financing social security out of contributions: About origins, present discussions and prospects of a success story. *International Social Security Review*, *68*(4), 3-24.

Schultz, T. W. (1961). *Investment in Human Capital.* American Economic Review.

Siddiqi, S., Habib, S. S., Hameed, W., Tangcharoensathien, V., & Haider, A. (2024). Transitioning to social health insurance in Pakistan: The experience of Sehat Card Plus in Khyber Pakhtunkhwa province. *Journal of Pakistan Medical Association*. https://doi.org/10.47391/jpma.scpp-01

Soares, R. R. (2015). Gary Becker's contributions in health economics. *Journal of Demographic Economics*, *81*(1), 51-57.

Tulchinsky TH. Bismarck and the Long Road to Universal Health Coverage. Case Studies in Public Health. 2018:131–79. doi: 10.1016/B978-0-12-804571-8.00031-7. Epub 2018 Mar 30. PMCID: PMC7149836.

UN Women — UHC, gender equality and social protection (discussion paper). UN Women

Wagstaff, A., Flores, G., Smitz, M., Hsu, J., Chepynoga, K., & Eozenou, P. (2017). Progress on impoverishing health spending in 122 countries: A retrospective observational study. *The Lancet Global Health, 6*(2), e180–e192. https://doi.org/10.1016/S2214-109X(17)30486-2

Waheed, A., Shah, S., & Mahmood, T. (2024). Managing barriers to resource allocation for the rehabilitation services in Pakistan: A review article. https://doi.org/10.35975/apic.v28i4.2528

WHO — Climate change & health (fact sheet). World Health Organization

WHO — Ensuring gender-responsive health systems / UHC. World Health Organization

Whyle, E., & Olivier, J. (2023). A socio-political history of South Africa's National Health Insurance. *International Journal for Equity in Health, 22*(1), 1–15. https://doi.org/10.1186/s12939-023-02058-3

World Health Organization (WHO): https://www.who.int/

World Health Organization. (2019). *Universal health coverage (UHC)*. World Health Organization. https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-(uhc)

You, Z., Wang, Y., & Xiao, Y. (2025). Analysing the Suitability of Artificial Intelligence in Healthcare and the Role of AI Governance. *Health Care Analysis*, 1-33.

Yu, B., Meng, Q., Collins, C., Tolhurst, R., Tang, S., Yan, F., Bogg, L., & Liu, X. (2010). How does the New Cooperative Medical Scheme influence health service utilization? A study in two provinces in rural China. *BMC Health Services Research, 10*, 116. https://doi.org/10.1186/1472-6963-10-116

Appendices

Health Market Model

Figure 1

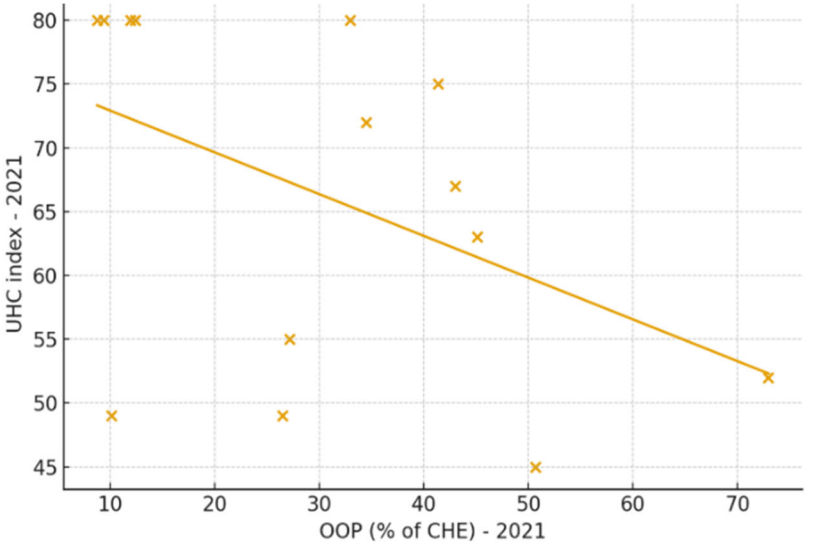

Figure 2nd

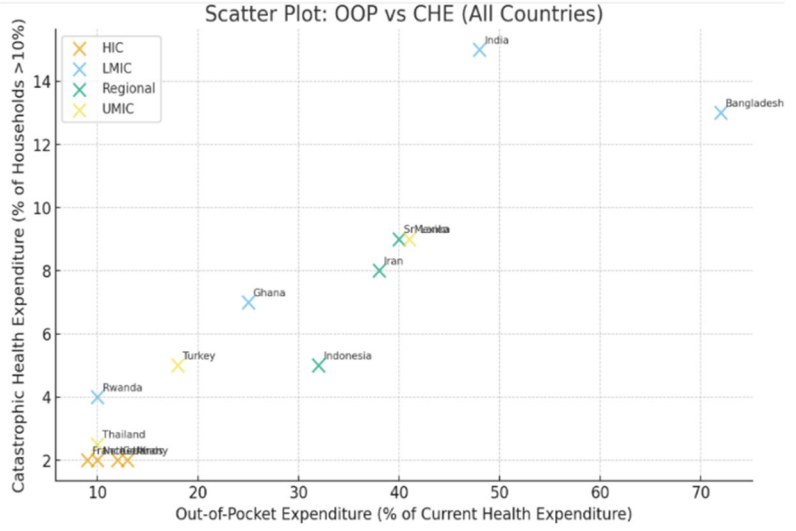

Figure 3rd

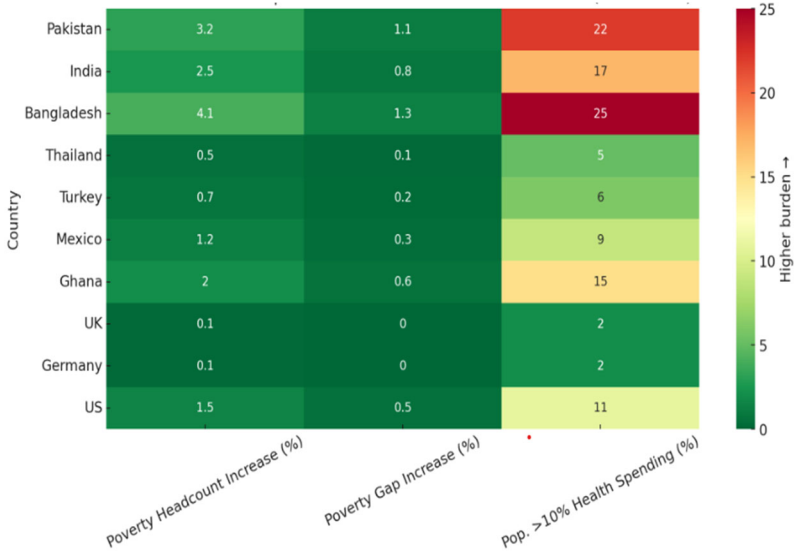

Figure 4th

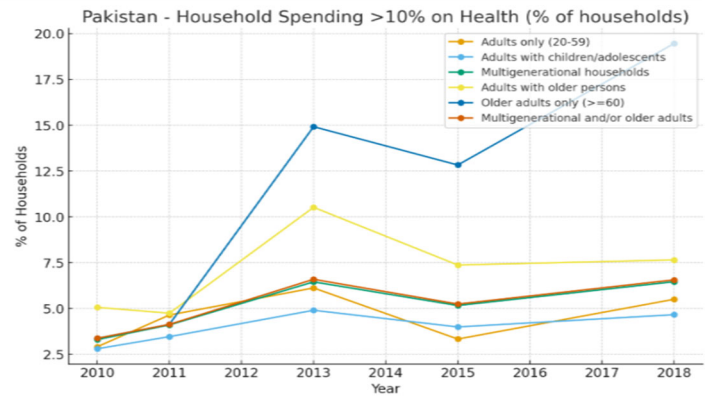

Figure 5th

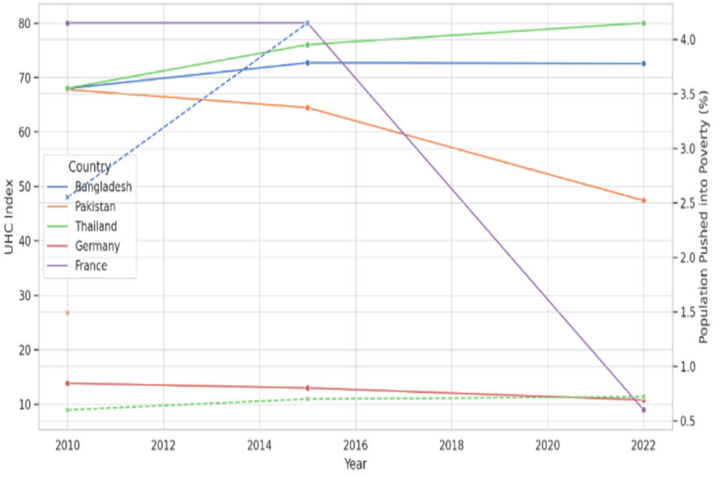
UHC Index
Population Pushed into Poverty (%)
Year
Country
Bangladesh
Pakistan
Thailand
Germany
France
80
70
60
50
40
30
20
10
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
2010
2012
2014
2016
2018
2020
2022

Figure 6th

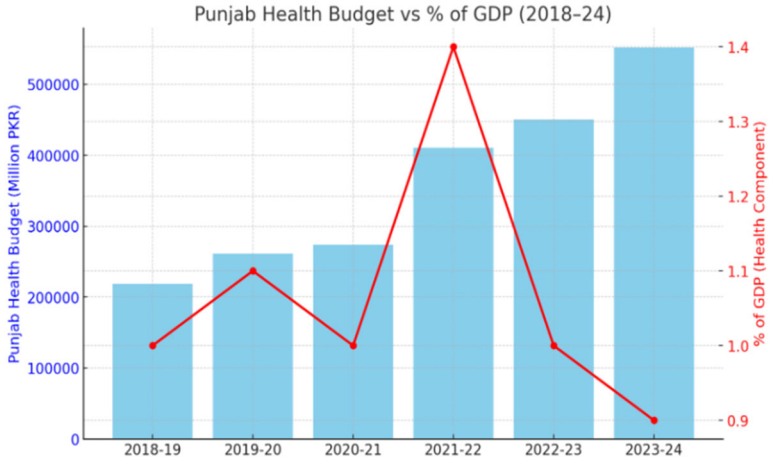

Figure 7th

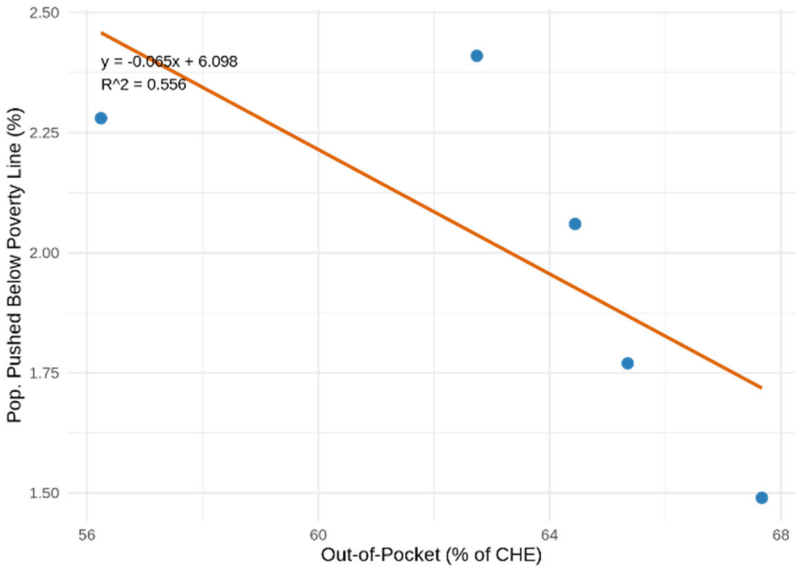

Figure 8th

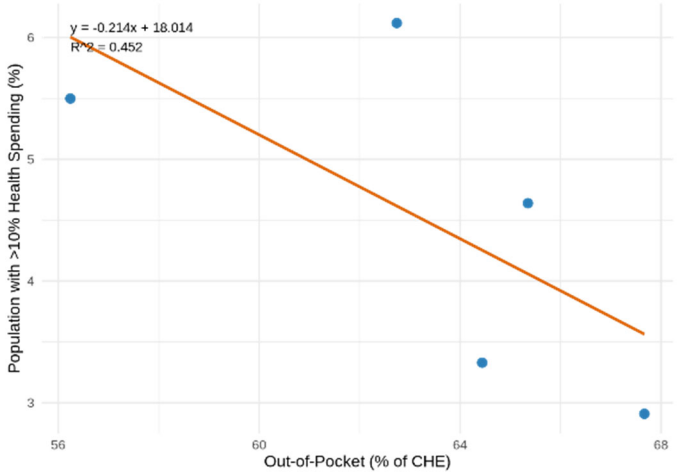

Figure 9th

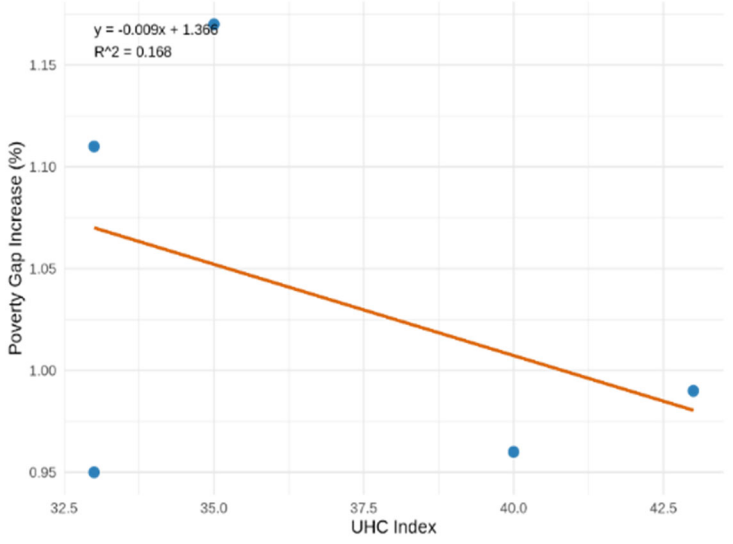

Figure 10th

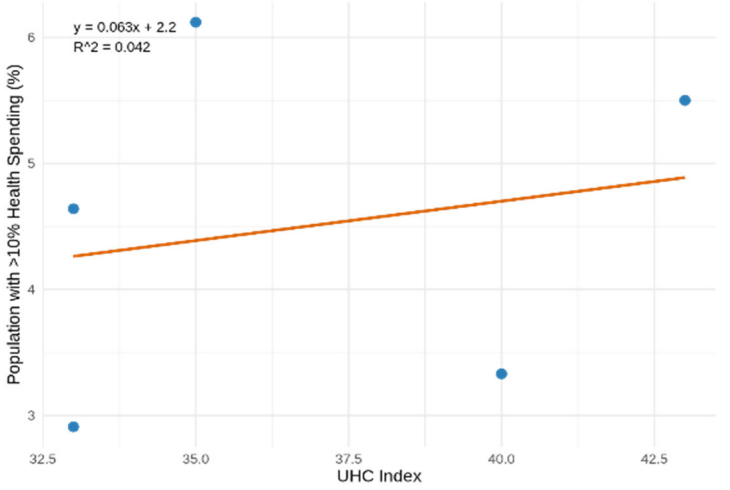
y = 0.063x + 2.2
R^2 = 0.042
Population with >10% Health Spending (%)
6
5
4
3
32.5
35.0
37.5
40.0
42.5
UHC Index

Figure 11th

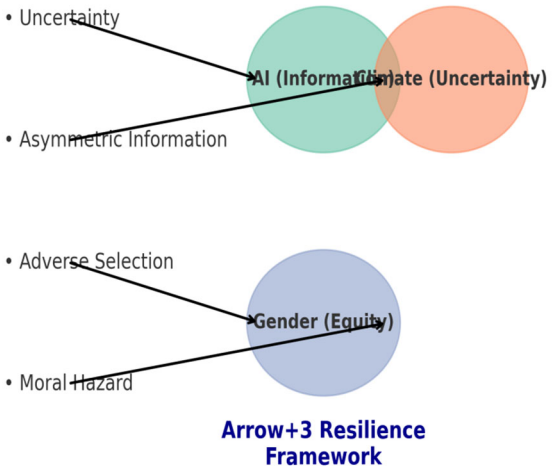

Figure 12th

4A UNDP Frameword Matrix:
Solutions to Public Health Insurance Challenges

	Global Challenges	Global Solutions	Pakistan-Specific Challenges	Pakistan-Specific Solutions
Access	• Inequitable access to healf.hcare • High out-of -pocket expenses • Geographic barners	• Universal health schames & pooled financing • Telemedicicine mobile clinics	• Expand SSP to rural / margimanalized populations • Predictive analytics & i for planning	• Expand SSP to rurul / marginalized populations • Estabich moble registration under SSP
Adopt	• Low adoption of digital health • Limited PPP integration	• Public-private partnerships • Electronic health records Ai-driven support • Task-shifting to trained non-physician workers	• Predictive analytics & Al for planning • Resilient health systems • Contingency health funds	• Digital monitoring & claims manage-ment • Establish emergency health funds
Anticipate	• Rising chronic diseases • Pandemics & health emergemcies • Catastrophic health expenditures	• Predictive analytics & Al for planning • Resilient health systems • Contingency health funds	• Use data analytics for forecasting demand • Establisity emergency health funds	• Scale SSP nationwoie with CNIC integration • Accelerate healthcare workforce training
Accelerate	• Slow scale-up of successful programs • Fraemented health policies	· Scale successful pilots nationally	• Scale SSP nationwaie with CNIC integration	• Awareness campaigns to improve utilization

Figure 18th