“The dynamics of life insurance demand in Bangladesh: An empirical analysis of socio-economic influences”

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THE DYNAMICS OF LIFE INSURANCE DEMAND IN BANGLADESH: AN EMPIRICAL ANALYSIS OF SOCIO-ECONOMIC INFLUENCES

Abstract

This study examines the influence of socio-economic factors on life insurance demand in Bangladesh using annual data from 18 life insurance companies between 2014 and 2023. Life insurance demand is assessed using life insurance penetration and life insurance density; GDP per capita, inflation, healthcare spending to GDP, and education spending to GDP serve as proxies for socio-economic variables. This study employs a dynamic Panel-Corrected Standard Errors (PCSE) method to handle cross-sectional dependence in panel data. Stepwise regression is further applied as a robustness check. The findings exhibit that GDP per capita has a statistically significant negative impact on insurance density ($\beta = -0.0003$, $P < 0.001$) and insurance penetration ($\beta = -0.000002$, $P < 0.001$). This suggests that income growth does not facilitate increased insurance adoption. In contrast, inflation has a significant positive influence on both insurance density ($\beta = 0.0310$, $P < 0.001$) and insurance penetration ($\beta = 0.0001$, $P < 0.001$), emphasizing the influence of inflationary pressure on life insurance demand. Similarly, healthcare expenditure exhibits a significant positive effect on life insurance demand, influencing both insurance density ($\beta = 2.0560$, $P < 0.01$) and insurance penetration ($\beta = 0.0024$, $P < 0.05$), possibly due to rising healthcare costs prompting individuals to seek financial security. However, education spending does not show a statistically significant effect on life insurance demand. The results indicate that demand for life insurance in Bangladesh is influenced more by financial insecurity than by income increases, emphasizing the impact of inflation and healthcare expenses on insurance adoption.

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INTRODUCTION

The insurance industry is a cornerstone of modern economies, playing a vital role in managing financial risks and driving economic progress (Camino-Mogro & Bermúdez-Barrezueta, 2019). Life insurance offers long-term financial benefits by acting as a savings tool, funding infrastructure projects, and protecting against income uncertainty (Zerriaa, 2024). In recent decades, the life insurance sector has expanded substantially as a financial service for consumers and a significant player in the capital markets. However, this growth has not been uniform across countries, with noticeable differences between developed and developing nations and within the developing world (Kjosevski, 2012). During the 1990s, several Asian economies restructured their financial sectors, emphasizing regulatory reforms to enhance the performance of insurance industries (Sen & Madheswaran, 2013). While traditional indicators have progressed over the past decade, the region's insurance industry still does not meet global performance standards.

Bangladesh's insurance market faces a significant challenge in terms of penetration, standing at only 0.4% which is notably low compared to its neighboring country India, where the industry penetration reaches about 4% (World Bank, 2024). Samina (2024) highlights that the contribution of insurance industry in Bangladesh's economy is relatively minor than the banking industry though there exists significant potential for growth. Life insurance companies are becoming increasingly influential in financial markets by promoting sustained savings and reinvesting significant capital in public and private ventures (Satrovic & Muslija, 2018). It highlights its capacity to support sustainable development goals through long-term investment mobilization (Ramij, 2021). Haiss and Sümegi (2008) demonstrated that the growth of the insurance sector positively impacts economic development, highlighting its significance and prompting further exploration into the factors driving life insurance demand. Bangladesh, recognized as an emerging Asian Tiger, has attracted worldwide recognition for its economic growth (Chand, 2024). By identifying the key factors that drive demand, the insurance sector can enhance its contribution to the economy through greater market penetration and large-scale investments in diverse sectors, thereby promoting broader economic growth and development.

1. LITERATURE REVIEW

Life insurance is essential in promoting economic stability by safeguarding consumers and governments from financial losses (Eling et al., 2014). Beck and Webb (2003) argue that life insurance products encourage sustained savings, which can be invested in both private and public sector investments. Empirical studies on life insurance demand emphasize various factors influencing its growth across regions. Following World War II, as global markets developed economically, life insurance demand became a prominent subject of extensive research (Mapharing et al., 2015). Over the decades, scholars have attempted to uncover the factors influencing life insurance consumption. However, early studies often lacked a structured theoretical framework, leading to inconsistent findings and substantial criticism. Fortune (1973) highlighted that these inconsistencies arose from a lack of a unified theoretical foundation for comparing results and drawing meaningful conclusions.

This study draws on the foundational theories of Friedman (1957), Yaari (1965), Hakansson (1969), Bernheim et al. (1985), Lewis (1989), Mossin (1968), Karni and Zilcha (1985), Browne and Kim (1993), and Schlag (2003), whose collective contributions explain life insurance demand through the lenses of permanent income hypothesis, life-cycle model, bequest motives, beneficiary preferences, and risk aversion model. Life-cycle model theorized that the primary driver behind life insurance purchase is the uncertainty of life (Yaari, 1965). Individuals seek life insurance primarily due to the wish to leave financial resources for their dependents and ensure income during retirement (Schlag, 2003). According to Friedman's (1957) permanent income hypothesis, individuals make consumption choices based on their anticipated long-term income rather than immediate earnings, seeking to maintain a consistent consumption level over time through savings or borrowing. Hakansson (1969) expanded this by analyzing the bequest motive and its impact on preferences for financial assets and life insurance. The bequest motive involves the intention to pass on wealth to family members or dependents after death (Bernheim et al., 1985). The desire to leave an inheritance can drive individuals to purchase life insurance (Li et al., 2007).

Lewis (1989) expanded life-cycle model by incorporating beneficiaries' preferences, shifting the focus from the policyholder's utility to the beneficiaries. According to Lewis, the amount of insurance purchased should reflect the beneficiaries' consumption requirements, not the primary income earner's intention to provide an inheritance. Later, Browne and Kim (1993) extended Lewis's framework by adding new factors, including life expectancy and educational attainment, to explain the demand for life insurance further. Karni and Zilcha (1985) further incorporated relative risk aversion as a key factor in life insurance purchases. Mossin (1968) argued that rational individuals acquire insurance to mitigate risk and enhance their expected utility. Their analysis reveals that more risk-averse individuals tend to seek higher levels of life insurance than those who are less risk-averse, driven by a greater desire to reduce financial uncertainty (Schlag, 2003).

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Moreover, the theory of insurance demand explains that an individual's decision to purchase insurance is driven by a combination of risk preferences, income level, perceived likelihood of loss, and the cost of coverage (Showers & Shotick, 1994). Several studies have explored regional variations in life insurance demand, highlighting diverse economic and social determinants. In Ethiopia, Kura and Legass (2021) identified savings, per capita income progress, population growth, urban development, and political volatility as positive factors, while health expenditure relative to GDP was insignificant. In contrast, Segodi and Sibindi (2022) found that income, inflation, interest rates, and unemployment negatively affected life insurance demand in South Africa. Expanding to broader contexts, Srinivasan and Mitra (2024) emphasized the significance of life expectancy, GDP per capita, education levels, urbanization, and health expenditures in OECD countries. Similarly, according to Kjosevski (2012), the rule of law, healthcare spending, GDP per capita, inflation, and education are identified as crucial factors in Central and Southeast Europe. Meanwhile, Zerriaa and Noubbigh (2016) observed that the demand for life insurance in the MENA region was positively impacted by GDP per capita, inflation, and financial development. Building on existing literature, this study examines three key socio-economic variables, like GDP per capita, inflation, and health expenditure as a share of GDP, expected to significantly influence life insurance demand, while also introducing education spending to GDP for a more comprehensive analysis.

The demand for life insurance is mostly driven by GDP per capita, as it directly enhances both affordability and the need for financial planning tools. With rising income, individuals are more inclined to invest in insurance as a means of financial protection for their families and themselves (Zerriaa & Noubbigh, 2016). Theoretical insights by Fortune (1973), emphasize the role of life insurance in providing financial stability to families by protecting them from income loss in the event of a breadwinner's passing. Li et al. (2007) found that GDP per capita plays a crucial role in determining the demand for life insurance in OECD countries. The significant positive correlation between life insurance demand and GDP per capita has been consistently confirmed by Tie and Young (2014) and Beck and Webb (2003). In contrast, Segodi and Sibindi (2022) highlight that life insurance demand negatively correlates with GDP per capita.

Inflation significantly influences consumer life insurance decisions, especially during periods of high inflation and economic instability (Skipper & Black, 2000). Inflation tends to impact the demand for life insurance negatively. Studies by Beck and Webb (2003) and Li et al. (2007) highlight that inflation diminishes the value of life insurance coverage, particularly affecting the savings aspect and leading to less favorable conditions in the industry. The purchasing power of policyholders is diminished, and insurers may struggle to maintain adequate pricing in times of inflation. In contrast, Hwang and Gao (2003) observed in China that the effect of inflation on insurance demand is less pronounced, as periods of high inflation are often accompanied by economic growth, which lessens the negative impact on insurance purchases. In contrast, Satrovic and Muslija (2018) provide a distinct insight into the connection between inflation and insurance consumption, contending that inflation does not statistically affect the demand for life insurance.

Rising healthcare spending to GDP often reflects growing health awareness, which in turn may contribute to increased demand for life insurance. Health spending worldwide is expected to increase to around USD 18 trillion by 2040, up from USD 8 trillion in 2018, potentially representing 9% of global GDP. According to Grossman (1972), spending money on healthcare can boost the economy, while Rivera IV and Currais (1999) demonstrate a correlation between improved health and increased production in OECD countries. Hartwig and Sturm (2014) also suggest that GDP growth influences health expenditure levels. Kjosevski (2012) identified a positive relationship between increased healthcare spending and the demand for life insurance, suggesting that higher healthcare investment drives greater life insurance consumption. However, Srinivasan and Mitra (2024) observed no significant relationship between the two variables, highlighting the inconsistency in the literature regarding this relationship.

Education spending serves as an indicator of the level of educational attainment within a country. Higher education is often linked to increased life

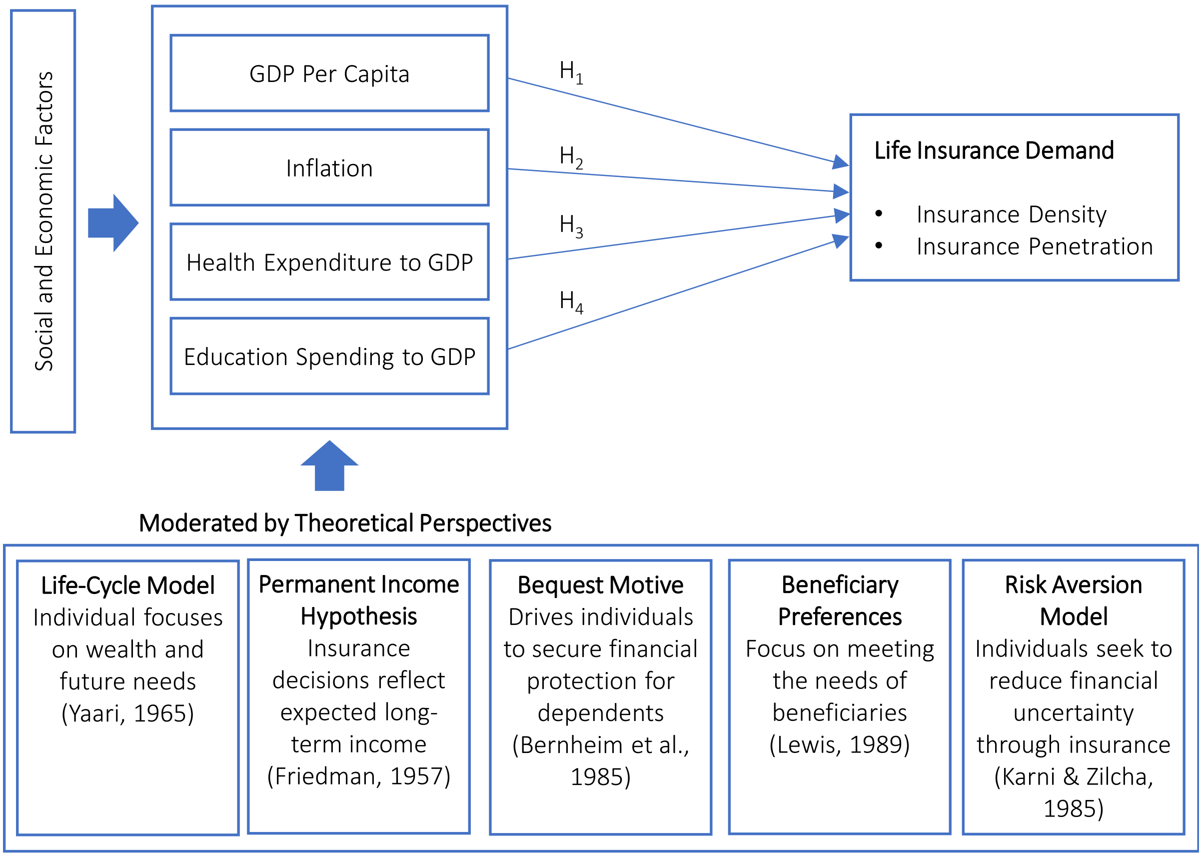

Figure 1. Theory-driven conceptual framework of life insurance demand

insurance demand, as it enhances individuals' understanding of sustainable savings and risk management. Studies by D. Truett and L. Truett (1990) and Browne and Kim (1993) suggest that education increases awareness of life insurance benefits. Ćurak et al. (2013) emphasize that risk aversion expands with education and financial awareness, driving higher life insurance consumption. Additionally, as education extends the dependency period, it raises the importance of life insurance in safeguarding the financial well-being of dependents (Browne & Kim, 1993). Additionally, educated people are more likely to be familiar with life insurance products, boosting demand. However, Duker (1969) suggests that higher education may reduce life insurance demand, as educated individuals often prefer alternative financial security measures like savings or investments, while Beck and Webb (2003) and Feyen et al. (2013) find no significant correlation between education and life insurance consumption, suggesting that education alone may not be a major driver of insurance demand.

Despite extensive research on the demand for life insurance, studies explicitly focusing on Bangladesh are limited. Ramij (2021) and Nomi and Sabbir (2020) investigated factors influencing purchase intentions using convenience sampling with 378 and 315 participants, respectively. However, these studies do not fully address key determinants specific to Bangladesh, such as broader socio-economic influences or long-term data that could capture changes over time. Additionally, while Sen and Madheswaran (2013) included Bangladesh in their regional analysis of 12 Asian economies, their findings were part of a broader study and did not offer a focused examination of the country. The existing body of literature provides substantial insight into the socio-economic determinants of life insurance demand across global and regional contexts. However, findings remain mixed, particularly concerning the roles of inflation, healthcare spending, and education, which appear to vary across countries and levels of development. Moreover, there is a notable lack of focused empirical studies examining these relationships within the context of Bangladesh, using comprehensive macro-level data.

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In light of these gaps, the purpose of this study is to investigate the influence of key socio-economic factors, especially GDP per capita, inflation, healthcare expenditure to GDP, and education expenditure to GDP, on the demand for life insurance in Bangladesh. The study seeks to provide empirical evidence to enhance understanding of how socio-economic conditions shape consumer behavior in the insurance sector. Based on the theoretical and empirical literature, the following hypotheses are proposed, and subsequently, the theory-driven conceptual framework is shown in Figure 1:

H_1: *A statistically significant relationship exists between GDP per capita and life insurance demand in Bangladesh.*

H_2: *A statistically significant relationship exists between inflation rate and life insurance demand in Bangladesh.*

H_3: *A statistically significant relationship exists between healthcare spending to GDP and life insurance demand in Bangladesh.*

H_4: *A statistically significant relationship exists between education spending to GDP and life insurance demand in Bangladesh.*

2. METHODS

This study examines the factors influencing life insurance demand in Bangladesh, utilizing panel data from 18 life insurance companies spanning the years 2014 to 2023. Although 32 life insurers functioned in Bangladesh in 2014, the sample comprises 18 firms with asset bases of BDT 500 crore. This selection ensures a group of comparably sized enterprises to mitigate the influence of outliers and enhance the normality of the dataset. Emphasizing financially stable, market-relevant enterprises with consistent data reporting improves the credibility and comparability of the study. Furthermore, employing firms with complete data throughout the study period facilitates the creation of a balanced panel dataset, which usually produces more robust and precise findings compared to unbalanced panels (Hasan et al., 2024a). The study period from 2014 to 2023 was selected due to the availability of comprehensive and consistent data, with the concluding year representing the latest information to guarantee the analysis reflects the most current trends and changes in the sector.

Insurance penetration and insurance density are the principal indicators of life insurance demand, as noted by Kjosevski (2012), Mapharing et al. (2015), and Zerriaa et al. (2017). The socio-economic factors such as inflation, GDP per capita, education expenditure to GDP, and healthcare expenditure to GDP are chosen based on their theoretical and empirical significance, as evidenced by Beck and Webb (2003), Kjosevski (2012), Srinivasan and Mitra (2024), and Feyen et al. (2013). This study gathers essential data, including gross premium, population, and GDP, from the yearly reports issued by the Insurance Development and Regulatory Authority (IDRA, n.d.) of Bangladesh, following Haque et al. (2021). Furthermore, inflation, GDP per capita, education expenditure to GDP, and healthcare expenditure to GDP are obtained from World Bank databases (World Bank Group, n.d.) (consistent with Mapharing et al., 2015; Srinivasan & Mitra, 2024; Ritchie et al., 2023). Table 1 provides a summary of the variables together with their respective data sources.

This study utilizes a panel dataset compiled from multiple periods and a wide range of companies, ensuring a diverse and comprehensive foundation for analysis. This study follows the panel data analysis methods, which are aligned with Meko et al. (2019) and Segodi and Sibindi (2022). The study employs the Panel-Corrected Standard Errors (PCSE) model, which enhances the reliability of the estimates by addressing issues of heteroskedasticity, autocorrelation, and cross-sectional correlation (Girma et al., 2025; Nathaniel et al., 2021). Verifying core assumptions through specific diagnostic tests is essential for conducting panel data analysis (Al-Amin et al., 2024). Multicollinearity is assessed using the variance inflation factor (VIF) (S. Hasan & M. Hasan, 2024), the Breusch-Pagan test is applied to detect heteroscedasticity, the Wooldridge test is used to examine autocorrelation (Hasan et al., 2024b), and Pesaran's test evaluates cross-sectional dependence (Meko et al., 2019; Hasan et al., 2025). Given the dataset's

Table 1. Variables description

SL No.	Variables	Definition	Data Source
1.	Insurance Density	Insurance density is the average amount spent on insurance by an individual in a given country (Mapharing et al., 2015; Kjosevski, 2012), which is computed using the following formula $\frac{Life\ Insurance\ Gross\ Premium}{Population\ per\ country}$	Insurance Development and Regulatory Authority (IDRA)
2.	Insurance Penetration	Insurance penetration is the proportion of total insurance premiums relative to the country's GDP (Beck & Webb, 2003; Satrovic & Muslija, 2018). The following formula is used to compute the insurance penetration $\frac{Life\ Insurance\ Gross\ Premium}{GDP\ at\ Current\ Price}\cdot 100$	Insurance Development and Regulatory Authority (IDRA)
3.	GDP Per Capita	GDP per capita represents a country's economic output per person, indicating an individual's income levels (Tie & Young, 2014; Segodi & Sibindi, 2022)	World Bank databases
4.	Inflation Rate	Inflation rate is the annual percentage change in the prices of goods and services of a country (Li et al., 2007; Zerriaa & Noubbigh, 2016)	World Bank databases
5.	Education Spending to GDP	The share of government spending allocated to education as a percentage of total government expenditure across all sectors (Ritchie et al., 2023). The following formula is used to compute this $\frac{Total\ Education\ Expenditure}{Gross\ Domestic\ Product\,(GDP)}\cdot 100$	World Bank databases
6.	Healthcare Spending to GDP	The share of a country's GDP spent on healthcare services indicates national investment in the health sector (Kjosevski, 2012; Srinivasan & Mitra, 2024), which is calculated using the following formula $\frac{Total\ Healthcare\ Expenditure}{Gross\ Domestic\ Product\,(GDP)}\cdot 100$	World Bank databases

deviations from normality, a two-step normalization procedure, as outlined by Templeton (2011), is implemented to address non-normality in the raw data (aligned with Hasan, 2024). The following regression equations are developed to examine the impact of socio-economic factors on life insurance demand:

$$DEN_{i,t} = \beta_0 + \beta_1 INF_{i,t} + \beta_2 GDP_{i,t} + \beta_3 HEAS_{i,t} + \beta_4 EDUS_{i,t} + \varepsilon_{i,t}, \tag{1}$$

$$PEN_{i,t} = \beta_0 + \beta_1 INF_{i,t} + \beta_2 GDP_{i,t} + \beta_3 HEAS_{i,t} + \beta_4 EDUS_{i,t} + \varepsilon_{i,t}. \tag{2}$$

The provided regression models explain life insurance demand, represented by *PEN* and *DEN*, as dependent variables influenced by independent variables. Here, *PEN* represents insurance penetration, while *DEN* represents insurance density. In both models, β_0 represents the intercept, β_1 to β_4 are the coefficients indicating the impact of each independent variable, and ε is the error term capturing unobserved influences. The independent variables include *INF* (inflation rate), *GDP* (GDP per capita), *HEAS* (healthcare spending to GDP), and *EDUS* (education spending to GDP). These models evaluate how these determinants shape life insurance demand across companies over time.

3. RESULTS

Table 2 presents an overview of the descriptive statistics for six variables across 180 observations collected from 18 companies from 2014 to 2023. The mean density value is BDT. 2.1829 crores, with a standard deviation of 2.2363, indicating substantial variability across the sample, suggesting a wide range of density values and significant differences in company performance. The penetration rate has a mean of 0.0018%, with a relatively low standard deviation of 0.0023, implying that penetration levels are consistent across the companies, with only slight deviations from the mean.

GDP per capita shows a mean of USD 1981.4 and a standard deviation of 507.1677, reflecting considerable variation in economic performance, with some companies experiencing much higher or lower figures than the mean. The inflation rate averages 6.434%, with a standard deviation of 1.3486, indicating moderate fluctuations across the sample. This suggests some variation in inflation lev-

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Table 2. Descriptive statistics

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Density (Crore)	180	2.1829	2.2363	0.0419	10.0376
Penetration (%)	180	0.0018	0.0023	0.0001	0.0119
GDP Per Capita	180	1981.40	507.1677	1109.00	2688.00
Inflation Rate (%)	180	6.4340	1.3486	5.5100	9.8800
Healthcare Spending to GDP (%)	180	2.3220	0.0461	2.2600	2.3900
Education Spending to GDP (%)	180	12.083	1.240901	10.22	13.9800

Note: The table displays the descriptive statistics for six variables, outlining their mean, standard deviation, minimum, and maximum values across 180 observations from 2014 to 2023.

els among the companies, which corresponds with the findings of Zerriaa et al. (2017). In contrast, healthcare spending to GDP, with a standard deviation of 0.0461, demonstrates minimal variability, indicating consistent spending patterns relative to GDP. The mean value of 2.3220% aligns with the findings of Srinivasan and Mitra (2024), suggesting a stable trend in healthcare expenditure. Lastly, education spending represents 12.083% of GDP on average, with a standard deviation of 1.2409, showing moderate variation in education expenditure across companies.

Table 3 presents the pairwise correlation matrix, highlighting the relationships between the study variables. It reveals that insurance density has a statistically significant positive association with inflation and healthcare spending. The results indicate that increasing inflation and healthcare expenditures enhance life insurance density, likely due to greater perceived need for financial protection. However, the coefficient of insurance density and GDP per capita shows a statistically significant negative relationship, which indicates that when the income of the individual increases, the demand for insurance decreases. The possible reason is that higher-income individuals may perceive life insurance as less essential due to greater savings, investments, or access to employer-provided benefits. Furthermore, GDP per capita, inflation, and education spending exhibit a statistically significant negative relationship with insurance penetration, suggesting that higher income, inflation, and education spending lead to lower life insurance penetration. This may be because higher income and education levels shift financial choices toward alternative investments or savings options, while inflation diminishes the real value of insurance, making it less attractive. The coefficients between independent variables are below 0.7, which indicates a lower possibility of a multicollinearity problem (Hasan et al., 2025). Furthermore, the variance inflation factor (VIF) is also applied to evaluate multicollinearity between the independent variables. The results indicated no significant multicollinearity issues, as the VIF values are within acceptable limits of less than 10 (Hasan et al., 2024b).

Several other assumption tests are performed to select the appropriate panel data analysis. The Breusch-Pagan test is applied to assess potential heteroscedasticity and shows no significant heteroscedasticity issues, while the Wooldridge test indicates no autocorrelation in the data. However, Pesaran's CD test indicated that the data suffer

Table 3. Correlation matrix

Variable	DEN	PEN	GDP	INF	HEAS	EDUS	VIF
Density (DEN)	1.0000	–	–	–	–	–	–
Penetration (PEN)	0.8803*	1.0000	–	–	–	–	–
GDP Per Capita (GDP)	–0.0441*	–0.3046*	1.0000	–	–	–	4.67
Inflation Rate (INF)	0.0022*	–0.0454*	0.3214*	1.0000	–	–	1.40
Healthcare Spending to GDP (HEAS)	0.0225**	–0.0620	0.3377*	0.0980	1.0000	–	2.98
Education Spending to GDP (EDUS)	–0.0525	–0.2103*	0.5836*	0.0354	0.3767*	1.0000	4.37
Mean VIF	–	–	–	–	–	–	3.36

Notes: The table presents the Pairwise Correlation Matrix, showing the correlations between density, penetration, and various socio-economic factors over the period from 2014 to 2023, based on data from 18 life insurance companies. Statistically Significant * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t-statistics are enclosed in parentheses.

from cross-sectional correlation. To address this issue and ensure robust results, the panel-corrected standard errors (PCSE) model is employed for the analysis. The PCSE model is designed to address disturbances arising from contemporaneous correlation, providing more accurate and dependable results in the analysis (Nathaniel et al., 2021). The regression results are shown in Table 4.

Table 4. Regression result of the impact of socio-economic variables on life insurance demand using the Panel-Corrected Standard Errors (PCSE) model

Variables	Model 1 Insurance Density (T-stat)	Model 2 Insurance Penetration (T-stat)
GDP Per Capita	–0.0003***	–0.000002***
	(–9.16)	(–14.55)
Inflation Rate	0.0310**	0.0001**
	(2.81)	(2.68)
Healthcare Spending to GDP	2.0560***	0.0024*
	(6.34)	(2.11)
Education Spending to GDP	–.01391	–.00006
	(–0.60)	(–0.71)
Constant	–2.2290**	–0.0013
	(–3.02)	(–0.51)
R-squared	29.17	31.09
Chi2	196.11***	224.06***
No. Observations	180	180

Notes: The table displays the findings from a panel data analysis using the PCSE model, focusing on the factors that affect the demand for life insurance in Bangladesh. The analysis covers two demand measure variables from 18 life insurance companies over the 2014–2023 period. Statistical significance: * p < 0.05, ** p < 0.01, *** p < 0.001; t-statistics are presented in parentheses.

The results presented in Table 4 show that GDP per capita has a statistically significant negative relationship with both insurance density and insurance penetration, which supports hypothesis H_1. This implies that as GDP per capita rises, the demand for life insurance tends to decline. Consistent with hypothesis H_2, the inflation rate exhibits a significant positive relationship with both insurance density and insurance penetration. This indicates that higher inflation leads to increased life insurance demand. In support of hypothesis H_3, the coefficient of healthcare spending to GDP is also positive and significant for both insurance density and insurance penetration. This implies that higher public healthcare investment is associated with a greater demand for life insurance. However, the coefficient of education spending to GDP reveals a negative relationship, but statistically insignificant with both insurance density and penetration. This suggests that changes in education spending do not significantly impact life insurance demand, leading the study to reject hypothesis H_4.

To ensure the robustness of our PCSE model results, stepwise regression analysis is performed following Zerriaa et al. (2017). The results of stepwise regression analysis align with those obtained from the PCSE model, confirming the analysis's consistency and reliability, as shown in Table 5.

Table 5. Regression result of the impact of socio-economic variables on life insurance demand using the stepwise regression model

Variables	Model 1 Insurance Density (T-stat)	Model 2 Insurance Penetration (T-stat)
GDP Per Capita	–0.00031*	–0.000001**
	(–2.65)	(–4.55)
Inflation Rate	0.0343*	0.0001**
	(2.81)	(3.08)
Healthcare Spending to GDP	2.2998**	0.00344*
	(6.31)	(2.11)
Education Spending to GDP	Removed	Removed
Constant	–2.5874**	–0.0029
	(–11.48)	(–0.51)
R-squared	33.17	37.34
Chi2	156.11**	174.06***
No. Observations	180	180

Notes: The table displays the findings from a panel data analysis using the stepwise regression model, focusing on the factors that affect the demand for life insurance in Bangladesh. The analysis covers two demand measure variables from 18 life insurance companies over 2014–2023. Statistical significance: * p < 0.05, ** p < 0.01, *** p < 0.001; t-statistics are presented in parentheses.

4. DISCUSSION

The findings demonstrate that GDP per capita, inflation, and healthcare spending have a significant impact on life insurance demand in Bangladesh, whereas education spending does not show any meaningful effect. GDP per capita has an adverse effect on life insurance demand, which is consistent with the findings of Segodi and Sibindi (2022) and Rapi et al. (2024). Segodi and Sibindi (2022) suggest that higher income levels may not necessarily

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lead to higher life insurance demand, possibly due to alternative financial mechanisms being more appealing in wealthier economies. Similarly, Rapi et al. (2024) observe a 35% global decline in life insurance penetration despite a 105% increase in GDP per capita between 2003 and 2022. These findings indicate that economic growth alone is not a sufficient driver of life insurance market expansion.

Inflation has favorable effects on life insurance demand, which is aligned with the finding of Mathew and Sivaraman (2017), who suggest that higher inflation levels can drive greater demand for life insurance as individuals seek to protect their assets from the diminishing value of money. Zerriaa and Noubbigh (2016) further argue that this effect may be influenced by money illusion, where people focus on the nominal value of insurance benefits without fully considering how inflation reduces their real worth, thus driving up demand. In the context of Bangladesh, where limited financial literacy remains, this perception may encourage to increase in life insurance demand as a hedge against inflation.

Similarly, healthcare spending to GDP exhibits a positive influence on life insurance demand, indicating that rising healthcare expenditure can serve as a signal of financial risk and income protection, which tends to increase life insurance demand. The findings align with Kjosevski (2012), who indicated that increased investment in healthcare favorably affects life insurance usage by enhancing the perceived necessity for financial stability. As healthcare systems evolve and enhance, individuals increasingly recognize potential health-related financial vulnerabilities and consequently get life insurance to alleviate such risks. Additionally, Lewis (1989) argues that greater wealth enables individuals to secure the financial well-being of their dependents, further boosting life insurance demand. However, the education spending to GDP ratio does not have any statistically significant effect on life insurance demand, though the coefficient shows a negative effect. A possible reason for this negative association is that increased levels of education may enhance individuals' confidence in handling uncertainty, leading them to undertake greater personal risk, which leads to lower demand for life insurance. This interpretation aligns with Outreville's (2015) argument that increased education can reduce individuals' risk aversion and reduce insurance demand.

Overall, these results show that the demand for life insurance in Bangladesh is mostly affected by factors that make people feel more financially vulnerable, such as rising healthcare costs and inflation, rather than by increasing income. At the same time, a higher educational level may unintentionally lower insurance demand by making people feel like they can take care of themselves. Highlighting the specific economic risks that life insurance can mitigate and increasing public awareness of its benefits are essential for fostering market growth.

CONCLUSION

This study aims to investigate socio-economic variables that affect life insurance demand in Bangladesh using data from 18 life insurance companies from 2014 to 2023. The findings reveal that inflation and healthcare spending relative to GDP exert significant positive impacts on life insurance demand, whereas GDP per capita has a significant negative effect. Moreover, education spending relative to GDP shows a statistically insignificant impact on life insurance demand. This study's findings carry significant implications for Bangladesh's life insurance market. The negative relationship with GDP per capita suggests that policymakers and insurance companies should prioritize raising awareness and enhancing financial literacy, particularly among higher-income groups, to emphasize the long-term benefits of life insurance and encourage broader adoption. Moreover, the findings on inflation and healthcare expenditure present an opportunity for life insurance companies to create products that address these concerns, such as inflation-protected policies or those with healthcare benefits. The findings also provide guidance for the government and the Insurance Development and Regulatory Authority (IDRA) in addressing challenges such as low uptake and mistrust, ultimately fostering sector growth and supporting Bangladesh's Sustainable Development Goals in healthcare and financial inclusion.

While this study utilized four socio-economic variables, future research could expand the analysis by incorporating additional factors, such as demographic variables, to gain a clearer perspective on the factors influencing the demand for life insurance. Additionally, examining a set of countries with comparable socio-economic characteristics could provide valuable comparative insights. Another avenue for future research is exploring how the COVID-19 pandemic shaped life insurance demand, considering the widespread disruptions caused by the crisis.

AUTHOR CONTRIBUTIONS

Conceptualization: Shaikh Masrick Hasan, Sonia Munmun, Priya Saha.
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APPENDIX A

Table A1. List of commercial life insurance companies that are part of the sample

No.	Company Name	Listed/non-listed	Inception Year
1	Alpha Islami Life Insurance Ltd	Non-Listed	2014
2	Baira Life Insurance Company Ltd	Non-Listed	2000
3	Best Life Insurance Company Ltd	Non-Listed	2013
4	Chartered Life Insurance Company Ltd	Listed	2013
5	Diamond Life Insurance Company Ltd	Non-Listed	2014
6	Golden Life Insurance Company Ltd	Non-Listed	1999
7	Homeland Life Insurance Company Ltd	Non-Listed	1996
8	Jamuna Life Insurance Company Ltd	Non-Listed	2014
9	Mercantile Islami Life Insurance Company Ltd	Non-Listed	2013
10	NRB Global Life Insurance Company Ltd	Non-Listed	2013
11	Padma Islami Life Insurance Company Ltd	Listed	2000
12	Progressive Life Insurance Company Ltd	Listed	2000
13	Protective Islami Life Insurance Company Ltd	Non-Listed	2013
14	Swadesh Life Insurance Company Ltd	Non-Listed	2014
15	Sunflower Life Insurance Company Ltd	Non-Listed	1999
16	Sunlife Life Insurance Company Ltd	Listed	2000
17	Trust Islami Life Insurance Company Ltd	Listed	2014
18	Zenith Islami Life Insurance Company Ltd	Non-Listed	2013