

Expected Impact of Social Health Insurance on Household Savings and Investment Decisions in Sierra Leone.

Abstract

Out-of-pocket healthcare expenditure remains a major source of household financial vulnerability in Sierra Leone. Although social health insurance (SHI) is primarily designed to improve access to healthcare and financial protection, its potential influence may extend beyond health service utilisation to household savings and productive investment decisions. Objective: This article evaluates the expected impact of SHI on household savings and investment behaviour in Sierra Leone. Methods: The article draws on the Objective Four components of a cross-sectional doctoral study conducted among household heads or adult household financial decision-makers in selected districts of Sierra Leone. Quantitative survey data were analysed using descriptive statistics and multiple regression models. The savings and investment models estimated the relationship between willingness to enrol, willingness to pay, household income, out-of-pocket healthcare expenditure, household size, and household savings and investment outcomes. Qualitative focus group discussion findings were used to enrich interpretation of the quantitative results. Results: Willingness to enrol in SHI was positively and significantly associated with household savings (coefficient = 0.281; $p = 0.007$) and household investment (coefficient = 0.298; $p = 0.008$). Willingness to pay was also positively associated with savings (coefficient = 0.169; $p = 0.010$) and investment (coefficient = 0.172; $p = 0.012$). Household income produced the strongest positive effect in both models, while out-of-pocket healthcare expenditure and household size had negative and statistically significant effects. The savings model explained 41% of the variation in household savings, while the investment model explained 44% of the variation in household investment. Qualitative findings confirmed that fear of unexpected medical bills discourages households from saving and investing confidently. Conclusion: SHI has strong potential to improve household financial stability in Sierra Leone by reducing healthcare-related uncertainty, protecting savings, and enabling productive investments. Policy design should prioritise affordability, trust, flexible premium arrangements, benefit clarity, and health system readiness.

Keywords: social health insurance; household savings; household investment; out-of-pocket expenditure; financial protection; Sierra Leone; universal health coverage

1. Introduction

Healthcare financing is a central determinant of household welfare in low- and middle-income countries (World Health Organization [WHO], 2025). Where households depend heavily on out-of-pocket payments, illness becomes not only a clinical event but also an economic shock (WHO, 2025; Edo et al., 2017). Medical bills may force families to withdraw savings, borrow money, sell productive assets, reduce food expenditure, delay school payments, or divert business capital away from income-generating activities. These responses can weaken household resilience and reduce long-term economic mobility (Edo et al., 2017).

Social health insurance is increasingly promoted as a pathway to universal health coverage because it shifts healthcare financing from direct payment at the point of service to prepayment and pooled risk sharing (Mathauer et al., 2019; WHO, 2025). The policy objective is to reduce the immediate financial burden of treatment and protect households against catastrophic health expenditure (WHO, 2025). However, the economic significance of SHI extends beyond paying hospital bills (Chou et al., 2003). By reducing uncertainty about future healthcare costs, SHI may influence household decisions on saving, business reinvestment, farming inputs, education, housing improvement, and asset accumulation (Chou et al., 2003; Li et al., 2021).

In Sierra Leone, the proposed SHI scheme is particularly important because many households remain outside comprehensive financial protection arrangements (Jimmy et al., 2021; WHO, 2023). The Free Healthcare Initiative has improved access for pregnant women, lactating mothers, and children under five, but a large share of adults still face direct payment requirements when they seek care (Edo et al., 2016; WHO, 2023). For households with irregular income, especially those in informal trading, farming, and self-employment, unexpected medical expenditure can rapidly disrupt financial planning (Kamara et al., 2018).

This study examines the potential impact of social health insurance on household savings and investment decisions in Sierra Leone. It aims to inform policymakers about how participation in, or willingness to enroll in, a social health insurance scheme could reduce the financial burden associated with out-of-pocket healthcare expenditure and thereby support households' ability to save and invest. The analysis draws on relevant theoretical perspectives, household-level quantitative data, econometric modelling, and evidence from focus group discussions. Particular attention is given to the relationship between health insurance, income, healthcare spending, savings behaviour, and investment decisions. The findings are interpreted in relation to household financial protection and economic resilience, providing evidence to inform the design and implementation of an equitable and financially sustainable social health insurance system in Sierra Leone.

63 2. Literature Review

64 2.1 Social health insurance and household financial behaviour

65 The literature on health financing indicates that health insurance can influence household financial
66 decisions through financial protection, risk reduction, and improved predictability of future
67 expenditure(Mathauer et al., 2019; WHO, 2025). In settings without insurance, households may
68 accumulate precautionary savings specifically to prepare for illness (Chou et al., 2003; Heim & Lurie,
69 2016). While such savings may provide short-term security, they can also reduce resources available
70 for productive investment(Li et al., 2021). Conversely, when households believe that insurance will
71 reduce the burden of medical bills, they may preserve savings for planned goals and allocate additional
72 resources to business, agriculture, education, housing, or other productive assets(Li et al., 2021).

73 2.2 Out-of-pocket expenditure, savings depletion, and asset liquidation

74 Out-of-pocket expenditure is one of the main pathways through which illness affects household
75 savings(WHO, 2025; Edeka et al., 2017). Direct payments for consultation, drugs, laboratory tests,
76 transport, and hospitalisation can exhaust available cash reserves(WHO, 2025). In low-income
77 households, savings are often limited and may be intended for school fees, trading stock, farming
78 inputs, rent, or emergencies(Edoka et al., 2017). When illness occurs, these savings may be diverted to
79 immediate treatment(Edoka et al., 2017). If savings are insufficient, households may borrow or sell
80 assets, further weakening future income-generation capacity(Njagi et al., 2022).

81 2.3 Health insurance and investment behaviour

82 Investment behaviour is affected by uncertainty(Arrow 1963). Households that fear unpredictable
83 medical costs may avoid expanding businesses, purchasing farming inputs, improving housing, or
84 paying for long-term education investments because they fear that illness could remove their capital(Li
85 et al., 2021). Health insurance may change this calculation by reducing uncertainty and improving
86 confidence in future financial planning(Chou et al., 2003; Li et al., 2021). Therefore, SHI can be
87 understood as both a health financing reform and a microeconomic stabilisation mechanism(Mathauer et
88 al., 2019).

89 2.4 Theoretical foundation

90 This article is informed by Expected Utility Theory, Health Demand Theory, and Risk Pooling Theory.
91 Expected Utility Theory explains why households may accept premium payments if insurance reduces
92 exposure to large uncertain losses(Arrow, 1963). Health Demand Theory explains how lower effective

healthcare costs may improve early care-seeking and reduce severe financial shocks(Grossman, 1972). Risk Pooling Theory explains how regular contributions by many households can spread healthcare costs across a wider population, thereby reducing the need for each household to self-insure through emergency savings(Mathauer et al., 2019; WHO, 2025).

3. Methods

3.1 Study design and data source

The research used a cross-sectional study that assessed the potential microeconomic effects of social health insurance on household consumption and investment behaviour in Sierra Leone. Primary data were collected from household heads or adult representatives responsible for household financial decisions. The survey captured information on willingness to enrol, willingness to pay, out-of-pocket healthcare expenditure, household income, household size, savings behaviour, and investment behaviour. Qualitative focus group discussions complemented the quantitative survey by exploring how households manage illness-related financial shocks and how they expect SHI to affect their ability to save and invest.

3.2 Study variables

Table 1. Operationalisation of variables related to Objective Four

Variable	Role in model	Operational meaning
Household savings (SAV)	Dependent variable	Money set aside monthly by the household
Household investment (INV)	Dependent variable	Spending on business, farming inputs, livestock, productive assets, housing improvement, or education investment
Willingness to enrol (ENR)	Independent variable	Readiness to join SHI; coded as willingness to participate
Willingness to pay (WTP)	Independent variable	Amount or readiness to contribute financially toward SHI premiums
Household income (INC)	Control variable	Total household income
Out-of-pocket expenditure (OOP)	Control variable	Direct household healthcare spending
Household size (HHS)	Control variable	Number of persons in the household

110 3.3 Econometric models

111 The study estimated two multiple regression models for Objective Four: one for household savings and
112 one for household investment. The models are specified as follows:

113 Savings Model: $SAV_i = \beta_0 + \beta_1 ENR_i + \beta_2 WTP_i + \beta_3 INC_i + \beta_4 OOP_i + \beta_5 HHS_i + \mu_i$

114 Investment Model: $INV_i = \beta_0 + \beta_1 ENR_i + \beta_2 WTP_i + \beta_3 INC_i + \beta_4 OOP_i + \beta_5 HHS_i + \mu_i$

115 Where

116 SAV_i represents household savings; INV_i represents household investment; ENR_i represents willingness to
117 enroll in Social Health Insurance (SHI); WTP_i represents willingness to pay for SHI; INC_i represents household
118 income; OOP_i represents out-of-pocket healthcare expenditure; HHS_i represents household size; β_0 represents
119 the intercept or constant term; β_1 , β_2 , β_3 , β_4 , and β_5 represent the regression coefficients of the respective
120 explanatory variables; μ_i represents the error term, which captures other unobserved factors affecting household
121 savings or investment; and the subscript i represents the individual household or observation included in the
122 study.

123 4. Results

124 4.1 Savings regression model

125 Table 2. Savings regression model

Variable	Coefficient	Std. Error	p-value
Willingness to enrol	0.281	0.103	0.007
Willingness to pay	0.169	0.066	0.010
Household income	0.472	0.101	0.000
Out-of-pocket expenditure	-0.244	0.086	0.004
Household size	-0.118	0.052	0.031

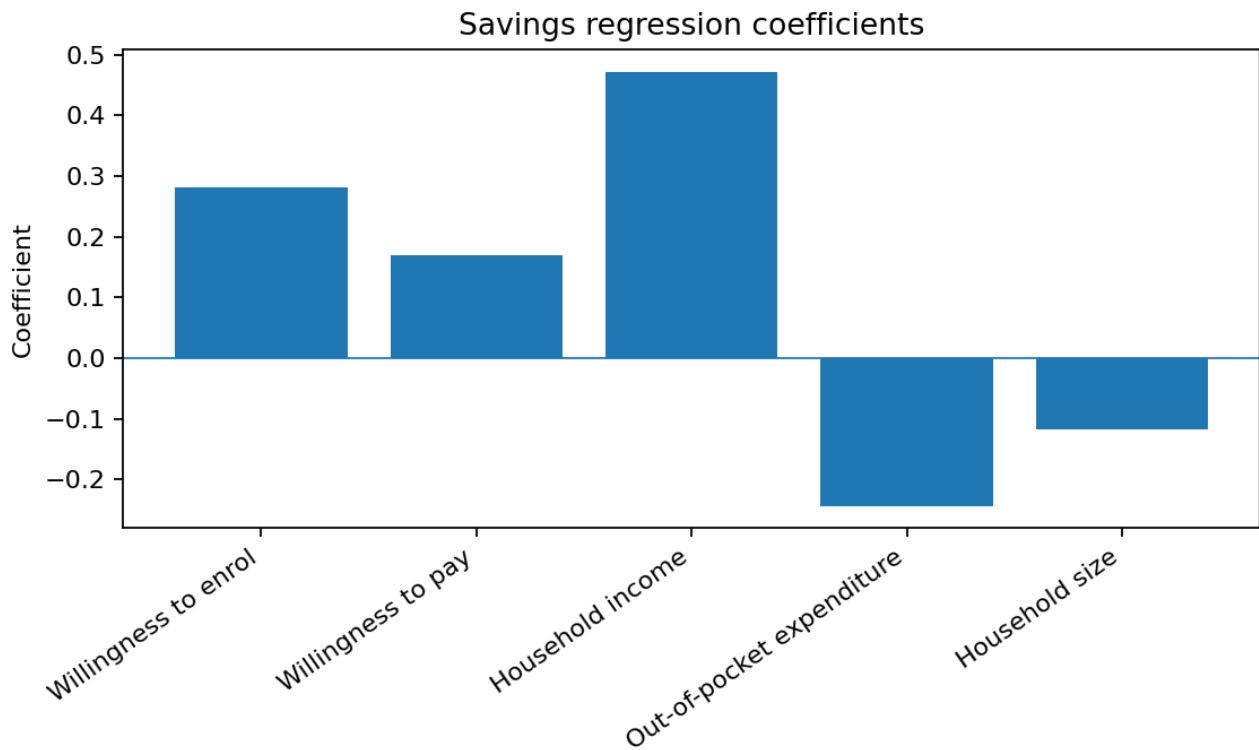
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127 Model fit: R-squared = 0.41. The model explains approximately 41% of the variation in household
128 savings, indicating that SHI-related variables and household characteristics provide a meaningful
129 explanation of differences in saving behaviour among households.

130 Willingness to enrol in SHI had a positive and statistically significant relationship with household
131 savings (coefficient = 0.281; $p = 0.007$). This suggests that households willing to participate in SHI
132 tend to exhibit stronger saving behaviour. Willingness to pay also had a positive significant effect
133 (coefficient = 0.169; $p = 0.010$), indicating that households prepared to contribute financially to
134 insurance may have stronger financial planning capacity or greater confidence in risk protection
135 mechanisms.

136 Household income had the strongest positive effect on savings (coefficient = 0.472; $p = 0.000$),
137 confirming that income remains central to household saving capacity. Out-of-pocket healthcare
138 expenditure had a negative and significant effect (coefficient = -0.244; $p = 0.004$), showing that direct
139 medical spending weakens household savings. Household size also had a negative effect (coefficient =
140 -0.118; $p = 0.031$), suggesting that larger households face higher recurrent expenditure pressures that
141 reduce their ability to save.

142 Figure 1. Savings regression coefficients



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148 Table 3. Investment regression model

Variable	Coefficient	Std. Error	p-value
Willingness to enrol	0.298	0.110	0.008
Willingness to pay	0.172	0.069	0.012
Household income	0.486	0.104	0.000
Out-of-pocket expenditure	-0.253	0.089	0.006
Household size	-0.126	0.058	0.028

149

150 Model fit: R-squared = 0.44. The investment model explains approximately 44% of the variation in
151 household investment behaviour, which indicates substantial explanatory value for the variables
152 included in the model.

153 Willingness to enrol in SHI was positively and significantly associated with household investment
154 (coefficient = 0.298; p = 0.008). This means that households receptive to insurance participation were
155 more likely to demonstrate stronger investment behaviour. Willingness to pay was also positively
156 related to investment (coefficient = 0.172; p = 0.012), suggesting that households willing to contribute
157 premiums may also be more willing or able to commit resources toward future-oriented financial
158 goals.

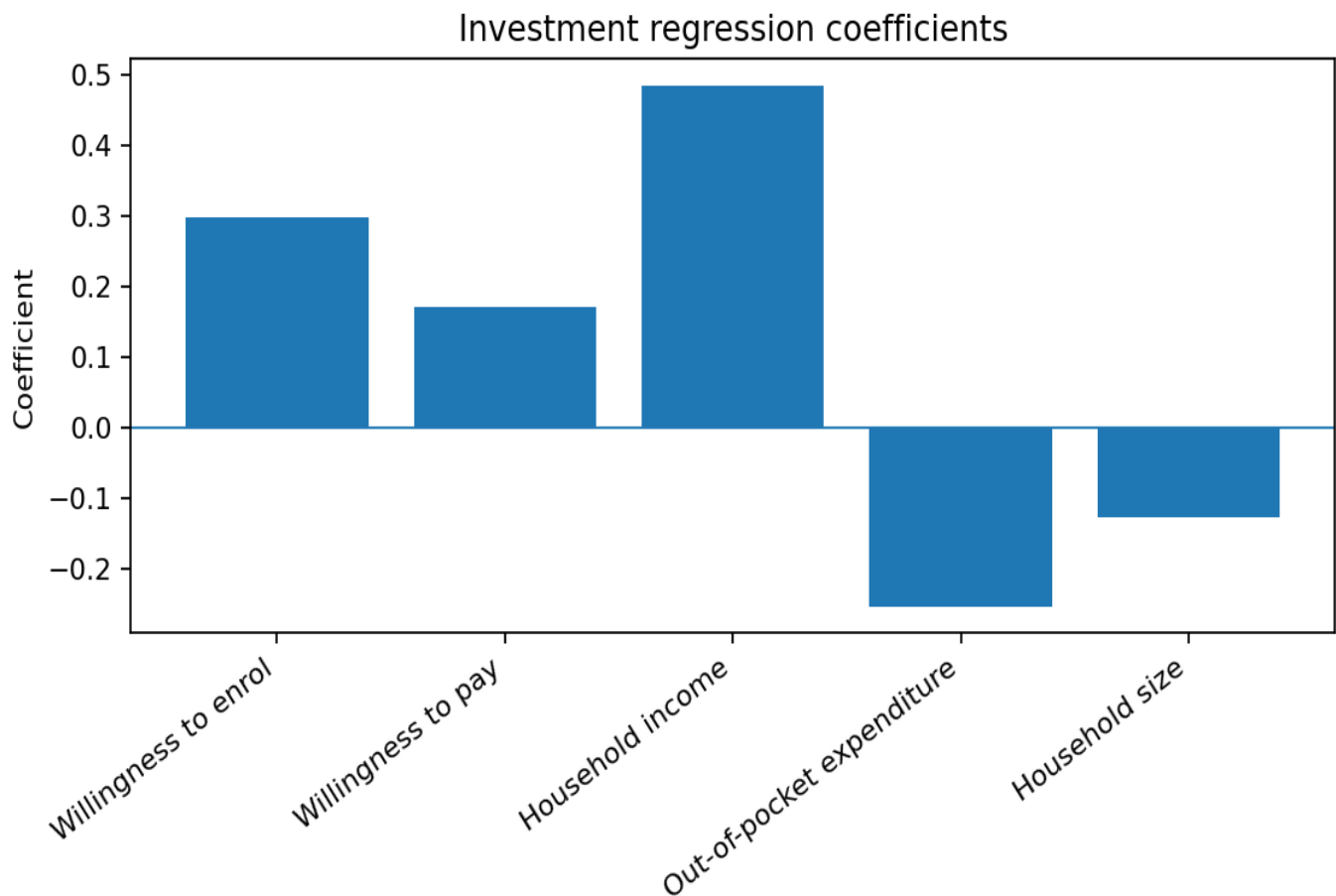
159 Household income again produced the strongest positive effect (coefficient = 0.486; p = 0.000),
160 reinforcing the role of economic capacity in determining investment. Out-of-pocket expenditure had a
161 negative significant effect (coefficient = -0.253; p = 0.006), suggesting that direct healthcare payments
162 reduce investment resources. Household size was also negative and significant (coefficient = -0.126; p
163 = 0.028), indicating that larger households may struggle to allocate resources toward productive
164 investment because of high recurrent needs.

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168 Figure 2. Investment regression coefficients



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170 4.3 Comparative interpretation of savings and investment effects

171 The direction of coefficients is consistent across the two models. Willingness to enrol, willingness to
172 pay, and household income are positive predictors of both savings and investment. Out-of-pocket
173 expenditure and household size are negative predictors. The investment model has a slightly higher
174 explanatory power ($R\text{-squared} = 0.44$) than the savings model ($R\text{-squared} = 0.41$), suggesting that the
175 included variables explain investment behaviour particularly well.

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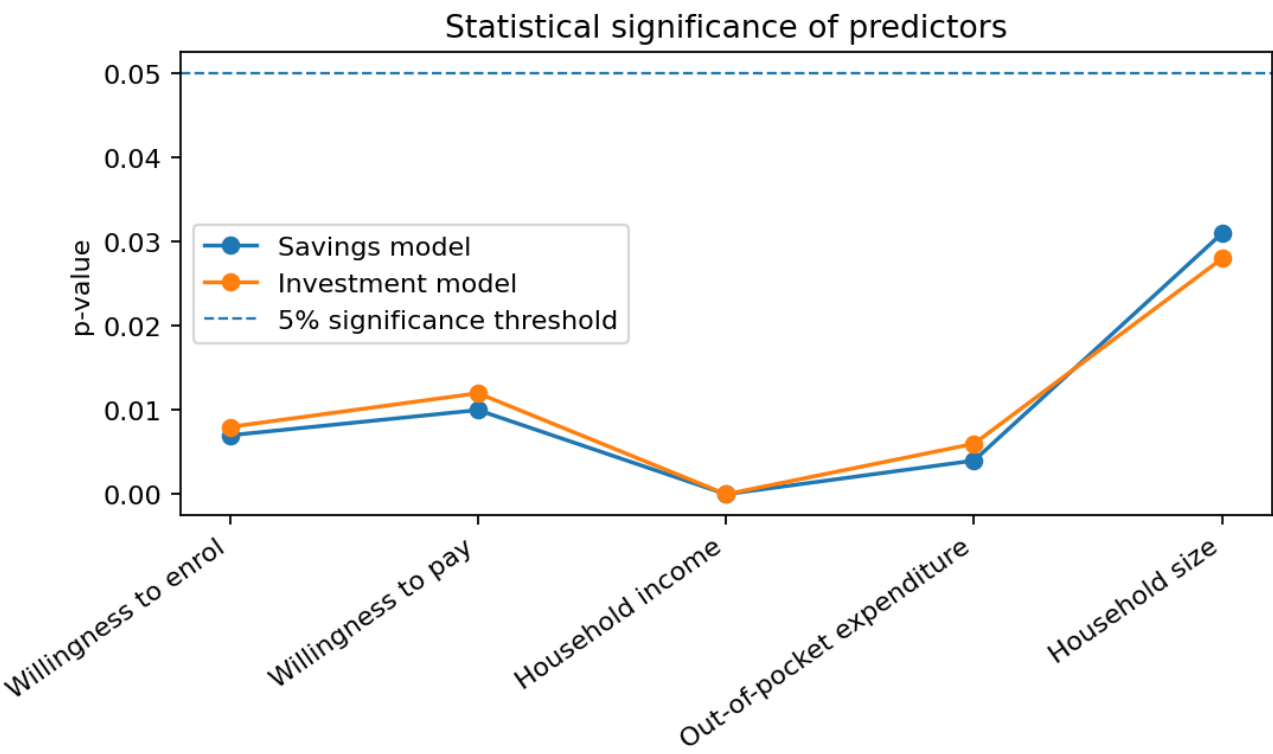
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181 Figure 3. Comparative coefficients for savings and investment models



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183 Figure 4. Statistical significance of predictors in the savings and investment models



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186 4.4 Focus group discussion findings related to savings and investment

187 The focus group discussions provided strong qualitative support for the regression findings.
188 Participants described healthcare expenditure as a major disruptor of financial planning. Illness often
189 forced households to borrow money, sell assets, reduce food expenditure, delay school payments, or
190 use business capital for treatment. These coping strategies were viewed as damaging because they
191 reduced household welfare and weakened income-generating activities.

192

193 Table 4. Focus group discussion

Participant / location	Theme	Illustrative response
Young male participant, Lower Bambara	Business capital and investment loss	Many young people use their business money for hospital bills. After treatment, the business becomes small and sometimes it dies completely.
Trader, Bo City	Savings and reinvestment confidence	If I know that hospital bills will not remove all my capital, I can put more money into my business and save small-small.
Young male participant, Lower Bambara	Planning and productive investment	When health cost is controlled, people can plan. They can buy tools, pay school fees, or expand business because they are not afraid that one sickness will take everything.
Farmer participant, Yoni	Flexible premium design	Farmers do not get money every month. If the insurance wants farmers to join, payment should consider harvest time.

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197 5. Discussion

198 The findings show that SHI has potential to influence household economic behaviour beyond the
199 health sector. The positive coefficients for willingness to enrol and willingness to pay in both the
200 savings and investment models suggest that households that accept the idea of insurance also tend to
201 demonstrate stronger financial planning behaviour. This is consistent with the logic that insurance
202 reduces uncertainty and helps households protect resources that would otherwise be reserved for or
203 diverted to medical emergencies.

204 The strongest predictor in both models was household income. This finding is expected, as higher-
205 income households are better positioned to meet daily needs, save regularly, and allocate resources
206 toward productive investments. However, the significance of insurance-related variables after
207 controlling for income suggests that SHI may independently contribute to financial stability by
208 reducing the perceived risk of sudden medical expenditure.

209 The negative effect of out-of-pocket healthcare expenditure is particularly important. It confirms that
210 direct payment for healthcare weakens household financial capacity. In the savings model, OOP
211 expenditure was associated with reduced savings; in the investment model, it was associated with
212 reduced investment. This means that direct healthcare payments do not only affect immediate access to
213 care; they also reduce the resources available for future-oriented activities such as business expansion,
214 farming, housing improvement, and education.

215 The negative effect of household size shows that larger households are more financially constrained.
216 Larger families must spread income across more members and therefore face higher recurrent costs for
217 food, education, transport, clothing, and healthcare. For SHI design, this implies that contribution
218 structures should consider household composition and affordability, particularly for poor and larger
219 households.

220 The qualitative results deepen the interpretation of the regression findings. Participants repeatedly
221 linked health costs to business contraction, delayed school payments, loss of savings, and inability to
222 plan. They viewed SHI as a potential economic protection mechanism, but their support was
223 conditional on affordable premiums, flexible payment schedules, drug availability, clear benefit
224 packages, transparent fund management, and reliable service delivery. This indicates that SHI will only
225 produce household-level economic benefits if households trust the scheme and if health facilities are
226 ready to deliver the promised benefits.

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228 6. Summary of Key Findings

229 The study found that willingness to enroll in social health insurance (SHI) was positively and
230 significantly associated with household savings and investment. Similarly, willingness to pay for SHI
231 demonstrated a significant positive relationship with both savings and investment outcomes. Among
232 the explanatory variables, household income was identified as the strongest positive predictor in both
233 models, underscoring its critical role in enhancing financial capacity. Conversely, out-of-pocket
234 healthcare expenditure had a negative effect on both savings and investment, confirming its status as a
235 major source of financial vulnerability for households. Household size also negatively influenced
236 savings and investment, indicating that larger households experience greater financial pressure. Focus
237 group discussions corroborated these quantitative findings, revealing that medical expenses often
238 reduce business capital, weaken the ability to save, delay education-related expenditures, and
239 discourage long-term financial planning. Participants generally indicated that social health insurance
240 could enhance saving behaviour and promote productive investment, provided the scheme is
241 affordable, transparent, flexible, and supported by a well-prepared and responsive health system.

242

243 7. Conclusion

244 The findings demonstrate that social health insurance has strong potential to improve household
245 financial stability in Sierra Leone by protecting savings and encouraging productive investment. The
246 regression results show that willingness to enrol and willingness to pay are positively associated with
247 both household savings and investment, while out-of-pocket healthcare expenditure has a negative
248 effect on both outcomes. These findings confirm that healthcare financing arrangements can shape
249 household economic behaviour beyond the immediate health sector.

250 The study concludes that SHI could help households preserve savings, reduce the diversion of business
251 capital to medical bills, and strengthen confidence in long-term financial planning. However, these
252 benefits are not automatic. They depend on affordable premiums, flexible payment mechanisms for
253 informal workers and farmers, transparent governance, reliable drug availability, clear benefit
254 packages, and visible improvements in service delivery.

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258 8. Recommendations

259 Design Affordable and Equitable SHI Contribution Arrangements: The government and relevant
260 stakeholders should design flexible premium-payment mechanisms that reflect the financial
261 circumstances of low-income households, informal-sector workers, traders, and farmers whose
262 incomes may be irregular or seasonal. Targeted subsidies or exemptions should also be provided for
263 poor and vulnerable households to ensure equitable participation and prevent financial exclusion.

264 Strengthen Transparency, Accountability, and Public Confidence: The effective implementation of
265 Social Health Insurance should be supported by transparent fund management, regular public
266 reporting, community participation, and accessible grievance mechanisms. These measures will
267 strengthen public trust, improve willingness to enroll, and promote accountability in the administration
268 of the scheme.

269 Strengthen Health System Readiness and Household Financial Protection: Before full implementation
270 of SHI, health facilities should be adequately prepared with essential medicines, trained health
271 personnel, efficient claims-processing systems, functional referral mechanisms, and clearly defined
272 benefit packages. Public education should also emphasise the broader economic benefits of SHI,
273 including the protection of household savings, business capital, and education expenditure, as well as
274 overall economic resilience.

275 Recommendation for Further Research: Future studies should adopt longitudinal or prospective
276 research designs to assess the long-term effects of Social Health Insurance after implementation. Such
277 studies should follow households over time to determine the actual impact of SHI enrolment on out-of-
278 pocket health expenditure, household savings, investment, consumption, poverty reduction, and
279 economic resilience. Further research may also compare outcomes across urban and rural households,
280 income groups, and workers in the formal and informal sectors to provide stronger evidence for future
281 policy improvements.

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