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Macroeconomic and demographic impacts on Islamic life insurance demand in Indonesia

Tari Yulia Tilova[1], Ranti Wiliasih[2], Tita Nursyamsiah[3]

[1,2]Department of Sharia Economics, Faculty of Economics and Management, IPB University, Bogor, Indonesia
[3]Department of Economics, Faculty of Economics and Management Sciences, International Islamic University Malaysia (IIUM), Kuala Lumpur, Malaysia

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Corresponding author:
Tari Yulia Tilova
taritilova@apps.ipb.ac.id

Author's email:
taritilova@gmail.com
ranti_w@apps.ipb.ac.id
nursyamsiah.tita@live.iium.edu.my

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Center for Islamic Economics Studies and Development, Faculty of Business and Economics, Universitas Islam Indonesia

Abstract

Purpose – This study examines the influence of macroeconomics and population demographics on demand for Islamic life insurance in Indonesia.

Methodology – This study uses time-series data analysis using the autoregressive distributed lag (ARDL)method. The study period is from January 2015 to December 2022.

Findings – According to the ARDL model, inflation and education levels have a positive effect on the demand for Islamic life insurance in the long run, while the Muslim population has a negative effect. In the short term, gross domestic product (GDP) per capita has a positive effect, while inflation and the Muslim population have a negative effect on the demand for Islamic life insurance in Indonesia.

Implications – This study provides valuable insights for the Islamic life insurance industry and policymakers. The industry should develop inclusive and affordable products tailored to diverse financial capacities and preferences, including those of the younger generations. Policymakers should promote public awareness and collaboration with financial institutions in order to expand access. These findings can guide strategies to enhance market penetration and financial inclusion.

Originality – This study fills the research gap by analyzing the relationship between Islamic life insurance demand, macroeconomics, and population demographics, where Muslim population has never been discussed by previous studies.

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Introduction

Insurance Law No. 40/2014 states that the insurance sector needs to make a substantial contribution to national progress, especially by providing financial reserves that support long-term sustainable development efforts. Islamic insurance is a system that runs a collective spirit in which participants help and protect each other. Funds paid by Islamic insurance participants are managed and invested in halal assets according to Sharia. All activities in Islamic insurance comply with the rules and principles of Islamic Sharia, such as avoiding usury, gharars, and maysir. In Indonesia, the Islamic insurance industry has experienced significant growth in terms of both the number of participants and products offered (Nasution & Aslami, 2022).

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Based on financial services authority (Otoritas Jasa Keuangan, OJK) 2023 report data, in the 2018-2022 period the share of insurance contributions/premiums was dominated by conventional insurance. The conventional insurance market share reached 84.49%, while the Sharia insurance market share only reached 15.51%. However, it should be noted that, in that period, the growth of Islamic insurance was much higher, at 15.7%, compared to conventional insurance, which only grew by 0.9%. This demonstrates the great potential of Islamic insurance in the future. The much higher growth of Islamic insurance compared to conventional insurance shows increasing public interest in Islamic financial products. This is driven by increasing public awareness of the importance of finance, in accordance with Islamic law.

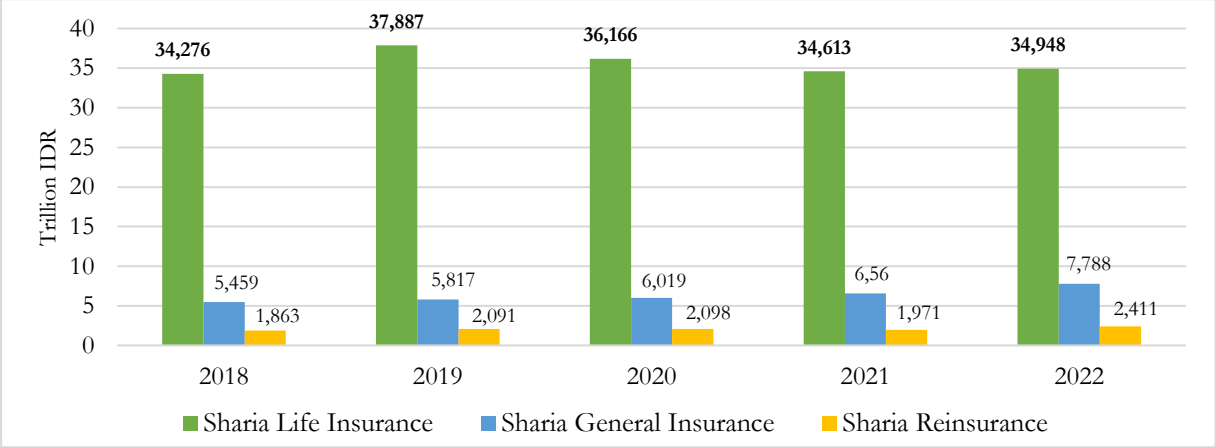

Figure 1. The proportion of sharia insurance assets from 2018-2022
Source: Data processed from IKNB Syariah (2023)

Figure 1 shows that Islamic insurance assets reached an IDR of 45.02 trillion in December 2022, an increase of 3.53% from the previous year. Although in this period the proportion of Islamic insurance assets was below the assets of specialized Islamic financial institutions, the total assets continued to grow positively. Islamic life insurance assets dominate Islamic insurance assets, with a proportion of 77.94%. This means that there is an increase in demand for Islamic life insurance products compared with Islamic general insurance and Islamic reinsurance products. In addition, the gross contribution of Islamic insurance has increased. Gross contribution is one of the sources of income in the Islamic insurance industry. Based on OJK Sharia Other Financial Services Institutions (Industri Keuangan Non-Bank, IKNB) statistics, the gross contribution of Islamic insurance in December 2022 reached IDR 27.57 trillion, an increase of 16.38% from 2021. The gross contribution was dominated by Sharia life insurance, which reached IDR 22.85 trillion (82.88%). Meanwhile, the proportion of sharia general insurance gross contribution amounted to IDR3.09 trillion (11.23%) and sharia reinsurance amounted to IDR1.62 trillion (5.89%). The large proportion of the gross contribution of Sharia life insurance indicates an increase in demand for Sharia life insurance products compared to Sharia general insurance and Sharia reinsurance.

Based on OJK data in 2022, Sharia life insurance penetration was recorded to be very low, at 0.1% or 10 times lower than conventional life insurance penetration. This low penetration illustrates that there is still a lot of uninsured space and potential (Anditta, 2017). Limited financial literacy is also one of the factors causing a low demand for Islamic insurance (Seltina & Sah, 2024). Based on the OJK Financial Literacy Survey Report in 2019, the level of literacy of Indonesian people towards Islamic insurance services was only 3.99%, while conventional insurance reached 18.64%. This indicates an imbalance in the dissemination of information and education regarding insurance products. A low understanding will affect people's preferences, where most will tend to choose conventional insurance because it is better known and understood.

Based on the OJK 2023 data, the number of Sharia life insurance policies continued to increase, especially during 2015-2019 and reached its peak in 2019. However, the gross contribution of growth rate decreased. This condition is also shown in the 10Y Compound Annual Growth Rate (CAGR) growth, where policy growth recorded a positive number of 13.1%, while gross

contribution growth contracted by -3.3%. Thus, the demand for Islamic life insurance tends to be less consistent in the long term. The high number of policies that are not matched by the continuation of gross contribution payments indicates that there are problems maintaining the sustainability of demand for Islamic life insurance products. The problem that arises is how to ensure the sustainability of gross contributions, along with the increase in the number of policies, by analyzing the factors that affect the demand for Islamic life insurance. Therefore, efforts are needed to increase the demand for Islamic life insurance products in Indonesia.

Some studies have found determinants of Islamic life insurance demand, such as Industrial Production Index (IPI) growth, SBIS yields, GDP per capita, inflation, financial sector growth, dependency ratio, education level, and unemployment (Safitri, 2020; Rizqi, 2021; Nurdiana, 2019). Other studies have also explored the demand for Islamic insurance (Anditta, 2017; Cahayati et al., 2022; Sherif & Shaairi, 2013). However, this study does not specifically examine the influence of population demographics, especially the Muslim population factor, on demand for Islamic life insurance. The large Muslim population is a potential market for increasing the demand for Islamic insurance products (Safira et al., 2021).

This research is driven by the limitations and gaps in the existing literature, which has not specifically examined the influence of macroeconomic and demographic factors, especially the Muslim population, on the demand for Islamic life insurance. Although many studies have explored the economic and financial factors that influence the demand for Islamic insurance, the Muslim population has not received sufficient attention as a potential factor. In essence, a Muslim will choose financial products that offer financial protection without violating religious values so that it can be considered an appropriate and moral solution for managing financial risks (Sherif & Shaairi, 2013). This provides an opportunity for insurance companies to develop innovative Islamic insurance products and services to reach more people. We use Islamic life insurance penetration as a proxy for demand for Islamic life insurance. Pradhan et al. (2016) explained that this ratio measures a company's activity against the size of the economy so that it can be a proxy for measuring insurance demand. In addition, using the ARDL approach, this study also examines macroeconomic and demographic factors that have short- and long-term effects on the demand for Islamic life insurance, but this approach has not been widely used in previous studies.

Literature Review

Insurance demand can generally be divided into three indicators: (1) life insurance penetration, which is the ratio of total premiums to GDP and is used to evaluate the relative activity of insurance in an economy; (2) life insurance density, which is the amount of premiums per capita and is used to measure the average expenditure of the population on insurance services; and (3) life insurance in private savings, which is the ratio of total insurance premiums to total public savings. Although there are three different calculation methods, all use premium as the main indicator. Meanwhile, several researchers, including Sherif and Hussnain (2017). This is based on the understanding that a company's premium income is the sum of the total coverage sold at a certain price level. Thus, an increase in premium income can indicate an increase in public demand for insurance products.

The literature explores the influence of macroeconomic factors, such as GDP per capita, which can increase insurance demand (Anditta, 2017; Rizqi, 2021; Safitri, 2020; Sherif & Shaairi, 2013; Arifin et al., 2023; Noor et al., 2020). Another variable that can increase demand for Islamic insurance is the industrial production index (IPI) (Nurdiana, 2019). However, various studies on the effects of inflation and financial sector growth have shown different results. Mathew and Sivaraman (2017) also conducted a study related to the cointegration and causality between macroeconomic variables and life insurance demand in India. The study concludes that financial sector growth and inflation will increase the demand for life insurance. Sherif and Shaairi (2013) found different results in Malaysia. The results show that inflation and financial development can reduce the demand for Islamic insurance. Safitri (2020) finds that inflation and total savings have no significant effect on the demand for life insurance in Indonesia. Other variables that can inhibit demand for Islamic insurance include interest rates (Sherif & Shaairi, 2013), SBIS yields (Nurdiana, 2019; Cahayati et al., 2022), unemployment (Safitri, 2020; Arifin et al., 2023), and savings (Arifin et al., 2023).

Sherif and Shaairi (2013) stated that the demand for Islamic insurance is significantly and positively influenced by demographic factors such as education level, dependency ratio, and population. Rizqi (2021) stated the opposite, in which the dependency ratio reduces the demand for Islamic life insurance. However, research focusing on demographic factors, especially the Muslim population, is still limited.

Hypotheses

The effect of GDP per capita on the demand for Islamic life insurance in Indonesia

GDP per capita describes the average income per person in a country over a certain period. Rahmawati (2023) finds that an increase in GDP per capita will encourage an increase in people's purchasing power, which in turn will increase the demand for life insurance products. This occurs through several mechanisms, including increased purchasing power, enhanced financial literacy, and shifts in consumer preferences. As GDP per capita increases, average income also increases, thereby enabling individuals to allocate funds for secondary and tertiary needs, including financial protection, through Sharia life insurance. An increase in income is also accompanied by enhanced awareness of the significance of long-term financial planning. This enables individuals to devise strategies for risk protection, inheritance, or savings for heirs in accordance with Islamic law through Islamic life insurance. At elevated income levels, consumers are more inclined to pursue products that not only offer economic benefits, but also align with spiritual and cultural values. In such instances, Sharia insurance has emerged as a compelling option for the community.

Safitri (2023) found that GDP per capita is one of the variables that has a positive and significant effect on the demand for Islamic life insurance in Indonesia. Arifin et al. (2023) also state that an increase in GDP per capita will increase the demand for life insurance in Malaysia. The first hypothesis is formulated as follows:

H_1: GDP per capita has a significant and positive effect on demand for Islamic life insurance in Indonesia.

The effect of inflation on the demand for Islamic life insurance in Indonesia

Inflation occurs when prices generally increase continuously. This condition causes people's purchasing power to decline, especially for people with fixed incomes. A decline in purchasing power occurs because the income of people with fixed incomes decreases in real terms. In such circumstances, households typically prioritize expenditures on essentials and curtail spending on perceived non-essential items, including investments in Islamic life insurance. Islamic life insurance products are regarded as secondary or tertiary needs. Individuals typically opt to save cash for immediate needs or redirect funds to more liquid assets, rather than allocating resources to insurance products that entail long-term commitments.

This causes demand for insurance products to decrease if the inflation rate increases (Anditta, 2017). In addition, because insurance products mostly provide monetary benefits in the long run, public demand decreases as a result of monetary uncertainty, such as inflation (Sherif & Shaairi, 2013). The second hypothesis is formulated as follows:

H_2: Inflation has a significant and negative effect on the demand for Islamic life insurance in Indonesia.

The effect of education level on the demand for Islamic life insurance in Indonesia

Education is one of the elements that drive the need for insurance. Based on several previous studies, the level of education has a considerable impact on the demand for insurance. Higher education fosters a more visionary mindset and contributes to an increase in people's financial literacy, thereby enabling individuals to prioritize long-term financial planning and understand the importance of risk management. Moreover, this comprehension enhances an individual's recognition of the advantages of Sharia-compliant life insurance as a safeguard against financial instability. Furthermore, an increase in religious education leads to greater awareness of Sharia principles, which in turn makes Sharia life insurance a preferable option because of its financial

protection in accordance with Sharia principles. An increase in education directly correlates with an increase in income and overall well-being. When individuals have sufficient purchasing power, they are more likely to purchase financial products including Islamic life insurance products.

Previous studies have also indicated that enhancing educational levels can enhance public comprehension of the advantages of insurance and its role in mitigating risk (Redzuan, 2014). As the number of educated people increases, the purchase of Islamic life insurance products also increases (Safitri, 2020). This is because people tend to realize the need to protect their assets through life insurance. The third hypothesis is formulated as follows:

H_3: Education level has a significant and positive effect on the demand for Islamic life insurance in Indonesia.

The effect of Muslim population on the demand for Islamic life insurance in Indonesia

Indonesia has the largest Muslim population worldwide. The considerable proportion of the population that adheres to Islamic faith presents a significant market opportunity for financial products that adhere to Sharia principles. This is due to the fact that for the Muslim community, the halal aspect is the primary consideration when selecting financial products, including Islamic life insurance. The elevated level of religious awareness in Indonesia has also prompted Muslim communities to exercise greater discernment in selecting products that align with Islamic principles. The Indonesian government, through the Indonesia Financial Services Authority (OJK), has established specific regulations for Islamic life insurance, thereby providing legal certainty and encouraging greater confidence among consumers in the use of this product. Sharia life insurance possesses a distinctive advantage owing to its integration of religious values with financial protection, which renders it more appealing to Muslims seeking to ensure that their financial protection aligns with Islamic teachings. Takaful will be more popular in Islamic countries than in non-Islamic countries, so an increase in the Muslim population will increase the demand for takaful (Sherif & Shaairi, 2013). The fourth hypothesis is formulated as follows:

H_4: The Muslim population has a significant and positive effect on demand for Islamic life insurance in Indonesia.

Research Methods

Data

This research employed a quantitative approach using secondary data, with Indonesia as the focus of this study. The analysis utilized time-series data from January 2015 to December 2022 on a monthly basis. The data were sourced from various reputable institutions, including the Central Bureau of Statistics (BPS), Central Bank of Indonesia (BI), World Bank, and Indonesia Financial Services Authority (OJK).

Dependent variable

The dependent variable in this study is demand for Islamic life insurance, represented by the penetration rate of Islamic life insurance. The penetration rate is calculated as the ratio between the total premiums collected and gross domestic product (GDP). The determination of this variable refers to the study by Anditta (2017), which suggests that the penetration rate of life insurance is one of the main indicators for measuring insurance activity in a country's economy. This ratio reflects the extent to which insurance products have been adopted by the public in the context of the overall economic proportion; therefore, it can be used as a proxy to assess the level of demand for Islamic life insurance.

Independent variable

The independent variables in this study are GDP per capita, inflation, education level, and Muslim population. GDP per capita, measured as the natural logarithm of gross domestic product per capita (in USD), represents the economic prosperity of a society and is expected to influence the

ability and willingness of individuals to allocate resources for life insurance. Inflation, represented by the annual consumer price index (CPI), reflects the stability of the economy. Higher inflation may reduce the purchasing power of individuals and negatively affect their ability to engage in long-term financial commitments such as life insurance. Education level, proxied by the natural logarithm of the average years of schooling, indicates literacy and awareness of the population, where higher levels of education are expected to enhance the understanding and acceptance of life insurance products. Finally, the Muslim population, expressed as the percentage of Muslims within the total population, serves as a demographic variable that reflects the market potential for Islamic life insurance, aligning with the principles and preferences of the Muslim community. These variables provide a comprehensive perspective on the factors influencing demand for Islamic life insurance. Table 1 presents the variables used in this study.

Table 1. Operational variable

Type of Variable	Name	Abbreviation	Variable Definitions
Dependent	Islamic Life Insurance Demand	PAJS	Ratio between total gross Islamic life insurance contribution and GDP (%)
Independent	GDP per capita	GDPKPT	Ratio of GDP to total population (US$)
	Inflation	INF	The general and continuous increase in the prices of goods and services based on the Consumer Price Index (CPI) (%)
	Education Level	EDUC	Average number of years spent by the population in formal education (Years)
	Muslim Population	PM	Ratio of Muslim population to total population (%)

Source: Created by authors

Autoregressive distributed lag (ARDL)

The Autoregressive Distributed Lag (ARDL) method with the Bound Cointegration Test approach is utilized in this study to analyze the relationship between the independent variables and demand for Islamic life insurance. The ARDL method is particularly advantageous because it allows for the simultaneous analysis of both short- and long-term relationships between variables, making it suitable for understanding dynamic interactions over time. It is efficient in estimating linear regression models, especially for small and limited sample sizes, as it incorporates a combination of the autoregressive (AR) model with the Distributed Lag (DL) model to comprehensively capture dynamic effects.

Additionally, this method is highly flexible in handling variables with different orders of integration, accommodating variables that are stationary at level (I(0)) or first difference (I(1)). The cointegration test within the ARDL framework determines the presence of a long-term equilibrium relationship by comparing the F-statistic value with the critical bounds, even when variables exhibit mixed integration properties. This makes ARDL particularly suitable for time-series data, which are often characterized by such variations.

In this study, which uses monthly data from January 2015 to December 2022, the ARDL method ensures robust estimates by including lags of the dependent and independent variables, capturing delayed effects and dynamic adjustments. Pre-estimation steps, such as the stationarity test, optimum lag test, and cointegration test, ensure the validity and reliability of the model. By distinguishing between short- and long-term changes, the ARDL approach effectively addresses the research objectives and provides a comprehensive understanding of the factors influencing the demand for Islamic life insurance.

The research model was adopted from previous studies that analyzed the influence of macroeconomics and population demographics on life insurance demand (Balcilar et al., 2019; Hemrit and Nakhli, 2021; Jeris et al., 2023; Xiang et al., 2023). The mathematical formulation of this study is as follows:

1) Long run ARDL model

$$PAJS_t = a + \rho_1 PAJS_{t-i} + \rho_2 LN\_GDPKPT_{t-i} + \rho_3 INF_{t-i} + \rho_4 LN\_EDUC_{t-i} + \rho_5 PM_{t-i} + u_t \quad (1)$$

2) Short run ARDL model

$$\Delta PAJS_t = a + \sum_{i=1}^{p} a_i \Delta LN\_GDPKPT_{t-i} + \sum_{i=0}^{q} \beta_i \Delta INF_{t-i} + \sum_{i=0}^{r} \gamma_i \Delta LN\_EDUC_{t-i} + \sum_{i=0}^{s} \mu_i \Delta PM_{t-i} + \vartheta ECM_{t-i} + u_t \quad (2)$$

Description:

$PAJS_t$	: Islamic life insurance demand in period t projected with Islamic life insurance penetration (percent).
LN_GDPKPT_t	: Natural logarithm of GDP per capita period t (US$)
INF_t	: Inflation rate of period t (percent)
LN_EDUC_t	: Natural logarithm of the projected educational level with average years of schooling period t (years)
PM_t	: Muslim population in period t (percent)
i	: Lag
Δ	: Differentiation compared to the previous period.
a	: Constant or intercept
$a_i, \beta_i, \gamma_i, \mu_i$	: Variable coefficient
$\rho_1, \rho_2, \rho_3, \rho_4$	: Adjustment factor
p, q, r, s	: Optimum lag
u_t	: Error term

Results and Discussion

ARDL pre-estimation analysis

Stationarity test

The stationarity test is based on the augmented Dickey (ADF) test at the level and first difference. The null hypothesis (H_0) proposed in this study indicates that the data has a unit root where the t-stat value is greater than the critical value at the 5% level. The alternative hypothesis (H_a) indicates that the data are stationary, with the t-stat value being smaller than the critical value at the 5% level.

Table 2. Results of stationarity test

Variable	Level	ADF-stat	*MacKinnon* (5%)	Prob*
PAJS	I(0)	-2.608019	-2.892536	0.0949
	I(1)	-14.43740	-2.892536	0.0001*
LN_GDPKPT	I(0)	-2.608019	-2.892536	0.0949
	I(1)	-14.43740	-2.892536	0.0001*
INF	I(0)	-1.960657	-2.892200	0.3037
	I(1)	-7.973837	-2.892536	0.0000*
LN_EDUC	I(0)	-0.003254	-2.892536	0.9554
	I(1)	-7.742363	-2.896779	0.0000*
PM	I(0)	-2.894094	-2.892879	0.0499**
	I(1)	-3.099716	-2.892879	0.0300**

Describe: ***), **), and dan *) indicate stationarity at the 10%, 5%, and 1% levels.
I(0) level dan I(1) first difference
Source: Data processed

Table 2 presents the results of stationarity tests. The stationarity test results at the level show that one variable, Muslim population (PM), is stationary with an ADF probability value less than the 5% real level. Meanwhile, at the first difference, all variables are stationary, characterized by ADF-stat values greater than the MacKinnon critical value of 5% or probability values smaller than the 5% level. Based on the stationary test results at the level and first difference level, it can

be concluded that there is a variation in the degree of integration in the variables used, so that the ARDL approach is appropriate for use.

Determination of optimum lag

Testing the optimal lag is the next step in estimating the model used in this study. It aims to eliminate autocorrelation problems in dynamic models and determine the period in which a variable reacts to other variables (Firdaus, 2020).

Figure 2 shows the results of the optimal lag testing. The lag selected in this research model was ARDL (2,1,2,0,1). These results were selected using the AIC criteria, which showed the best model of the 20 models offered. Thus, maximum lag 2 for the Islamic life insurance demand variable, maximum lag 1 for the GDP per capita variable, maximum lag 2 for the inflation variable, maximum lag 0 for the education level variable, and maximum lag 2 for the Muslim population variable.

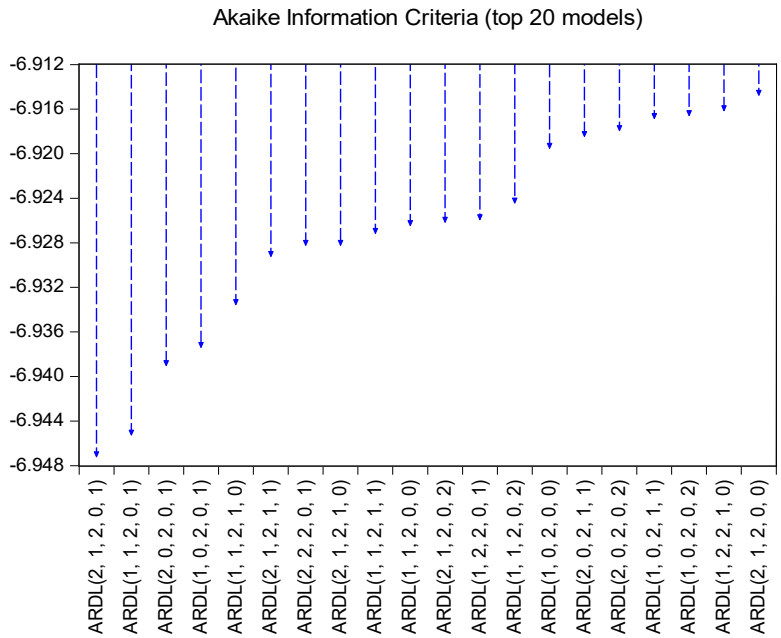

Figure 2. Results of optimal lag testing
Source: Data processed

Cointegration test

It is assumed that there is no cointegration if the F-statistic value is below the lower bound value, and cointegrated if it is above the upper bound value. Meanwhile, if the F-statistic value is between the lower and upper bound values, then there is no conclusion.

Table 3. Results of cointegration test

F- Bounds Test				
Test statistic	*Value*	Signif.	I(0)	I(1)
F-*statistic*	5.390295	10%	2.2	3.09
k	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Source: Data processed

Table 3 presents the results of the cointegration test. The F-statistic value was 5.390295, which is above the upper bound (I(1)) value of 4.37. The test results show that there is a cointegration or long-term relationship between the Islamic life insurance demand variable and the macroeconomic and demographic variables of the population.

ARDL analysis

Table 4 presents the results of the ARDL Estimation. In the short term, GDP per capita significantly affects demand for Islamic life insurance positively, with a coefficient of 0.121336. This means that every 1% increase in GDP per capita will increase the demand for Islamic life insurance by 0.121336 units ceteris paribus. Inflation of the previous one-month period significantly and negatively affected the demand for Islamic life insurance, with a coefficient of -0.005084. This means that every increase in inflation by 1% one month earlier will reduce the demand for Islamic life insurance by 0.005084 units, ceteris paribus. Likewise, the Muslim population has a significant negative effect on the demand for Islamic life insurance, with a coefficient of -0.096467, meaning that every 1% increase in the Muslim population will reduce the demand for Islamic life insurance by 0.096467 units, ceteris paribus.

In the long term, GDP per capita does not significantly affect demand for Islamic life insurance, as can be seen from the p-value greater than the set significance level (0.2480 > 0.05). Meanwhile, inflation has a significant and positive effect on demand for life insurance, with a coefficient of 0.003412. This means that every 1% increase in inflation will increase demand for Islamic life insurance by 0.003412 units, ceteris paribus. Furthermore, the level of education has a significant and positive effect on demand for life insurance, with a coefficient of 0.257985. This means that every 1% increase in education increases the demand for Islamic life insurance by 0.257985 units, ceteris paribus. While the Muslim population has a significant and negative effect on the demand for Islamic life insurance, the coefficient in the long term is -0.057921, meaning that every 1% increase in the Muslim population reduces the demand for Islamic life insurance by 0.057921 units, ceteris paribus.

In addition, the adjusted R-squared value of the ARDL model is 0.4840, meaning that 48.4% of the demand for Islamic life insurance can be explained by the independent variables in the model. The error correction term (ECT) of the ARDL modeling has a negative and significant sign. The magnitude of the ECT value illustrates the speed of adjustment to long-term equilibrium in response to the imbalance due to shocks in the short term. The ECT coefficient value of -0.6599 means that in the short-term equilibrium fluctuation model, it will be corrected towards long-term equilibrium by 65.9% of the adjustment process occurring in the first month and 34.1% of the adjustment process occurring in the following months.

Table 4. Results of ARDL analysis

Variable	Coefficient	Prob.
	Short run	
CointEq(-1)*	-0.659940	0.0000*
D(PAJS(-1))	-0.139508	0.1403
D(LN_GDPKPT)	0.121336	0.0289**
D(INF)	-0.000544	0.7723
D(INF(-1))	-0.005084	0.0099*
D(PM)	-0.078784	0.0000*
	Long run	
LN_GDPKPT	0.038926	0.2480
INF	0.003412	0.0028*
LN_EDUC	0.257985	0.0158**
PM	-0.051949	0,0000*
C	3.723858	0,0000
Adj R-squared	0.484013	
Prob(F-*statistic)*	0.000000	
AIC	-7.053343	

Source: Data processed

Discussion

Data processing with the ARDL method goes through several stages, starting with generating process data to determine all research variables that meet stationarity requirements. The testing

stages include the stationarity, lag optimum, and cointegration tests. Table 2 shows that all variables become stationary at the first difference, whereas the Muslim Population (PM) variable is stationary at this level. This stationarity variation supports the use of the ARDL approach. Figure 2 shows the optimal lag results, with the selected ARDL model being (2,1,2,0,1), which is used to determine the best number of lags to accurately capture the dynamic relationships between variables and ensure an efficient model for both short- and long-term effects. Table 3 represents the significant cointegration test, explaining the long-term relationship between the Islamic life insurance demand variable and the macroeconomic and demographic variables of the population.

In agreement with this hypothesis, the ARDL results show that GDP per capita significantly and positively affects the demand for Islamic life insurance in the short term. The effect of GDP per capita on demand for Islamic life insurance is related to the welfare of the community in terms of spending and consumption. An increase in public expenditure and consumption simultaneously encourages an increase in GDP per capita. An increased GDP per capita will provide more space for people to organize and manage risks. Therefore, an increase in GDP per capita will increase the contribution to Islamic life insurance, and ultimately, the penetration rate of Islamic life insurance will also increase. This result is in line with the findings of Ayyubi and Widyastutik (2019), Rizqi (2021), and Cahayati et al. (2022) who state that the demand for Islamic insurance will increase in line with the increase in GDP per capita. In the long term, GDP per capita does not have a significant effect on demand for Islamic life insurance. This result contradicts the hypotheses of previous studies. However, this may be influenced by differences in the economic conditions of each country and the timing of the research. This result is in line with the findings of Meko et al. (2019), who state that GDP per capita has no significant effect on increasing demand for life insurance. The upper class tends not to need life insurance protection because they prefer instruments that provide a greater asset surplus. Meanwhile, the lower class tends to have a limited demand for life insurance because premiums are not affordable due to their low income. The middle class is one of the potential consumers to increase demand for life insurance. However, the minimum income level and income distribution in a country also affect demand for life insurance.

According to World Bank data from 2019, the middle class in Indonesia in 2016 reached approximately 20.3% or 53.6 million people. Based on data from the Beston Consulting Group (BRG), in 2020 the middleclass group increased to 68.2 million people. However, the number of poor people who are still heading towards the middle class is greater, reaching 115 million people or 45% of the total population. People who have just left the poverty line tend to be vulnerable to becoming poor again if they cannot enter the middle class. Meanwhile, based on BPS 2022 data, the level of expenditure inequality of the Indonesian population, as measured by the Gini ratio, is 0.384. This value indicates a moderate level of expenditure inequality in Indonesia. This means that the spending gap between the rich and poor is still quite wide because of unequal income distribution.

In the short term, inflation of the previous one-month period significantly and negatively affects demand for Islamic life insurance, which aligns with expectations. When inflation occurs, the price of goods will rise directly, which will affect the level of real income or the income of the community for consumption. High inflation reduces people's purchasing power, one of which is towards Islamic life insurance products. These results are in line with Ayyubi and Widyastutik (2019) who state that the demand for Islamic life insurance in Indonesia has a negative relationship with inflation. However, in the long run, inflation has a significantly negative effect on the demand for Islamic life insurance, which is contrary to the initial hypothesis. This finding is in line with the research of Mathew and Sivaraman (2017), Akhter et al. (2017), Rizqi (2021) who state that an increase in inflation will have a positive impact on insurance demand.

From a monetary perspective, inflation is a condition in which the level of money in circulation in society is greater than the desire to save and willingness to hold money. The impact of inflation depends on the inflation itself. Inflation can occur at mild, moderate, severe, and hyperinflation levels. Mild inflation occurs when price increases are below 10%, moderate inflation is between 10% and 30%, severe inflation is between 30% -100% per year, and hyperinflation or

uncontrolled inflation occurs when price increases are above 100% per year. Inflation can have a positive impact when it is in the mild category, because it encourages national economic growth. The inflation rate in this research period is included in the mild category (less than 10%), which has a positive influence on demand for Islamic life insurance. Economic growth can benefit from mild inflation because higher costs motivate businesses to increase output, which leads to the creation of new jobs. This will increase employment opportunities, leading to an increase in national income and per capita income.

Education level has a significant and positive effect on the demand for life insurance in the long run, which is consistent with the hypothesis. The existence of a positive relationship between the level of education and the demand for Islamic life insurance is related to consumption theory. Education plays an important role in influencing the consumption patterns. The higher a person's level of education, the more likely they are to increase their income. This allows individuals to consume more goods and services. In addition, education will increase people's knowledge and understanding of various financial products and services including Islamic life insurance. Therefore, an increase in education will increase the financial ability to buy premiums and the awareness of the benefits of Islamic life insurance to protect themselves and their families. Safitri (2023) states that when there is an increase in the education of a community, the demand for Islamic life insurance will increase.

Contrary to this hypothesis, the Muslim population has a significant and negative effect on the demand for Islamic life insurance in both the short and long term. The financial capability of the Muslim community, especially in countries with lower-middle income levels, is a major factor in the low demand for Islamic life insurance. Based on the BPS 2022 data, the number of poor people in Indonesia reached 26.36 million people or 9.57% of the total population. People with lower-middle income levels tend to be only able to fulfill their primary needs, such as food, clothing, and shelter. Secondary needs, such as Sharia life insurance, have become a lower priority. This has caused an increase in the Muslim population to reduce the demand for Islamic life insurance. This result is in accordance with Agniasari et al. (2022), who state that there is still a lack of Islamic insurance products that can reach the lower middle class.

Conclusion

This study examines the factors affecting the demand for Islamic life insurance in Indonesia from 2015 to 2022, using the ARDL method. The results show that GDP per capita increases demand for Islamic life insurance in the short run, while inflation has a complex relationship, reducing demand in the short run but increasing it in the long run. This study also highlights the influence of demographics on Islamic life insurance demand. The size of the Muslim population, which was previously expected to increase in demand due to cultural and religious preferences, actually shows a limiting influence in both the short and long run. This could be due to a lack of awareness of suitable products in the market. On the other hand, the education level of the population proves to be an important factor that increases demand in the long run, as higher education tends to increase awareness and understanding of the benefits of insurance, especially those that comply with the Sharia principles.

The findings of this study have several practical implications. First, the Islamic life insurance industry is expected to provide inclusive and accessible insurance products by offering products in accordance with the financial capabilities and preferences of the community, such as products related to education and health. Second, the Islamic life insurance industry is expected to develop Islamic life insurance products and services that suit the needs and lifestyles of the younger Muslim generation, such as products with affordable premiums and attractive features. Third, the Islamic life insurance industry is expected to synergize with policymakers in socializing and educating the public through mass media and increasing cooperation with Islamic financial institutions such as Islamic banks, Islamic microfinance institutions, and zakat institutions to offer integrated Islamic life insurance products. This study is limited to Indonesian data within a specific period; therefore, it does not fully reflect long-term trends. Further research should consider cross-country comparisons and additional factors such as government policies, financial technology

(fintech) developments, and institutional quality, which may improve the sustainability and attractiveness of the Islamic life insurance market in the future.

Author contribution

Conceptualization: Tari Yulia Tilova, Ranti Wiliasih, Tita Nursyamsiah
Data curation: Tari Yulia Tilova
Formal analysis: Tari Yulia Tilova
Investigation: Tari Yulia Tilova
Methodology: Tari Yulia Tilova
Project administration: Ranti Wiliasih, Tita Nursyamsiah
Supervision: Ranti Wiliasih, Tita Nursyamsiah
Validation: Ranti Wiliasih
Writing – original draft: Tari Yulia Tilova
Writing – review & editing: Tari Yulia Tilova, Ranti Wiliasih

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