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A study on Takaful-Growth Nexus Pre and Post COVID-19: Evidence from Malaysia

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***Abstract*---**This paper aims to study the relationship between Takaful and economic growth before (2009–2019) and after (2020–2024) the COVID-19 pandemic. The study employs the Pearson Correlation Coefficient to examine the relationship between Takaful's indicators and the Industrial Production Index for the pre- and post-pandemic periods. The results reveal a significant positive relationship between the Takaful sector and economic growth in both phases. The correlation becomes stronger in the post-pandemic period due to government incentives that supported the expansion of the Takaful industry, thereby enhancing Malaysia's economic stability and growth. The findings provide valuable insights for Takaful operators and policymakers to better understand the extent of the relationship between Takaful and economic growth, thereby making informed decisions and improvements that can benefit society and the nation. Recommendations to strengthen the future prospects of the Takaful industry are also discussed.

***Keywords*---**Industrial Production Index, Pearson Correlation Coefficient, Takaful.

JEL classification: G01, G22, O11

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1. Introduction

Insurance was first introduced in the form of bottomry contracts, which can be traced back as early as around 4,000 to 3,000 BCE in Babylon. The bottomry contracts were granted to merchants who needed to borrow money for shipment, in which they were charged with the interest on the loan (insurance risk). This contract provides provision that the merchants' loans did not have to be repaid if the ship sinks at sea (Britannica Money, n.d.). Hence, insurance can be understood as a precaution taken today to prepare for risk that may happen in the future (Babayeva, 2022). Modern insurance began in the 1600s, when British merchants and ship owners started to make mutual agreements to share in the profits and losses of sea voyages (Sharifuddin et al., 2016). In 2022, Malaysia's insurance sector saw a 10% increase in general insurance. This was because people started to realize the importance of insurance following the rise in health and natural disaster awareness, the growing number of vehicles, higher medical costs, and industrial growth (Takaful Malaysia, 2024). However, conventional insurance contradicts Islamic laws since it is characterized by elements such as uncertainty (*gharar*), interest (*riba*), and gambling (*maysir*). Policyholders usually have no idea what they are paying for since they have no solid confidence about future losses, creating uncertainty (*gharar*). In addition, insurance operator tends to invest the premium received in activities that involve interest-bearing loans or businesses prohibited in Islam (*riba*). Moreover, conventional insurance contains gambling element (*maysir*), since both policyholders and company take a chance of winning or losing (Hassan et al., 2018). Therefore, Islamic insurance, or Takaful, which follows the Shariah laws, was introduced and first emerged in Sudan in 1979, in order to capture the Muslim markets (Kamarudin et al., 2023).

Ba'albaki (2008) explains that the term *Takaful* originates from the Arabic word *Kafala*, which means "to guarantee one another." From this root, the notion of *Takafala* emerges, referring to the act of ensuring or bearing joint responsibility. The concept of Takaful can be traced back as far as 1,400 years ago. The main idea of Takaful is to offer protection to those who are in difficulties and require assistance. In the Qur'an, Allah SWT specifically stated that human beings should help each other whenever they are seeking help (Sharifuddin et al., 2016). Hence, the concept of insurance, which involves pooling common resources to provide aid, does not contradict the teachings of Islam. The only reason conventional insurance is prohibited is because it possesses elements of uncertainty (*gharar*), interest (*riba*), and gambling (*maysir*). This is why Takaful, which follows Islamic principles and views trusteeship, brotherhood, and cooperation as its main core, was created as an alternative. Takaful is viewed as an agreement where a group of people come together to protect one another from loss or damage. Each person contributes money to a shared fund, and the amount they put in depends on the level of risk they face. If one of the members experiences a loss, the fund is used to provide financial support and ease the burden. The key idea is that everyone helps each other, making the participants both the ones who are protected and

the ones providing protection (Thanasegaran, 2008). However, Takaful operators may face more challenges compared to conventional insurance since they must earn profit while complying with Islamic law at the same time.

In Malaysia, Takaful industry started to develop in the early 1980s due to the Muslims' needs for a *Shari'ah*-compliant insurance, since there are some prohibitions in Islam regarding the conventional insurance. Conventional insurance was declared as haram by Malaysian National fatwa committee as it contains the elements of uncertainty (*gharar*), interest (*riba*), and gambling (*maysir*). Following that, the government established a special task force in 1982 to assess the viability of initiating an Islamic insurance firm. Upon the task force's suggestion, the Takaful Act 1984 was implemented, and the first Takaful operator was also incorporated in Malaysia in 1984, named Syarikat Takaful Malaysia Sendirian Berhad (STMSB). Since then, Takaful firms began to emerge in Malaysia in the early 1990s, marking the beginning of the competition among companies in this industry (Sharifuddin et al., 2016). In 2001, the third phase of financial sector master plan (FSMP) was introduced with the aim of strengthening Takaful operators' capacity and improve the legal, Shari'ah and regulatory framework (Eldaia et al., 2020). According to PIDM (n.d.), there are currently15 Takaful operators licensed under the Islamic Financial Services Act 2013 to conduct family or general takaful business in Malaysia. These include AIA Public Takaful Berhad, AmMetLife Takaful Berhad, Etiqa Family Takaful Berhad, Etiqa General Takaful Berhad, FWD Takaful Berhad, Great Eastern Takaful Berhad, Hong Leong MSIG Takaful Berhad, Prudential BSN Takaful Berhad, Sun Life Malaysia Takaful Berhad, Syarikat Takaful Malaysia Am Berhad, Syarikat Takaful Malaysia Keluarga Berhad, Takaful Ikhlas Family Berhad, Takaful Ikhlas General Berhad, Zurich General Takaful Malaysia Berhad, and Zurich Takaful Malaysia Berhad.

However, even the biggest takaful companies may not be able to cover very large risks on their own. If a huge claim happens, it could overwhelm their resources. That is where *retakaful*, often described as insurance for takaful companies, comes in. Instead of carrying all the risk themselves, a takaful operator can transfers part of it to a retakaful operator, who helps absorb the burden. Therefore, retakaful serves as an integral factor for the growth and development of Takaful operations (Ali & Markom, 2021).

The majority of studies confirm that the Takaful industry plays an important role in supporting Malaysia's economic growth, both before and after the COVID-19 pandemic. For example, Lahoucine (2023) concluded that Takaful exerted a positive and significant impact on manufacturing activity from 2010 to 2017. RAM Ratings (2019) reported that general Takaful contributions expanded by 8% in 2018, while family *Takaful* contributions surged by 13.1% to RM4.9 billion, demonstrating resilience in industry growth despite changes in the business environment. Even in 2020, when Takaful operators were badly affected by the Movement Control Order (MCO) due to COVID-19, RAM Ratings (2021) still

emphasized that the Takaful sector was holding up well. Additionally, findings by Mohamad Puad et al. (2022) also highlighted that Malaysian Takaful operators remain optimistic in their performance and contribution to socio-economic objectives. Despite this rapid growth and increasing importance to Malaysia's economy, there is still limited empirical evidence on how Takaful directly supports economic growth, particularly in the aftermath of COVID-19. Therefore, this paper aims to trace the link between Takaful and economic growth in Malaysia, consisting of three objectives; 1) To examine the relationship between Takaful and Industrial Production Index before the COVID-19 pandemic, 2) To examine the relationship between Takaful and Industrial Production Index after the COVID-19 pandemic, and 3) To compare and analyze the relationship between Takaful and Industrial Production Index before and after the COVID-19 pandemic to evaluate the resilience and stability of the Takaful industry in Malaysia when facing the COVID-19 shock. The findings of this study can provide significant insights for industry players and policymakers to understand the extent of the relationship between Takaful and economic growth, thereby making informed decisions and improvements that can benefit the society and the nation.

This paper is organized into six sections. The first section is the introduction, which explains the background of the study. The second section is the literature review, which consists of theoretical and empirical reviews of this topic. The third section presents the methodology, containing the details of the data, sources, and employed model. The fourth section displays the results of the model, whereas the fifth section discusses the findings. The last section, the conclusion, summarizes the findings while pointing out the limitations of this study and providing suggestions for future research.

2. Literature Review

2.1 Theoretical Framework

Medi and Jedidia (2025) compiled several perspectives on the relationship between Takaful and economic growth in their study, providing a useful basis for further discussion. The first theory is saving mobilization and capital formation. Takaful serves as both a protection and savings mechanism (Abdullah, 2012). Its presence reduces the need for households to keep cash savings for emergencies, since protection is already provided. Instead, money flows into Takaful funds, which operators pool together and invest in Shariah-compliant assets (Aziz and Kassim, 2020). Through this process, Takaful mobilises savings and converts them into financial capital for the country. This strengthens capital formation, supporting the supply-led growth hypothesis (finance drives economic growth).

The second theory is investment and financial deepening. Takaful engages in investment operations through Islamic contracts such as *mudarabah*, *ijara*, and *sukuk* (Abdul Aziz & Mohamad, 2013). These investments contribute to capital market development and enhance

financial intermediation, thereby supporting economic growth in line with the supply-led hypothesis. At the same time, the strong linkage between Takaful and sukuk market development also supports the demand-led hypothesis, where improvements in the economy and financial sector naturally encourage the Takaful industry to grow as well (Outreville, 1990; Ward & Zurbruegg, 2000).

The next theory is protection and risk mitigation. Takaful helps the economy by acting as a safety net. It plays a role in redistributing resources during times of crisis, since policyholders will receive financial support from Takaful instead of relying only on their own savings. This helps stabilize household spending and prevents families from falling into debt (Aziz & Kassim, 2020). At the same time, as Takaful underwrites more types of risk, businesses can operate with greater confidence in the market. Knowing that they will be compensated if something goes wrong encourages them to expand their activities, which leads to higher productivity (Shahid, 2018). Therefore, economic growth results from increased productivity supported by Takaful's expansion, in line with the supply-led growth hypothesis.

Other than that, this relationship can also be explained through Takaful's role in social welfare and sustainable development. Takaful's function should go beyond just the economic area, as it is an ethical form of insurance that also aims to improve social well-being. It plays a key role in fostering social responsibility and compassion through mutual aid and humanitarian efforts (Sikander, 2024). This social dimension of Takaful, in turn, helps a nation's economy to thrive. For instance, Trokic (2017) highlighted that the similarity between Takaful and mutual funds or cooperatives (a scheme where individuals voluntarily come together to form an autonomous association for mutual benefits) can be very effective in alleviating poverty among poorer populations. Moreover, Widyanata et al. (2024) also found that Takaful indirectly contributes to sustainable health and education quality, which has led to improvements in Indonesia's socioeconomic development.
In summary, the theories suggest that Takaful holds strong potential to act as a key driver of a nation's economic growth and development.

2.2 Empirical Framework

The relationship between conventional insurance and economic growth has been widely examined by researchers, while fewer studies have focused specifically on the Takaful–growth nexus. Most of the studies that examined this topic concluded a significant positive relationship between Takaful and economic growth. For instance, Redzuan et al. (2009) showed that the relationship between economic growth and the efficiency of Takaful insurance companies is positive. Al-Razeen (2015) also revealed that the cooperative insurance sector in Saudi Arabia (a Shariah-compliant alternative closely related to Takaful) is strongly related to GDP growth. In addition, Alhammadi (2023) found that the expansion of Takaful markets is positively correlated with accelerated economic growth

in Indonesia, as Takaful enables greater financial inclusion, which in turn encourages economic growth. Safitri (2019) also corroborated this positive link, where she found the relationship between Shariah life insurance and GDP to be positive through Pearson's correlation coefficient.

Several studies lend support to the supply-led hypothesis, which proposes that Takaful expansion drives economic growth. Aziz and Kassim (2020), for instance, found that Takaful stimulates investment growth by pooling savings, thereby boosting Malaysia's GDP. Likewise, Dadaboev et al. (2025) highlighted the significant role of Takaful services in enhancing Malaysia's economic performance. Lahoucine (2023) used manufacturing activity as a proxy for the real economy and reported a positive and significant impact of Takaful development on the manufacturing industry in Malaysia. Besides that, Kamarudin et al. (2023) conducted research on this relationship before and after the introduction of IFSA 2013 in Malaysia, with quantitative results showing a positive relationship with the Industrial Production Index for both pre- and post-IFSA 2013, while qualitative findings also supported the supply-leading hypothesis. In addition to Malaysia, studies in other countries have also confirmed a positive relationship. For instance, Almanea (2025) implied that the Takaful sector generates employment opportunities in Saudi Arabia, subsequently contributing to economic growth in that country. The findings by Rawat and Mehdi (2017) also suggested that Takaful companies play an imperative role in boosting the economy of Pakistan. Using panel data consisting of 22 countries from 2004 to 2012, Muye and Hassan (2016) proved that the proliferation of Islamic insurance activities positively and significantly impacts economic growth in those countries.

Meanwhile, the demand-led hypothesis, which posits that Takaful is dependent on economic growth, is also supported by a considerable number of studies. Arshad et al. (2020) identified GDP as one of the factors that play a significant role in the performance and long-term sustainability of Takaful in Malaysia. As for Indonesia, Sukmaningrum et al. (2023) explained that the country's GDP growth encourages more investment in Shariah life insurance, which contributes to the increased productivity of insurance firms. Similarly, Ayyubi and Widyastutik (2019), Safitri (2020), and Rizqi (2021) also revealed that income or GDP per capita is among the determinants that significantly influence Islamic insurance in Indonesia.

Madi and Jedidia (2025) argued that both the supply- and demand-led hypotheses may hold, as the relationship between Takaful and economic growth is complex. Under the supply-led hypothesis, Takaful can stimulate growth through the mobilization of savings, which form pooled funds used for investment. Takaful also ensures stability during crises by offering protection and risk mitigation. In addition, Takaful emphasizes its social role, which helps promote sustainable development. At the same time, economic growth can contribute to an increase in Takaful activities, confirming the demand-led hypothesis. However, these two hypotheses may vary across different countries. According to Ward and Zurbruegg

(2000), their results showed that the insurance industry Granger causes economic growth in some nations, while the reverse is true in others. Therefore, the causality between them differs depending on national circumstances.

Although most studies concluded that the relationship between Takaful and economic growth is significantly positive, there are also cases where certain studies found mixed results. Amran et al. (2023) posited that Takaful resulted in a marginally significant positive impact on economic growth in Middle Eastern countries, but this effect was insignificant in the case of Asian countries, a finding that is relatively rare in the Takaful literature. Mixed evidence, however, is more common in the conventional insurance literature. For example, by adopting insurance penetration as a measure of insurance, Olayungbo and Akinlo (2016) discovered the impact of insurance on economic growth in certain countries such as Algeria, Nigeria, Tunisia, and Zimbabwe to be negative. Furthermore, Lee et al. (2016) indicated that the relationship between life insurance and economic growth tends to be negative in relatively weaker institutional environments. Meanwhile, Din et al. (2017) and Chukari et al. (2024) showed that, in the short run, life insurance may exert a negative relationship with economic growth.

The relationship between the growth of the insurance sector and economic development has been extensively studied, but the same cannot be said for the Takaful industry. Although the Takaful concept has existed for over four decades, research on its role in supporting economic resilience has only gained stronger attention in recent years, particularly in Malaysia after the introduction of IFSA 2013. Additionally, Takaful or Islamic insurance is only well established in a few countries, such as Malaysia and Indonesia, despite the vast number of Muslim-majority countries. As a result, empirical studies on the relationship between Takaful and economic growth remain scarce. Furthermore, most research conducted on this topic tends to postulate positive and significant relationships, which may be due to the limited number of studies available. By contrast, conventional insurance often exhibits insignificant or even negative relationships with economic growth. This raises the question of whether Takaful is indeed inherently beneficial to economic growth or whether the overwhelmingly positive findings are simply a result of the limited research conducted. In addition, there is a lack of research that considers how the COVID-19 pandemic has influenced the role of Takaful in supporting economic growth. As one of the most recent major economic crises, incorporating this issue would provide a better evaluation of the relationship between these two variables. To sum up, this study aims to contribute to the literature by exploring the possibility of outcomes beyond the commonly reported significant positive relationship, and by addressing the lack of research that includes periods affected by COVID-19.

3. Research Methodology

3.1 Data Sources and Variables

This study will choose appropriate variables based on previous research by Kamarudin et al. (2023). Half year data retrieved from Bank Negara Malaysia's Monthly Highlights and Statistics will be employed, spanning from 2009 to 2024. Industrial Production Index (IPI) is chosen as the indicator of economic growth because it reflects the production levels of a nation, making it an appropriate proxy of aside from the GDP which is commonly used. As for the Takaful sector, it is represented by three indicators, including Total Assets of General Takaful Funds (GTF), Total Assets of Family Takaful Funds (FTF), and the sum of these two, which is Total Takaful Assets (TTA). As more customers purchase insurance from Takaful operators, the amount of assets is expected to increase, implying the growth of Takaful sector. At the same time, Private Investment (PI), Trade Balance (TB), and Inflation (INF) are also included in the analysis, as these are important macroeconomic factors frequently linked with economic growth in prior studies. Including them allows the study to capture a broader picture of growth determinants and avoid the risk of bias from omitted variables. Moreover, considering these variables may increase the explanatory richness of the results. To improve estimation outcomes and mitigate potential heteroscedasticity, logarithmic transformations are applied to the variables, except for Private Investment (PI) and Inflation (INF), which are already expressed in percentages.

3.2 Pearson Correlation Coefficient

The periods before COVID-19 contain 22 observations, while only 10 observations exist for periods during and after COVID-19. Due to the limitation of data, Pearson Correlation Coefficient is a suitable approach to examine the relationship between Takaful and Industrial Production Index (IPI).

Correlation measures the monotonic relationship between 2 variables. Only either of these two results can be obtained from the correlation test: (1) A variable also rises when the other variable increases, (2) A variable decreases when the other variable increases. However, the magnitude of change may not be proportional for both variables (Schober and Boer, 2018).

The extent to which the change in 1 variable is attributable to the change in another variable can mathematically be explained in regards of the covariance of the variables. Compared to variance that only describes the variability of one variable, covariance can measure how two variables change together. However, covariance may be unable to produce results which can be interpreted easily since it really depends on the unit measurement of the variables. This is where Pearson Correlation Coefficient comes in. Pearson's r is standardized, which ranges from −1 to +1, making it easier to interpret and compare across studies (Schober and Boer, 2018). Values of -1 and +1 indicate a perfectly correlated relationship, meaning all the data points reside exactly on the same

straight line. The only difference is that -1 represents downward sloping relation (negative) while +1 represents upward sloping relation (positive). Meanwhile, r = 0 implies there is no linear relationship between the variables. The relationship becomes stronger when the absolute value of r increases or approach -1/+1 as much as possible. Figure 1 is shown below to demonstrate how Pearson Correlation Coefficient works. When the absolute value of r is 0 (A), the data points scattered randomly, indicating no relationship at all. As the absolute value of r increases to -0.4 (B) and -0.8 (C), more data points started to gather nearby, forming a vivid straight line, exhibiting stronger linear relationship. When r is -1 (D), all data points lied on the downward sloping straight line, postulating a perfectly correlated negative relationship.

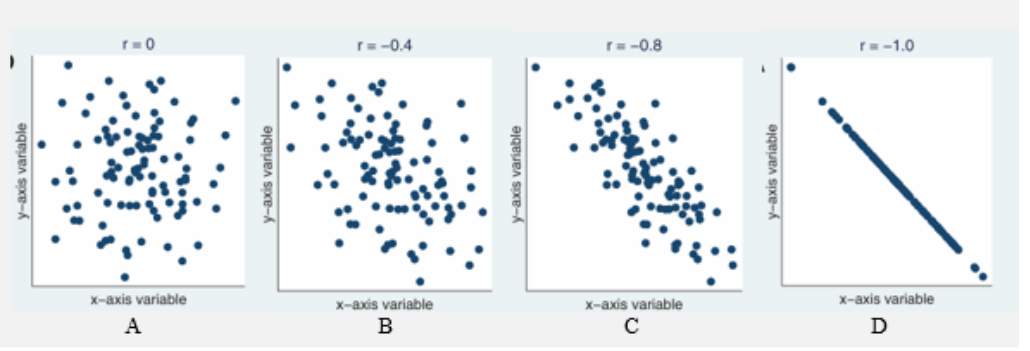

Figure 1: Scatter Plot with varying Pearson Correlation Coefficient (r)
Source: Schober and Boer (2018)

According to Kamarudin et al. (2023), The formula used to calculate Pearson Correlation Coefficient is as follows:

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}} \quad (1)$$

where,

r = Pearson correlation coefficient
n = Number of pairs of the variable
$\sum xy$ = Sum of the paired variables
$\sum x$ = Sum of the x variable
$\sum y$ = Sum of the y variable
$\sum x^2$ = Sum of the squared x variable
$\sum y^2$ = Sum of the squared y variable

The equation (1) will be applied to acquire the results for both Objectives 1 and 2, since their difference is only in terms of sample period. In this study, 2020 is considered the dividing point between periods unaffected by COVID-19 and those affected by it, since Malaysia recorded its first

confirmed case in January 2020 (Abdul Karim, 2020). Therefore, only data from 2009-1H to 2019-2H will be used to achieve Objective 1 of determining the relationship between Islamic banking and economic growth before the COVID-19 pandemic. As for the Objective 2, the analysis will be repeated using data from 2020-1H to 2024-2H to examine the relationship during and after COVID-19. Finally, Objective 3 contains thorough comparison and analysis of the changes in coefficients, signs, and significance levels between two sub-periods, along with the justification of how the relationship differs before and after COVID-19.

However, simply determining the strength of the relationship based on the correlation coefficient is usually inconsistent and arbitrary. For instance, r = 0.65 could be interpreted as "good" and "moderate" correlation by different people. Therefore, this study will interpret the strength of the correlation coefficient for the absolute value of r based on the widely cited classification scheme suggested by Evans (1996):

Table 1: Evans Correlation Guide

Absolute Value of *r*	Interpretation
0.00 – 0.19	Very Weak
0.20 – 0.39	Weak
0.40 – 0.59	Moderate
0.60 – 0.79	Strong
0.80 – 1.00	Very Strong

Source: Evans (1996)

To determine whether the result is statistically significant, the study will observe the p-value of the correlation test. Two hypotheses are considered:

$$(\mathbf{H_0}): \rho = 0$$
$$(\mathbf{H_A}): \rho \neq 0$$

The null hypothesis (H_0) states that there is no correlation between the two variables in the population, while the alternative hypothesis (H_A) postulates that a correlation exists between the two variables in the population. When the p-value obtained is greater than 0.05 (5% significance level), the null hypothesis cannot be rejected, and the study concludes that there is no statistically significant correlation between the two variables. Conversely, if the p-value is less than 0.05, the null hypothesis is rejected, and the study concludes that a statistically significant relationship exists between the two variables.

4. Results

4.1 Descriptive Statistics

Table 1 and 2 present the descriptive statistics for all variables included in the analysis, which is Natural Logarithm of Industrial Production Index (lnIPI); Total Assets of General Takaful Funds (lnGTF); Total Assets of

Family Takaful Funds (lnFTF); Total Takaful Assets (lnTTA); Trade balance (lnTB); Private Investment (PI); and Inflation Rate (INF).

Table 2: Descriptive Statistics for 2009-1H to 2019-2H (Pre-COVID-19)

	lnIPI	lnGTF	lnFTF	lnTTA	lnTB	PI	INF
Mean	4.688464	7.992801	9.832051	9.980283	9.013637	4.681818	1.931818
Median	4.693177	8.032585	9.866267	10.01454	9.083128	10.20	1.75
Maximum	4.818667	8.351800	10.38234	10.50568	9.437954	34.10	3.50
Minimum	4.581902	7.477095	9.184971	9.351545	8.314342	-24.70	-1.40
Std. dev.	0.061284	0.238525	0.343420	0.328808	0.304418	16.99391	1.220221
Skewness	0.196275	-0.659124	-0.267318	-0.301104	-0.923274	-0.168792	-0.746435
Kurtosis	2.284259	2.549812	2.098587	2.132988	3.195689	1.864889	3.609337
Obs	22	22	22	22	22	22	22

Source: STATA Output

The descriptive statistics for the period before the COVID-19 pandemic are reported in Table 2 above. According to this table, the mean values for (lnIPI), (lnGTF), (lnFTF), (lnTTA), (lnTB), (PI), and (INF) are 4.688, 7.993, 9.832, 9.980, 9.014, 4.682, and 1.932, respectively. The median, maximum, and minimum values for most variables are relatively close to their respective means, implying that their distributions are approximately symmetric. However, the median (10.20), maximum (34.10), and minimum (-24.70) values for (PI) differ greatly from its mean value (4.682), suggesting that the data is asymmetrically distributed and highly volatile. This is further supported by the standard deviation (16.99391) of (PI), which far exceeds its mean, confirming high variability in (PI). Meanwhile, the standard deviations for the other variables range only from 0.238525 to 1.220221, indicating low variability. Regarding skewness, only (lnIPI) displays a positive value, indicating that most of its values are clustered on the left. The remaining variables have negative skewness values, suggesting that most of their values are clustered on the right. As for kurtosis, all variables report values less than 3, except for (INF), which records 3.609337. This indicates that (INF) has positive kurtosis and a higher likelihood of outliers.

Table 3: Descriptive Statistics for 2020-1H to 2024-2H (Post-COVID-19)

	lnIPI	lnGTF	lnFTF	lnTTA	lnTB	PI	INF
Mean	4.841149	8.695631	10.66754	10.79803	9.958068	14.21	1.81
Median	4.859776	8.682725	10.65481	10.78514	9.971359	17.95	2.20
Maximum	4.912655	8.991625	10.86427	10.99792	10.35723	41.50	3.80
Minimum	4.749271	8.412188	10.44983	10.57234	9.377210	-12.60	-1.90
Std. dev.	0.057274	0.196720	0.141776	0.148351	0.307429	16.90039	1.986314
Skewness	-0.514455	0.064561	0.023757	0.027302	-0.546922	-0.072141	-0.976712
Kurtosis	1.878931	1.729548	1.779003	1.756989	2.466679	1.978643	2.600980
Obs	10	10	10	10	10	10	10

Source: STATA Output

Table 3 illustrates the descriptive statistics for the period under the influence of COVID-19. An increase in mean, median, maximum, and minimum values compared to the pre-pandemic period is observed

across all variables, except for (INF), which shows an increase in the median and maximum values but a decrease in the mean and minimum values. Furthermore, the standard deviation still indicates that (PI) has relatively high variability compared to the other variables, recording a value of 16.90039, while the standard deviations for the others range only from 0.057274 to 1.986314. In terms of skewness, positive values are observed for (lnGTF), (lnFTF), and (lnTTA), while (lnIPI), (lnTB), (PI), and (INF) report negative skewness. Moreover, none of the variables exhibit kurtosis values greater than 3, implying that the presence of outliers is less likely.

4.2 Pearson Correlation Coefficient

The Pearson Correlation Coefficient is conducted through the employment of Eviews statistical software to examine the relationship between the Takaful sector and economic growth. The results generated are reported in Table 4 and 5 below.

Table 4: Takaful's Pearson Correlation Analysis for 2009-1H to 2019-2H (Pre-COVID-19)

	lnIPI	lnGTF	lnFTF	lnTTA	lnTB	PI	INF
lnIPI	1.000 -----						
lnGTF	0.660191* (0.0008)	1.000 -----					
lnFTF	0.663918* (0.0008)	0.987404* (0.0000)	1.000 -----				
lnTTA	0.664212* (0.0007)	0.989567* (0.0000)	0.999896* (0.0000)	1.000 -----			
lnTB	0.025690 (0.9096)	0.019817 (0.9302)	0.045474 (0.8407)	0.044021 (0.8458)	1.000 -----		
PI	-0.12043 (0.5935)	-0.306478 (0.1654)	-0.336363 (0.1259)	-0.334031 (0.1287)	-0.277510 (0.2112)	1.000 -----	
INF	0.209388 (0.3497)	0.246827 (0.2681)	0.150548 (0.5037)	0.159343 (0.4788)	-0.212242 (0.3430)	0.315831 (0.1522)	1.000 -----

Note: p-values are in parentheses. * indicates statistical significance at the 1% level.

Table 4 presents the findings for the period from the first half of 2009 to the second half of 2019 (pre-pandemic). All three indicators of the Takaful sector, (lnGTF), (lnFTF), and (lnTTA), display positive signs. In addition, since their p-values are less than 0.01 (1% significance level), the null hypothesis of no significant relationship is rejected. Thus, the results conclude that there is a significant positive relationship between the Takaful indicators [lnGTF, lnFTF, lnTTA] and (lnIPI). On the other hand, (PI) shows a negligible negative relationship with (lnIPI). Although (lnTB) and (INF) are positively related to (lnIPI), their effects are also insignificant because their p-values exceed the 1% significance level.

Table 5: Takaful's Pearson Correlation Analysis for 2020-1H to 2024-2H (Post-COVID-19)

	lnIPI	lnGTF	lnFTF	lnTTA	lnTB	PI	INF
lnIPI	1.000 -----						
lnGTF	0.908948* (0.0003)	1.000 -----					
lnFTF	0.897285* (0.0004)	0.991327* (0.0000)	1.000 -----				
lnTTA	0.900049* (0.0004)	0.993975* (0.0000)	0.999758* (0.0000)	1.000 -----			
lnTB	-0.177225 (0.6243)	-0.376246 (0.2839)	-0.398869 (0.2535)	-0.395999 (0.2573)	1.000 -----		
PI	0.492985 (0.1477)	0.446949 (0.1953)	0.426705 (0.2188)	0.431060 (0.2136)	-0.426535 (0.2190)	1.000 -----	
INF	0.498100 (0.1429)	0.369351 (0.2935)	0.393204 (0.2610)	0.389311 (0.2661)	0.349097 (0.3228)	0.226161 (0.5298)	1.000 -----

Note: p-values are in parentheses. * indicates statistical significance at the 1% level.

Table 5 reports the findings for the post-pandemic period (2020-1H to 2024-2H). Similarly, (lnGTF), (lnFTF), and (lnTTA) also exhibit positive and significant relationships with (lnIPI), suggesting that the correlation between the Takaful sector and economic growth remains positive even during an economic crisis such as COVID-19. Meanwhile, (lnTB), (PI), and (INF) continue to show insignificant relationships with (lnIPI). However, the sign of (lnTB) changes to negative, while (PI) becomes positively related to economic growth under the influence of the COVID-19 pandemic.

5. Discussion

The results of the Pearson Correlation Coefficient show that the *r* between three Takaful indicators (lnGTF, lnFTF, lnTTA) and (lnIPI) are 0.660191, 0.663918, and 0.664212, respectively, for the period 2009-1H to 2019-2H. According to the classification scheme suggested by Evans (1996), an absolute r value ranging from 0.60 to 0.79 is categorized as a strong correlation. Additionally, this correlation is statistically significant, confirming that the Takaful sector and economic growth were strongly related in a beneficial way before the onset of the COVID-19 pandemic. These findings are consistent with the studies of Redzuan et al. (2009), Al-Razeen (2015), Safitri (2019), and Alhammadi (2023), which reported evidence of a positive relationship between the development of the Takaful industry and economic growth. According to Hassan (2015), this is due to the wider access to financial services provided by the Takaful sector. Takaful facilitates access for rural residents and individuals who avoid conventional insurance due to religious prohibitions. This broader participation enhances the country's financial inclusion rate, allowing the pooling of domestic savings. Consequently, Takaful converts these savings into financial assets by investing them in Shariah-compliant projects, thereby contributing to national economic growth (Aziz and Kassim, 2020).

In addition to the supply-led perspective, Madi and Jedidia (2025) argued that the demand-led hypothesis may also hold. As Rizqi (2021) explains, growth in per capita income provides households with greater flexibility in managing and mitigating risks. This, in turn, increases the penetration rate of Islamic life insurance and facilitates the further expansion of the Takaful sector.

On the other hand, the *r* obtained for the period 2020-1H to 2024-2H shows that the correlation between (lnGTF, lnFTF, lnTTA) and (lnIPI) is 0.908948, 0.897285, and 0.900049, respectively. Their correlations range from 0.80 to 1.00, indicating a very strong relationship, and even stronger compared to the period before COVID-19. Similarly, these correlations are also statistically significant, demonstrating that expansion in the Takaful sector and economic growth are still positively related to each other even under the influence of the pandemic. These findings are in line with the studies of Madi and Jedidia (2025) and Almanea (2025), in which they also took into account the period affected by the pandemic. Madi and Jedidia (2025) researched the data from 2005 to 2021 for six MENA Islamic nations and concluded that Takaful is able to stimulate economic growth. Meanwhile, Almanea (2025) studied this relationship in the case of Saudi Arabia for the period 2010 to 2021, highlighting that the Takaful sector contributes to the growth through more employment opportunities, facilitating investment, risk mitigation, etc. In Malaysia, the Takaful operators have cooperated with the government in the implementation of the economic stimulus package to stabilize the socio-economy during the pandemic. For example, the postponement of regular premiums for three months was granted to the policyholders of life insurance and family Takaful who were affected by COVID-19, starting from April 1, 2020 until December 31, 2020. (Bernama, 2020). This policy provides a short-term breathing space for households, allowing them to have more cash in hand, preventing a drastic reduction in spending and maintaining the stability of the economy during the crisis. In addition, the B40 mySalam Takaful Protection Scheme, provided by the government for free to the B40 community, has also managed to help them to mitigate the risk related to COVID-19 infection. mySalam, which began in 2019 and was supposed to end in 2025, offers its members who are admitted to government, university, or military hospitals the eligibility to claim RM50 per day, limited to 14 days or RM700 per year as a replacement income (mySalam, n.d.). Moreover, benefits up to RM8,000 will also be credited to the member's account if they are diagnosed with any of the 50 types of critical illness listed on mySalam. According to the Ministry of Finance (2021), a total of RM115.19 million in COVID-19 claims have been approved for recipients of mySalam since the beginning of the pandemic, in 2020. This approach helps *mySalam* members mitigate financial shocks through free Takaful coverage, thereby preventing a sharp decline in aggregate spending caused by high medical expenses. As more people, particularly from the B40 group, gain access to Takaful services, the sector expands, contributing to the stability and development of Malaysia's economy.

In short, the relationship between the Takaful sector and economic growth is significantly positive, and this correlation becomes stronger especially during pandemic-related crises such as COVID-19. Takaful's role is not just limited to the economy, but it also fulfills social responsibilities, such as engaging in joint cooperation with the government to implement moratorium/financial relief policy and provide free access to those who are most vulnerable during the pandemic. These initiatives encourage broader participation in Takaful, creating significant opportunities for the sector to expand. In turn, Takaful strengthens household financial stability and facilitates capital formation, which ultimately contributes to sustained economic growth.

6. Conclusion

The purpose of this study is to examine the relationship between Takaful and economic growth before and after the COVID-19 pandemic, as well as to compare these two periods to better assess the resilience of Malaysia's Takaful industry when facing the COVID-19 shock. This study employed half-year data from 2009 to 2024 (divided into pre- and post-pandemic periods) and applied the Pearson Correlation Coefficient to determine the relationship between Takaful indicators (GTF, FTF, TTA) and the Industrial Production Index (IPI). The empirical findings indicate a significant positive relationship between the Takaful sector and economic growth both before and after COVID-19, with the relationship becoming stronger in the post-pandemic period. This outcome is largely attributed to government incentives that supported the expansion of the Takaful industry, thereby contributing to Malaysia's economic stability and growth.

The positive relationship between Takaful and economic growth suggests that Takaful is an important sector that should be given due consideration when the government formulates economic development strategies. Several recommendations can be proposed for strengthening the future prospects of the Takaful sector. Firstly, Takaful operators should place greater emphasis on digitalization, as digital technologies such as smartphones and computers have become integral to modern life. Advertising through social media platforms enables Takaful operators to reach consumers more effectively (Wati & Manaf, 2019). Similarly, offering FinTech solutions such as official websites, mobile applications, and electronic payment systems can streamline transactions and improve accessibility to Takaful services (Abdullah et al., 2018). Secondly, Takaful operators should continue to diversify their product portfolios in areas such as retirement planning, estate management, and sustainable Takaful offerings. For instance, with the growing demand for ethical and responsible investing, operators could design products that incorporate environmental, social, and governance (ESG) principles (Ahmed, 2023). These initiatives would enable the Takaful sector to expand its service coverage and further contribute to economic growth.

Nevertheless, this study has a few limitations. Firstly, the use of the Pearson Correlation Coefficient only identifies correlations but does not establish causation between Takaful and economic growth. Thus, the findings cannot determine whether the relationship is supply-led, demand-led, or bidirectional. Future research should therefore employ methodologies capable of testing causality to better understand which variable drives changes in the other. Other than that, this study focuses exclusively on the Takaful industry in Malaysia. This narrow scope may limit the generalizability of the findings to other countries, as each country has different financial systems, regulatory environments, and stages of Takaful industry development. Therefore, future research should consider extending the analysis to multiple countries in order to generate findings that are more broadly applicable.

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