

**INTERNATIONAL  
JOURNAL  
of  
ECONOMICS, MANAGEMENT  
and ACCOUNTING**

**Volume 32**

**No 1**

**June 2024**



*International Islamic University Malaysia*

*E-ISSN: 2462-1420*

*<http://journals.iium.edu.my/enmjournal>*

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**International Journal of Economics,  
Management and Accounting**

**Volume 32 No 1 June 2024**

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**The International Journal of Economics, Management and Accounting** (E-ISSN: 2462-1420), formerly known as the *IJUM Journal of Economics and Management (1997-2010)*, and the *Journal of Islamic Economics (1987-1996)*, is a refereed journal published twice a year by the International Islamic University Malaysia.

**Website address:**

<https://journals.iium.edu.my/enmjournal/>

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should be addressed to the Editor, *The International Journal of Economics, Management and Accounting*, Kulliyah of Economics and Management Sciences, International Islamic University Malaysia, P.O. Box 10, 50728 Kuala Lumpur, Malaysia (Email: [jenm\\_editor@iium.edu.my](mailto:jenm_editor@iium.edu.my))

Articles published in this Journal are indexed or abstracted in *Google Scholar, Malaysian Citation Index (MyCite), Open Access, EconLit, e-JEL, JEL on CD, EBSCO, Index of Islamic Literature, UDLedg Social Sciences & Humanities, Citation Index (SS&HCI), Focus (Journals and Conference Proceedings), Web of Science Core Collection (Emerging Sources Citation Index), ASEAN Citation Index (ACI) and Cabell's Classification Index*

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# International Journal of Economics, Management and Accounting

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## **THE POTENTIAL INFLUENCE OF COVID-19 ON THE ARAB WORLD ECONOMY**

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### **ABSTRACT**

This paper predicts Coronavirus Disease (COVID-19)'s potential influence on the Arab country's economy by using two predicting models: the Autoregressive Integrated Moving Average (ARIMA) model and Long Short-Term Memory (LSTM) model. The World Bank offers data of the Arab countries' Gross Domestic Product (GDP) over the period 1968-2019. As we show up at the pinnacle of the COVID-19 pandemic, quite possibly the most critical inquiry going up against us is: what is the potential impact of the pandemic on the rate of GDP in Arab countries during the pandemic period? LSTM is recurrent neural networks (RNN), which are competent in understanding temporal dependencies. Therefore, the model based on LSTM achieved a great fit with the real data, which is what made us rely on its results more than the ARIMA model. The results of the LSTM model showed that the COVID-19 pandemic caused a decrease in GDP by approximately 17.22% and 5.41% in 2020 and 2021, respectively, with respect to the real GDP announced by the World Bank. In addition, we trained the LSTM-based model on real data from 1968 to 2020 and predicted the GDP growth rate in the next five years until 2025. Thus, what is certain now is that the Arab world states have to encounter the challenges presented by the current ecosystem. Transition to digital economy is needed, additional volume of data with high-level accuracy is required to improve precise and robust models to attain projections with a reduced amount of margin of error.

JEL Classification: B41, E17, P34

Keywords: COVID-19, Forecasting, LSTM, RNN, ARIMA Model

Submitted: 27/01/2021    Accepted: 24/01/2024    Published: 28/06/2024

## 1. INTRODUCTION

Coronavirus caused a worldwide downturn whose profundity was outperformed simply by the two World Wars and the Great Depression over the previous century and a half (Agarwal et al., 2020). Thus, ensuring world economic stability is an urgent necessity for regulators and economists (Awodumi and Adewuyi, 2020). The quest for stable economic growth is quickly turning into a practical issue among governments, global foundations, and partners interested in investigating the impact of the recent COVID-19 crisis on world economic growth (Awodumi and Adewuyi, 2020). This follows the realization that the pandemic has caused a severe death toll, is tipping millions into extraordinary neediness and is relied upon to dispense enduring scars that push movement and pay well underneath their pre-pandemic pattern for a drawn-out period.

The spread of COVID-19 is anticipated to achieve a broad slowdown of economic activities. As shown by an early assessment of the International Monetary Fund (IMF), the overall economy would diminish by around 3% in 2020. The choking depends on an unmistakably more important size than that of the 2008-2009 Global Financial Crisis. Regardless, in its latest update (June 2020), the IMF reevaluated the assessment to a 4.9% decrease in 2020. The report alludes to the going with clarifications behind the invigorated figure: i) more unmistakable energy in social, isolating activities; ii) lower activity during lockdowns; iii) more great decline in effectiveness among firms that have opened up for business; and iv) more critical vulnerability<sup>1</sup>. The economy-related repercussions will be wide-ranging and uncertain, with different effects on the work markets, creation of supply chains, financial business sectors, and the World Economy (Agarwal et al., 2020). The adverse economic effects may be transmitted by the strength of the social, isolating measures (e.g., lockdowns and related courses of action), its length of execution, and the degree of acquiescence.

Similarly, as with past economic crises, the pandemic is expected to leave long-lasting adverse impacts on the world economic movement and per capita incomes (Zulfigarov and Neuenkirch, 2020; Nejati and Bahmani, 2020; Alfarrar and Xiaofeng, 2018). As a result of the recent pandemic, the reduction in energy

consumption or the shortage of its supply has severe implications for country income in general and the oil countries in particular because the global economic growth depends heavily on energy-intensive activity (Norouzi et al., 2020; Nejati and Bahmani, 2020).

The COVID-19 pandemic caused dramatic reversals in development and led to a substantial increase in inflation and slow economic growth globally. The GDP of the Arab World at the end of 2019 was (2.81541e+12) USD with a growth of approximately (4.34e+10) USD compared with the GDP (2.77202e+12) USD at the end of 2018. In addition, the growth of gross fixed capital ratio decreased to become (-13%) at the end of 2020. Moreover, as one of the shock ramifications the Arab world trade decreased by approximately 6.6% at the end of 2020. The total trade of the Arab world trade at the end of 2020 was (6.94413e+11) USD compared with (9.13752e+11) USD at the end of 2019. The World Bank offers more details about the Arab world development indicators<sup>2</sup>. In this paper, we focus on studying the impact of the COVID-19 pandemic on the Arab World GDP growth. Thus, to address this inquiry, this exploration utilized the Autoregressive Integrated Moving Average (ARIMA) (Ma et al., 2018; Box et al., 2016) and Long Short-Term Memory (LSTM) (Hochreiter and Schmidhuber, 1997) models to gauge the Arab global economic growth. The referenced outcomes show that pandemic status significantly affects the Arab world economy. Besides, one of the critical lessons of the recent crisis is that the main objective of reforms to strengthen the global economy is building a foundation for sustainable economic growth depending on the digital economy (Erdmann and Ponzoa, 2021; Solomon and van Klyton, 2020; Alfarra et al., 2017).

The rest of the paper is organized as follows. Section 2 discusses the literature review. In Section 3, we analyze development indicators in the Arab world. Section 4 discusses research methodology. In Section 5, the forecasting results are summarized. Finally, the conclusion and future works are presented in Section 6.

## 2. LITERATURE REVIEW

Time series forecasting is a major topic in the economic, business, and financial fields. Traditionally, several techniques can be used to effectively predict the next time series delay, such as univariate Autoregressive (AR) (Kurihara, Fukushima, and Finance, 2019), univariate Moving Average (MA), and more notably ARIMA with



its numerous differences (Alfarra and Hagag, 2021, Sharma, et al., 2020; Büyükşahin and Ertekin, 2019; Choi, 2018).

Algorithms based on machine learning and deep learning are the emerging approaches for dealing with time series prediction problems. These techniques yield more precise results than conventional regression modeling. It has been stated that artificial Recurrent Neural Networks (RNN) along with memory, such as Gated Recurrent Unit (GRU) and LSTM (Fischer and Krauss, 2018), are exceptional compared to the ARIMA with a substantial margin. However, results from (Siami-Namini and Namin, 2018) showed that the ARIMA model demonstrated its superior precision in forecasting future time series lags. Later the researchers (Siami-Namini, Tavakoli, and Namin, 2019b; Siami-Namini, Tavakoli, and Namin 2019a) illustrated that bidirectional LSTM (BiLSTM) models also give good forecasting results.

In the previous decade, machine learning has shown prominent improvement in time series forecasts. The research in (Mallqui and Fernandes, 2019) used different machine learning techniques to predict directions. In addition, the researchers in (Papaioannou et al., 2017) developed a trend-following trading strategy to forecast and trade S&P 500 futures contracts. In (Choi, 2018), a hybrid ARIMA-LSTM model has been developed for stock price correlation coefficient prediction. Many authors (Sezer and Ozbayoglu, 2018), (Ghosh, Neufeld, and Sahoo, 2022), and (Singh et al., 2020) have used the standard neural networks to forecast time-series data. Whereas (Xue et al., 2018) and (Borovykh, Bohte, and Oosterlee, 2018) have utilized convolutional neural networks (CNN). Moreover, (Harikrishnan et al., 2021) have investigated the application of different machine learning algorithms to stock price forecasting. (Siami-Namini, Tavakoli, and Namin, 2018) compared LSTM to the ARIMA model. Their empirical results applied to financial data show that LSTM outperforms ARIMA in terms of fewer predictive errors and greater precision.

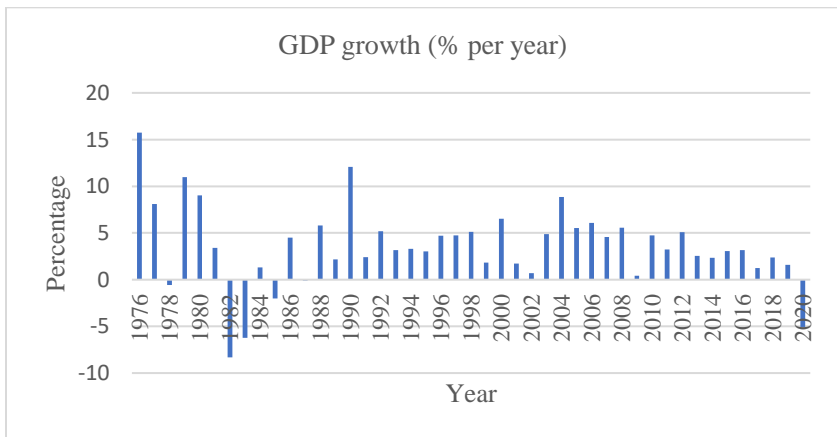
Empirical results (Qiu, Wang, and Zhou, 2020) used the LSTM method to illustrate the improvement of stock price forecasts when a concentration mechanism is used. (Sharma et al., 2021) noted that for the LSTM and ARIMA models, a significant improvement in the forecasting of share price movements can be achieved by including an analysis of sentiment. Furthermore, the study in (ArunKumar et al., 2022), examined comparative analysis of GRU, LSTM cells, ARIMA, and Seasonal ARIMA (SARIMA) for forecasting COVID-19 trends. They found that the result obtained

from deep learning-based models LSTM and GRU outperformed statistical ARIMA and SARIMA models for the time-series data of the countries. We conclude from the literature review that LSTM and ARIMA are considered suitable for the time-series data. Thus, this article proposes two models based on the ARIMA and LSTM for predicting the Arab world's GDP.

### 3. THE ARAB WORLD ECONOMY OVERVIEW

Devastating shocks have pushed the global economy out of the pre-2019 balance of low inflation and low interest rates in a new context of higher inflation and rising interest rates. Then, a weaker than expected slowdown in China and higher than expected levels of inflation in advanced economies. As activity slowed, so did the three major global economies—the U.S., China, and the Eurozone. The new global environment is one of heightened stress and risk in some countries. Figure 1 illustrates the impact of the COVID-19 pandemic on the Arab world economy. It is also noted that the GDP rate decrease in 2019, 2020 to become (1.58%) and (-5.05%) respectively, compared with (2.36%) in the end of 2018.

FIGURE 1  
Arab World GDP Growth Over the Period 1976-2020



As one of the shocks ramifications the Arab world trade decreased approximately 6.85% in the end of 2020. As the total trade of the Arab world trade in the end of 2019 (9.13752e+11) USD. Whereas the total trade decreased to become (6.94413e+11) USD in

the end of 2020. Figure 2 reports the trend of the Arab world trade during the period. In addition, Higher inflation has prompted central banks in advanced economies to tighten monetary policy and raise interest rates faster and more vigorously than anticipated. Figure 3 shows the inflation rates during the period 1975-2021.

FIGURE 2  
Arab World Trade Over the Period 1960-2020

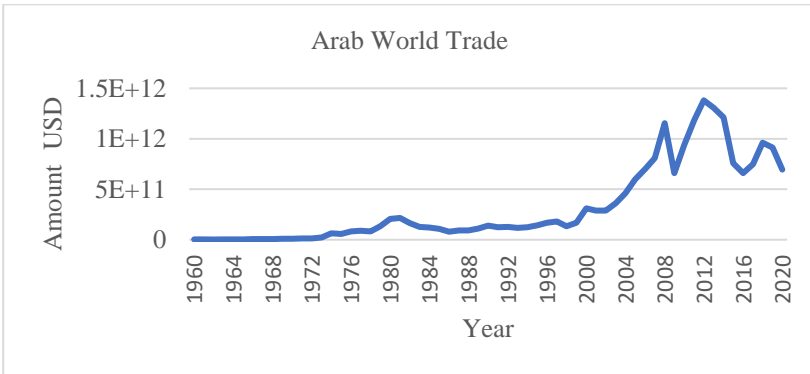
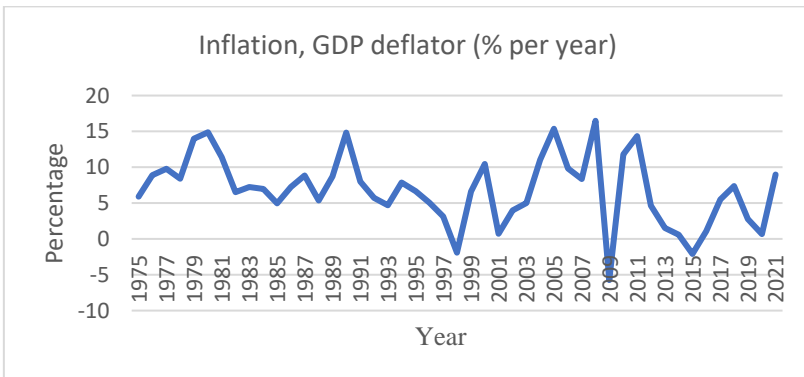


FIGURE 3  
The Inflation Rate for Arab World GDP Over the Period 1975-2021



Moreover, oil and gas are a major source of export earnings and fiscal revenues for the region in general and Gulf Cooperation Council (GCC) in particular. The oil revenue for approximately 13% of the Arab world GDP, which is illustrated in Figure 4.

**FIGURE 4**  
 The Oil Revenue Rate from Arab World GDP Over  
 the Period 1970-2019

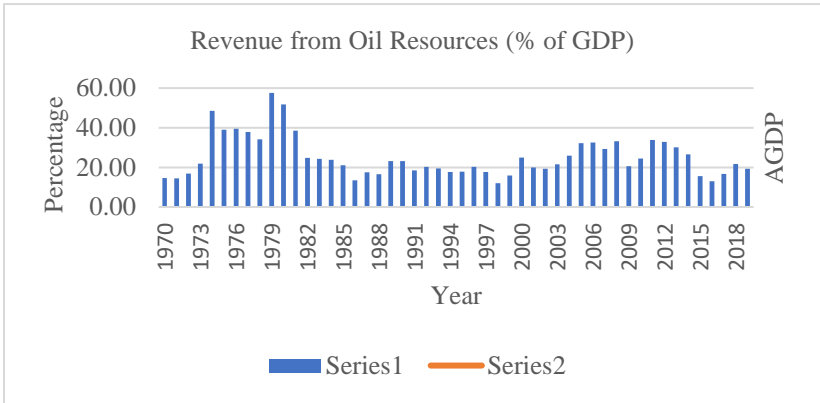
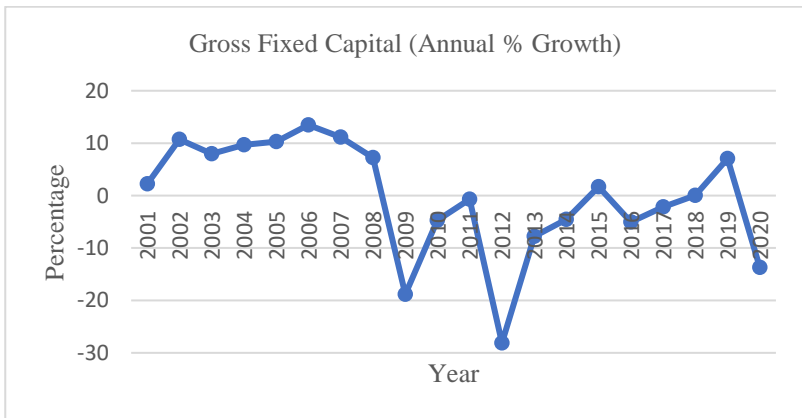


Figure 5 illustrates the capital trend before and after the COVID-19 crisis. It can be seen that the growth of gross fixed capital ratio decreases to become (-13%) in the end of 2020, compared with (7%) in the end of 2019. In addition, Figure 6 displays the increase of unemployment rate to 15% at the end of 2020.

**FIGURE 5**  
 Gross Fixed Capital Ratio in the Arab World Over  
 the Period 2001-2020



**FIGURE 6**  
**Unemployment Indicators in the Arab World Over**  
**the Period 2015-2020**



It is too early to know whether the global economy has entirely transitioned to a new balanced situation or whether the changes that have happened will be long lasting or short-lived. What is certain now is that the Arab world countries must confront the challenges posed by the current environment.

#### 4. METHODOLOGY

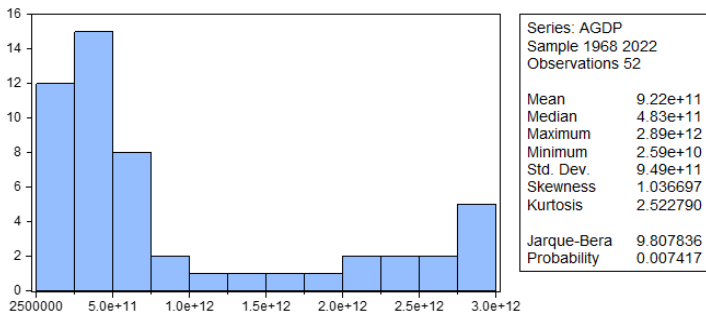
##### 4.1 DATA DESCRIPTION

The most essential and primary indicator of general economic matters is the Gross Domestic Product (GDP) to assess the general economic condition. It reflects the country's monetary quality and helps plan and market scale. The World Bank offers GDP information for several nations, including the Arab world over the period 1968-2019<sup>3</sup>. The World Bank provides GDP for the Arab world, which includes 22 countries as follows: Algeria, Bahrain, Comoros, Djibouti, Egypt, Arab Rep. Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Qatar, Saudi Arabia, Somalia, Sudan, Syrian Arab Republic, Tunisia, United Arab Emirates, West Bank and Gaza, and Yemen.

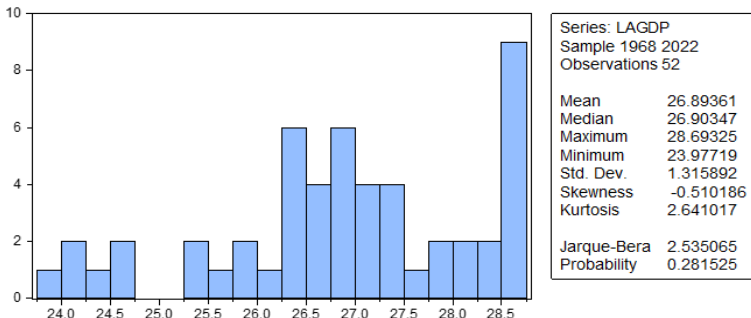
This paper has used the GDP data as a proxy to investigate the impact of COVID-19 on the Arab world economy during the period studied. Figure 7(A) shows that the Jarque – Bera Test:  $p < 0.05$ ; does not follow the normal distribution. In addition, the mean

of GDP over the period 1965 to 2019 is  $922e+11$ , moreover the median is  $483e+11$ . Furthermore, the results show that the maximum value is  $2.89e+11$ , and the minimum value is  $259e+11$ , while the standard deviation value is  $949e+11$ , as well as the Skewness value is 1.036697, which indicates Skewness to right side with Kurtosis factor 2.522790. Figure 7(B) illustrates the AGDP data from 1960 to 2019 after taking the natural logarithm. The Jarque – Bera Test:  $p < 0.05$  implying Normal distribution. In addition, the mean of GDP over the period 1965 to 2019 is 26.89361, while the median is 26.90347. Furthermore, the results showed the maximum value is 28.69325, and the minimum value is 23.97719, with standard deviation value of 1.315892, as well as the Skewness value is -0.510186, which indicates to right side Skewness with Kurtosis factor 2.641017.

FIGURE 7  
The AGDP Over the Period 1968-2019  
(A) Before Taking the Natural Logarithm



(B) After Taking the Natural Logarithm



## 4.2 ARIMA MODEL

In econometrics, the ARIMA model is one of the best models for time series analysis (Ma et al., 2018; Box et al., 2016). This model is considered suitable for time-series data to forecast future points in the series. The ARIMA demonstrating approach has three phases; model distinctive evidence, boundary evaluation, and suggest checking of the model (Singh et al., 2018; Box et al., 2016; Zhen-yan, 2012). The autocorrelation function (ACF) and partial autocorrelation (PACF) plots of the differenced series are used to identify the numbers of autoregressive (AR) and/or moving average (MA) terms that are needed. These plots help to identify if all coefficients are significant and all of the patterns have been explained (Singh et al., 2020; Lihua Ma, 2018; Box et al., 2016). A non-seasonal ARIMA model can be summarized by three parameters  $p$ ,  $d$ , and  $q$ , which refer to the number of autoregressive terms, nonseasonal differences (i.e., the number of differencing required to make the time series stationary), and moving average terms, respectively. The model with the previous parameters is called ARIMA ( $p$ ,  $d$ ,  $q$ ) model (Ma et al., 2018, Box et al., 2016). In addition, all these parameters (i.e.,  $p$ ,  $d$ , and  $q$ ) are both integrated and non-negative numbers (Ma et al., 2018; Zhen-yan, 2012). Parameter assessment of the properly chosen model is made by most extreme probability, which is a regularly utilized technique for assessment. Finally, the general adequacy of the model is checked so that no further modeling of time series is required. Let  $\{y_t\}$  with  $t = 1, 2, \dots, n$  be a classical time series. The ARIMA ( $p$ ,  $d$ ,  $q$ ) model is given by the following equation:

$$(1) \quad \Delta^d y_t = \mu + \sum_{i=1}^p \phi_i y_{t-i} + \sum_{j=1}^q \theta_j \varepsilon_{t-j}$$

where  $\Delta^d$  represents the  $d$  order difference,  $\mu$  is constant,  $\sum_{i=1}^p \phi_i y_{t-i}$  is the AR( $p$ ) model (i.e., lagged values of  $y$ ), and  $\sum_{j=1}^q \theta_j \varepsilon_{t-j}$  is the MA( $q$ ) model (i.e., lagged errors).

### 4.2.1 STATIONARITY TEST

ARIMA Model recommended that the factors utilized in the model must be fixed. The variables associated with our model have the time series attributes. It is seen that the mean of the intrigued factors is not

fixed after some time. To make them consistent the regular logarithm was taken. It very well may be seen the conduct of GDP information when taking the characteristic logarithm of the information in Figures 8 and 9. Moreover, Table 1 shows that the  $ADF = 1.116678$  is greater than the critical values of 1%, 5%, and 10% significance levels. Moreover, the p-value is exceeding 0.05. Therefore, the original AGDP sequence is non-stationary. Subsequently, taking the normal logarithm of the AGDP data to exclude it is unstable and obtain the LAGDP sequence. It can be seen that the ADF and p-values are greater than 0.05 (critical value). Which implies the GDP connection cannot reject the null hypothesis. Accordingly, the variance of first-order is accomplished, and a DAGDP succession is found.

The ADF test results for the DAGDP sequence are provided in Table 1. The  $ADF = -5.113698$  less than the critical values and, the  $p\text{-value} = 0.0001 < 0.05$ , which indicates that the series is fixed after changing the logarithmic and taking the variance of the first-order.

FIGURE 8  
The AGDP Over the Period 1968-2019

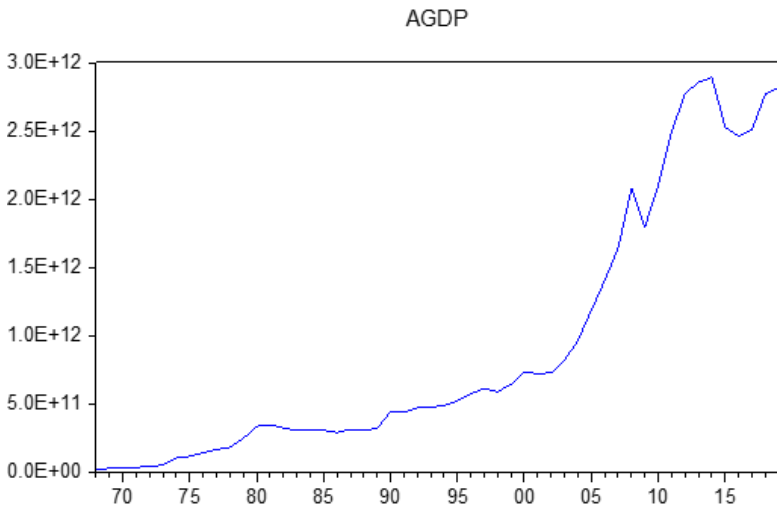




FIGURE 9  
The LAGDP Over the Period 1968-2019

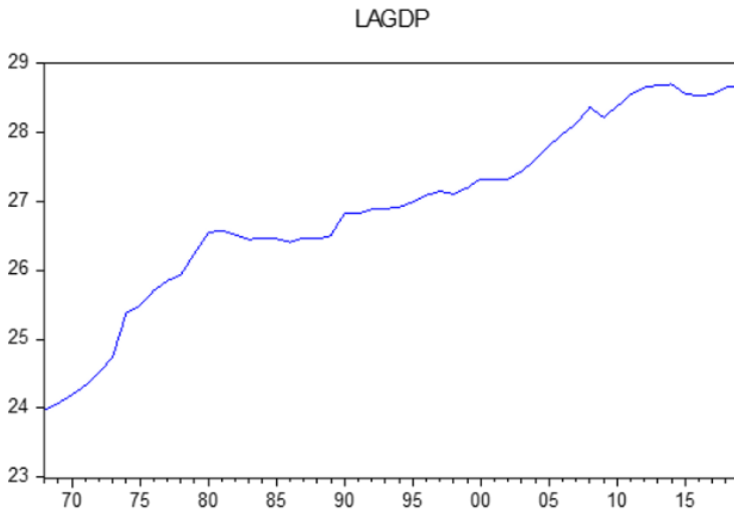


TABLE 1  
Unit Root Test

Null Hypothesis: AGDP has a unit root		AGDP Unit Root Test	D(LAGDP) Unit Root Test
		t-Statistic	t-Statistic
		Prob.*	Prob.*
Augmented Dickey-Fuller test statistic		1.116678	-5.113698
Test values:	critical		
	1% level	-3.565430	-3.568308
	5% level	-2.919952	-2.921175
	10% level	-2.597905	-2.598551

\*MacKinnon (1996) one-sided p-values.

#### 4.2.2 MODEL IDENTIFICATION

The autocorrelation coefficient of the LAGDP in Table 2 shows progression is essentially non-zero when the slack demand is one.

TABLE 2  
The Best Selected ( $p, q$ ) Specifications

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
.  *****	.  *****	1	0.941	0.941	48.730	0.000
.  *****	. * .	2	0.876	-0.078	91.831	0.000
.  *****	.  .	3	0.817	0.017	130.08	0.000
.  *****	.  .	4	0.758	-0.040	163.66	0.000
.  *****	. * .	5	0.692	-0.084	192.30	0.000
.  ****	. * .	6	0.608	-0.199	214.88	0.000
.  ****	. * .	7	0.518	-0.107	231.59	0.000
.  ***	. * .	8	0.426	-0.084	243.18	0.000
.  **	.  .	9	0.344	0.011	250.90	0.000
.  **	. * .	10	0.279	0.111	256.10	0.000
.  **	. * .	11	0.226	0.089	259.60	0.000
.  *	. * .	12	0.159	-0.136	261.37	0.000

Besides, the parameter  $q$  can be seen as one because the requested lag is more critical than one. The halfway autocorrelation coefficient is nonzero when the slack request is equivalent to one, it is additionally unique according to zero when the lag order is two, along these lines  $p = 1$  or  $p = 2$  can be assumed. To set up a more rigorous model, the extent of valuations of number of autoregressive terms and moving average terms (i.e.,  $p$  and  $q$ ) is properly loose, besides divergent ARIMA ( $p, d, q$ ) models are demonstrated. Table 3 illustrates the ARIMA test consequences of several  $p$  and  $q$  parameters and  $d$  equal one.

The Akaike info criterion (AIC) and the Schwarz criterion (SC) standards are utilized to decide the best model. Although the convenient ARIMA model is typically chosen based on the result of the AIC and the SC esteem. Reducing the AIC and the SC values are insufficient to choose the best ARIMA model. Following the researchers (Ma et al., 2018; He and Tao, 2018; Zhen-yan, 2012), this work first creates a model with the minimized AIC and SC values. After that, the significance parameter and residual tests were done on the assessment result. The model considered the optimal, if it passes the test. Table 3 reports the model that had success in the tests mentioned above specified via “\*”.

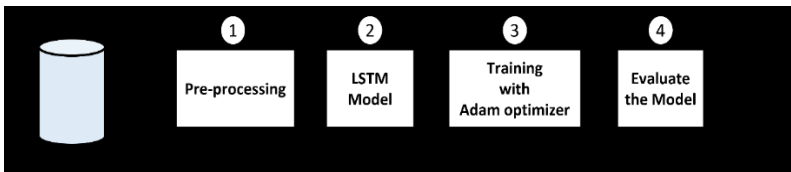
TABLE 3  
The Model Results

$(p, d, q)$	Adjusted R-squared	Akaike info criterion	Schwarz criterion	Standard error of regression
(0,1,1)	0.047704	-1.238153	-1.162395	0.127808
(0,1,2)	0.021562	-1.211072	-1.135314	0.129550
(1,1,0)	0.065128	-1.235668	-1.159187	0.127919
(1,1,1)	0.019286	-1.167252	-1.090035	0.132318
(1,1,2)	0.143862	-1.304699	-1.189978	0.122414
(2,1,0)	0.056157	-1.207171	-1.092450	0.128531
(2,1,1)	0.053341	-1.183284	-1.067458	0.130001
(2,1,2)*	0.244115	-1.408334	-1.292508	0.116165

### 4.3 LSTM MODEL

Recurrent Neural Network (RNN) with LSTM cells is utilized in this paper. LSTM networks are a state-of-the-art technique for sequence learning, which can capture nonlinear values in the dataset (Yu et al., 2019). The framework of our prediction LSTM-based model is illustrated in Fig. 10. First, data pre-processing is performed. Second, the architecture of the LSTM model is presented. Third, the model was trained and tested based on the Adam optimizer. Finally, forecast GDP for the coming years was made. Each step of the LSTM model is described in the following subsections.

FIGURE 10  
A Framework of the Proposed LSTM-based Model



#### 4.3.1 DATA PREPROCESSING

To convert unrepresentative raw feature vectors into a format better suited for downstream estimators, there are several widely used utility functions and transformer classes i.e., scalars, transformers,

and normalizers on a dataset. In general, standardizing the data set is advantageous for learning algorithms. Robust scalers or transformers are preferable if there are any outliers in the collection.

To scale each feature's maximum absolute value to one unit, or to a value between a predetermined minimum and maximum value, usually zero and one, we used min-max normalization. This technique converts a value  $a$  to  $\hat{a}$  in the range of  $[max\_new - min\_new]$  as follows:

$$(2) \quad \hat{a} = \frac{a - a_{min}}{a_{max} - a_{min}} \times [max\_new - min\_new] + min\_new;$$

where from  $min\_new$  to  $max\_new$  denotes the range of the transformed values. We implemented  $min\_new = 0$  and  $max\_new = 1$ . After that, these transformed values were used as input for the LSTM architecture. Table 4 shows a sample from our data after the min-max normalization.

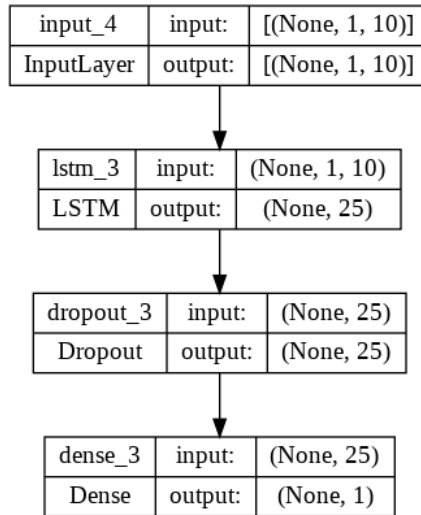
TABLE 4  
A Sample of Scaled GDP

GDP without Normalization	Normalized [0, 1]
2.842922e+10	0.00088511
3.201348e+10	0.00213533
3.704523e+10	0.00389044
4.418232e+10	0.00637990

#### 4.3.2 MODEL ARCHITECTURE

The LSTM-based model consists of four layers: 1) input layer with ten observations, 2) LSTM that employs 25 LSTM units, 3) a dropout layer was used. Dropout is a useful method for performing standard layouts using neural networks, and 4) ReLU was employed in the dense layer and the Adam optimizer (Kingma and Ba, 2014) was utilized for gradient-based optimization, and the learning rate was modified by incorporating knowledge from prior observations. Figure 11 shows a simplified architecture of the LSTM-based model.

FIGURE 11  
The Architecture of the LSTM-based Model



#### 4.3.3 MODEL TRAINING SPECIFICATION

In the experiment, we performed the train/test holdout validation. The data were split into 90% for training and 10% for testing. The model was trained on 37 records and tested on the remaining 5 as unseen data. The best set of hyper-parameters of LSTM-based model is shown in Table 5. The software environment used to conduct the LSTM-based model was Python 3. All experiments were conducted on the Linux-based Google Colab (an online browser-based platform). The platform provides 12.68 GB of RAM and an Intel(R) Xeon(R) CPU @ 2.20GHz.

TABLE 5  
Hyperparameters of the Proposed LSTM-based Model

Hyperparameters	Value
Total trainable parameters	3,626
Learning rate	0.00001
Batch normalization	True
Batch size	16

TABLE 5 (continued)

Hyperparameters	Value
Activation function	ReLU
Optimizer	Adam
Epochs	500
Loss function	MSE
Hidden layers	25
Dropout	True (0.1)
Feature scaling	True [0,1]

#### 4.3.4 MODEL EVALUATION

To evaluate the LSTM-based model, Mean Squared Error (MSE) and Mean Absolute Error (MAE) are used. For a sample of  $n$  data  $X$ , the MSE and MAE for the predicted  $\hat{X}$  are calculated as follows.

$$(3) \quad \text{MSE} = \frac{1}{n} \sum_{i=1}^n (X_i - \hat{X}_i)^2$$

$$(4) \quad \text{MAE} = \frac{1}{n} \sum_{i=1}^n |X_i - \hat{X}_i|$$

The results for each model are discussed in the following section.

## 5. RESULTS AND DISCUSSION

### 5.1 ARIMA MODEL RESULTS

The assessed consequences of the use ARIMA model as following. The LAGDP sequence is an ARIMA (2, 1, 2) has been shown in Table 6.

TABLE 6  
Statistical Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.054324	0.012700	4.277555	0.0001
AR(2)	0.763159	0.072711	10.49582	0.0000
MA(2)	-0.953625	0.021539	-44.27377	0.0000

TABLE 6 (continued)

R-squared	0.275610	Mean dependent var	0.091361
Adjusted R-squared	0.244115	S.D. dependent var	0.133613
S.E. of regression	0.116165	Akaike info criterion	-1.408334
Sum squared resid	0.620742	Schwarz criterion	-1.292508
Log likelihood	37.50418	Hannan-Quinn criter.	-1.364390
F-statistic	8.750864	Durbin-Watson stat	1.700697
Prob(F-statistic)	0.000602		
Inverted AR Roots	.87	-.87	
Inverted MA Roots	.98	-.98	

In addition, the Equation (5) illustrates the specified shape of the model. Besides, the  $t$  values of all the model variables are significant and the probabilities are less than 0.05. Moreover, Equation (6) illustrates the estimated error of regression.

$$(5) \quad 0.0543240983193 + [\text{AR}(2) = 0.763158600329, \text{MA}(2) = -0.953625457432]$$

$$(6) \quad \hat{\sigma}_a = 0.116165$$

Figure 12 reports that the model is utilized to suitable the LAGDP information. Genuine information is offered through the inflexible lines, and the superior and inferior dabbed lines orchestrate to fit, values lingering of the model. In addition, Table 7 outlines the AC and PAC results that our model is satisfactory.

FIGURE 12

The LAGDP Sequence: Actual, Fitted, and Residual Series

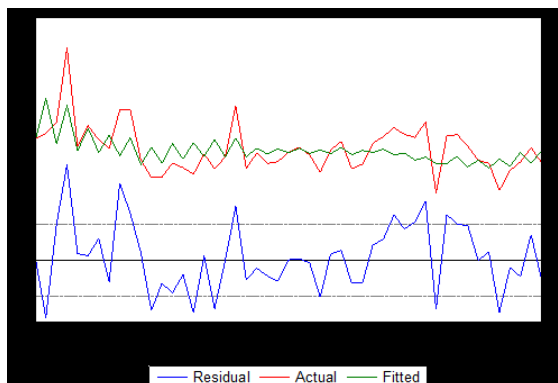
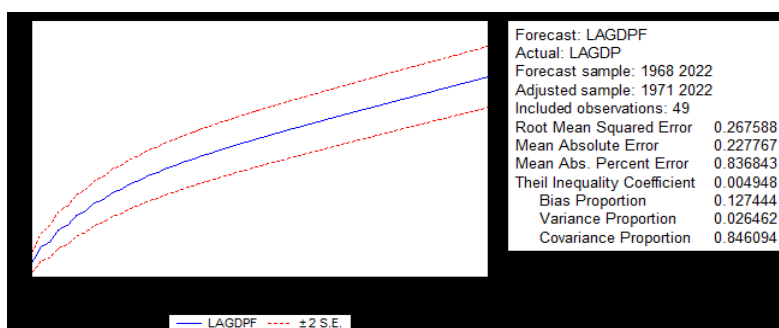


TABLE 7  
The Residual Series

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
. * .	. * .	1	0.140	0.140	1.0225	
. .	. .	2	0.037	0.017	1.0943	
. .	. .	3	0.030	0.023	1.1425	0.285
. .	. .	4	0.024	0.017	1.1750	0.556
. .	. .	5	0.042	0.036	1.2772	0.735
. * .	. * .	6	0.181	0.172	3.1770	0.529
.* .	.* .	7	-0.130	-0.189	4.1761	0.524
.* .	.* .	8	-0.186	-0.163	6.2759	0.393
** .	** .	9	-0.244	-0.220	10.003	0.188
. .	. * .	10	0.030	0.112	10.062	0.261
. .	. .	11	-0.018	-0.015	10.084	0.344
.* .	** .	12	-0.174	-0.207	12.138	0.276

Figure 13 delineates the forecast of the Arab world GDP for the ARIMA model. The plot got with the EVIEWS program shows the genuine GDP with strong line and the upper and lower ran line shows the anticipating deviation. The MSE and MAE are 0.071604 and 0.227767, respectively, which are rather large values.

FIGURE 13  
LAGDP: Forecast and Actual for the ARIMA Model



## 5.2 LSTM MODEL RESULTS

The results of MSE and MAE are reported in Table 8. Moreover, the learning curves for training data (i.e., over the period 1968-2014) are shown in Fig. 14. Finally, the actual and predated GDP for the training data is shown in Figure 15. The results demonstrate that the



LSTM-based model has a small MSE and MAE. Therefore, it is suitable to use it in the prediction.

TABLE 8  
Evaluation of the Proposed LSTM-Based Model

Metric	Value
Mean Squared Error	0.00072753
Mean Absolute Error	0.02016051

FIGURE 14  
The Learning Curves for Training Data Using LSTM-Based Model Over the Period 1968-2014

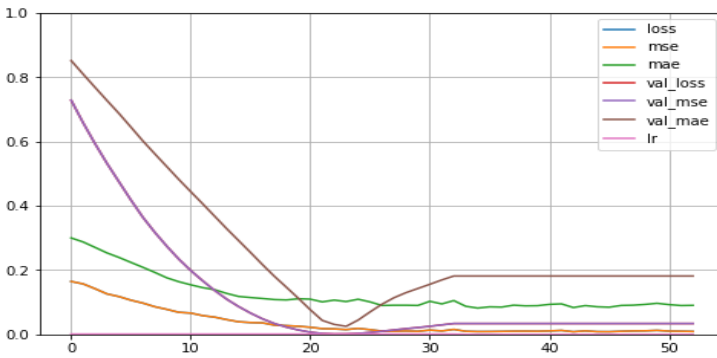
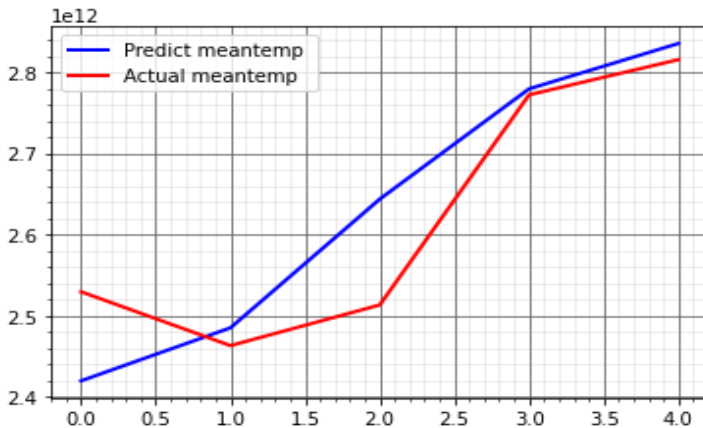


FIGURE 15  
The Actual and Predated GDP for the Testing Data (i.e., Over the period 2015-2019)



## 5.3 FORECASTING RESULTS AND DISCUSSION

In this subsection, we compare our two models with two prediction models from the literature: LSTM with Random Forest (RF) (Ghosh, Neufeld, and Sahoo, 2022), and GRU (Li et al., 2020) to test the efficacy of the proposed models. The MSE and MAE of the proposed prediction model and related works are listed in Table 9. Our LSTM-based model outperformed all the models and reached the lowest MSE and MAE of 0.000727 and 0.020160, respectively.

TABLE 9  
Evaluation of the Prediction Models on the Arab World GDP

Model	MSE	MAE
LSTM+RF (Ghosh, Neufeld, and Sahoo 2022)	0.356997	0.288853
GRU (Li et al. 2020)	0.023869	0.148918
ARIM (our)	0.071604	0.227767
LSTM (our)	0.000727	0.020160

LSTM-based model is more fitted than ARIMA model to the actual data. Therefore, we used LSTM-based model to predict the values that the Arab world GDP was supposed to have in the absence of COVID-19 and compare it with the actual value that appeared in 2020 after the impact of the pandemic. Table 10 reports the GDP of Arab World in USA Dollar over the period from 2018 to 2021 using LSTM-based model. There is a difference of up to 17.22% between the value without the impact of COVID-19 (i.e., LSTM-based model) and with it (i.e., Actual GDP).

TABLE 10  
Arab World GDP in USA Dollar (from 2018 to 2021) using LSTM-Based Model

Year	Actual (World Bank)	LSTM	Residual	Present
2018	2.77202e+12	2.77944e+12	7.41530e+09	00.27%
2019	2.81541e+12	2.83525e+12	1.98396e+10	00.70%
2020	2.49625e+12	2.92599e+12	4.29740e+11	17.22%
2021	2.85042e+12	3.00450e+12	1.54080e+11	05.41%

In the final experiment, we train the LSTM-based model with the full data of Arab world GDP over the period 1968-2020, which contains the year of impact of the pandemic 2020. The learning curves for training data (i.e., over the period 1968-2020) are shown in Fig. 16. The MSE and MAE are 0.000000598 and 0.000245, respectively, which indicates the model efficiency. Finally, the prediction of Arab world GDP from 2019 to 2025 is reported in Table 11. Since the model is very similar to the truth, if we consider that the effect of the pandemic, it led to approximately 11.11% decrease in the Arab World GDP. Moreover, the GDP growth rate started increasing again from 2021, and this is what the statistics monitored by the World Bank revealed. Thus, the model reports that the growth rates are 14.22%, 0.10%, 1.85%, 1.24%, and -1.47% for 2021, 2022, 2023, 2024, and 2025, respectively.

FIGURE 16  
The Learning Curves for Training Data Using LSTM-Based Model Over the Period 1968-2020

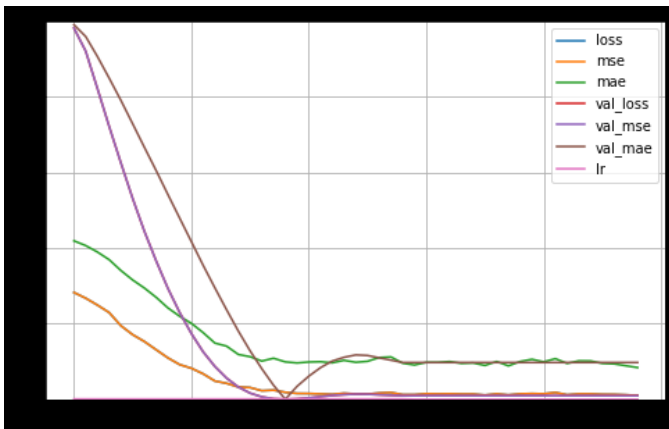


TABLE 11  
Arab World GDP Forecast in US Dollar (from 2019 to 2025)

Year	Actual (World Bank)	LSTM	Variation	Growth rate
2019	2.808198e+12	2.808198e+12	-	-
2020	2.496251e+12	2.496251e+12	-3.119470e+11	-11.11%
2021	2.850421e+12	2.851116e+12	3.548650e+11	14.22%

TABLE 11 (*continued*)

Year	Actual (World Bank)	LSTM	Variation	Growth rate
2022	NA	2.854026e+12	2.910000e+09	0.10%
2023	NA	2.906768e+12	5.274200e+10	1.85%
2024	NA	2.942932e+12	3.616400e+10	1.24%
2025	NA	2.899577e+12	-4.335500e+10	-1.47%

## 6. CONCLUSION

Presently, the novel Coronavirus scourge is yet in progress, forestalling an exhaustive investigation of its full effect. In any case, given preventive steps taken by the Arab world, the main endeavor has been made to assess the economy's probabilities sway in the medium term. This paper's primary contribution is proposing a model for forecasting and examining time frames that authentic patterns are rendered inaccurate because of the recent pandemic. As it was referenced, the pandemic's trend shift phenomena making the entirety of the models created utilizing the historical trends useless. Thus, this paper presented two models for predicting: the statistical Autoregressive Integrated Moving Average (ARIMA) model and the deep learning-based model (i.e., Long Short-Term Memory (LSTM)-based model), which is considered suitable for the time-series data of the countries. The Gross Domestic Product (GDP) data of the Arab countries over the period 1968-2019 is used for evaluating the proposed models.

The results demonstrate that the proposed LSTM-based model outperformed the ARIMA, LSTM with Random Forest (RF) (Ghosh, Neufeld, and Sahoo, 2022), and Gated Recurrent Unit (GRU) (Li et al., 2020) models and reached the lowest Mean Square Error (MSE) and Mean Absolute Error (MAE) of 0.000727 and 0.020160, respectively. The proposed LSTM-based showed that there is a difference of up to 17.22% between the value without the impact of COVID-19 (i.e., LSTM-based model) and with it (i.e., Actual GDP). Moreover, we train the LSTM-based model with the full data of Arab world GDP over the period 1968-2020, which contains the year of pandemic impact 2020. The results predicted that the Arab world GDP growth is approximately 14.22%, 0.10%, 1.85%, 1.24%, and -1.47% for 2021, 2022, 2023, 2024, and 2025, respectively.

The following are some of the limitations of this research: First, there is not finished data to investigate the crisis thoroughly and explore its full range and multi-dimensional effects. Second, the available data size is very small, and the model efficiency will be enhanced with the increase in data size. Third, lack of previous research regarding the economy of the Arab world.

More studies need to be conducted to address the limitations of the proposed models in the future. First, to overcome small-data limitations in GDP prediction, we plan to use in future work surrogate data or merging different datasets. Second, the recent crisis and the closing down of the ventures show the importance of the transition to a digital economy. Finally, the additional volume of data with high-level accuracy is required to improve and develop precise and robust models to attain projections with a reduced amount of margin of error. Moreover, further study can be carried out for improving the model performance.

#### ENDNOTES

1. World Bank (2020) forecasts a 5.2 percent contraction in global GDP. Similarly, OECD (2020) forecasts a fall in global GDP by 6 percent to 7.6 percent, depending on the emergence of a second wave of COVID-19.
2. <https://data.albankaldawli.org/region/arab-world?view=chart> , October 2022.
3. <https://data.albankaldawli.org/indicator/NY.GDP.MKTP.CD?~locations=1A>, October 2022.

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## **ACHIEVEMENT MOTIVATION IN ISLAMIC MANAGEMENT PRACTICES: DEVELOPING A SCALE AND VALIDATION**

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### **ABSTRACT**

Existing research on the relationship between work ethics and various religious faiths is growing. One of these work ethics is work motivation. This article aims to discuss the concept of the need for achievement as *Islāmic* motivation. In addition, this study intends to introduce a series of further implementations of achievement motivation theory according to the *Islāmic* perspective. We obtained data from 324 members of several sales teams of the Indonesian *Islāmic* organization to validate the measurement. Our research revealed 15 indicators that measure achievement motivation from an *Islāmic* viewpoint. Researchers and experts may utilize the findings when designing, establishing, and applying relevant job motivation from a religious standpoint so that spirituality can increase constantly in the entire workforce. Furthermore, this study provides guidelines to leaders of *Islāmic*-based institutions to motivate their sales force by considering *Islāmic* work ethics and religiosity.

JEL Classification: M12, M31, M53

Keywords: Achievement motivation theory, *Islāmic* work ethic, *Islāmic* religiosity

Submitted: 17/07/2021    Accepted: 05/05/2024    Published: 28/06/2024

### **1. INTRODUCTION**

Discussing about employee is not detached from its behaviour performance. Behavioral performance indicates how well the employee carries out various activities. Understanding workforce

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motivation is crucial because this motivation is suspected to cause difference in performance between people. Not all employees who have good performance are able to reach the work target even though each has been given a total human reward (retrained, motivated, rewarded) in the same way. In addition, the relationship between team members is often influenced by the individual doubts related to their career path. They doubt, if they have done their best, whether they stay with the team forever. These concerns eventually lead to a culture of individualism and bring about a paradox of autonomy, where employees desire to be part of an organizational unit while retaining a separate identity from the unit (Polley and Ribbens, 1998).

This study is essential for some reasons. First, subjective factors such as the individual pursuit for higher objectives, individual meaning, and extraordinary worth (transcendent value) are relevant in organizational settings. Second, scholars believe that religiosity will add positive value to organizational reality by means of the management process. Third, motive is the intention or trigger for an action, whereas motivation is any reason (conscious or unconscious) that induces a person to take a specific action or aim at achieving a specific goal (Hausser, 2014). Many forms of motivation exist, including extrinsic, intrinsic, psychological and performance motivation. Individuals will meet their needs through different means, for various reasons both internal and external (Chetri, 2014). A person with accomplished motivation needs to be extraordinary. Based on the literature on motivation, it can be concluded that most studies focus on individual motivations, such as the achievement of high values in academics (Weissgerber and Schindler, 2016; Chetri, 2014; Bakadorova and Raufelder, 2014) and increased target of individuals in sales (Khan, Breitenacker, and Schwarz, 2015; Soyer et al., 1999). Studies on the need for achievement from a team perspective are rare. Based on some such studies (e.g., Howard et al., 2016; Chedli, Mariem Kchaich, 2016; Sung and Choi, 2009; Soyer et al., 1999), it can be concluded that people who need to accomplish the best return just spotlight on themselves and have no common exertion to push ahead together, help each other and strengthen each other.

Fourth, it is believed that people disregard religious beliefs. In *Islām*, working is seen through the lens of *Islāmic* ideals. The spirit of togetherness refers to interpersonal relationships among team members. According to Yu et al. (2013) the cooperative standard, which is an eagerness to appreciate the variety, receptiveness to basic intuition, trust for reciprocation, and collaboration, will be built on the team through interpersonal relationship. The power of this

congregation is amazing as a performance lever. This statement is supported by the word of Allāh *'azza wa jalla* that “congregation (unified) affection (mercy) and split the Torment” Holy *Qur'ān* (*Al-Imron*:102-103). “*Innamal Mu'minuuna Ikhwatun*” Holy *Qur'ān* (*Al-Hujurah*:10), “Indeed, fellow *Muslims* are brothers.” *Islāmic* values in the theory of motivation makes the spirit more powerful and more meaningful because it contains three duals, namely: Dual relationship (*habluminnallah and habluminnannas*), dual dimension of times (in the world and hereafter) and dual empowering (self-empowering and empowering others).

Self-empowering is an individual's spirit to empower himself or herself to achieve the best performance. Achieving the best results is intended in worship. As stated in the Holy *Qur'ān* at *Al-Qashash*, 28:77, Allāh *'azza wa jalla* says: “but seek the home of the hereafter by means of that which God has bestowed on you; do not forget to take your portion of the hereafter in this world. be good to others as God has been good to you and do not strive for evil in the land for God does not love the evil-doers.” On the other hand, individuals also should empower others, namely the spirit of team members who work to empower their colleagues through activities to invite and help them achieve the best results. The inviting activity is still at the level of preaching orally, while the activity of helping is already at the level of action.

Motivation for achievement in *Islām* is highly recommended. This is sought in the Holy *Qur'ān* (*Al-Jumu'ah*:20); (*Al-Insyirah*:5-8). This means, *Islām* encourages its believers to do their best, but after that, the results are left to Allāh *'azza wa jalla*. In addition, *Islāmic* motivation did not depend on egoism, but rather on worship that prompts dedication to Allāh *'azza wa jalla*. Allāh *'azza wa jalla* will not change the condition of a people until they change what is in themselves. In the Holy *Qur'ān* in *As-Saff* verses 2 and 3, Allāh *'azza wa jalla* says, “O you who believe, why do you say something you do not do? It is very detestable in the sight of Allāh.” Then, in the Holy *Qur'ān* at *Al-Muddassir* verse 6, Allāh *'azza wa jalla* says: “And do not give (Muhammad) to get more in return”. And help one another in virtue and piety and do not help one another in sin and transgression (Holy *Qur'ān*, *Al Ma'idah* verse 2). Whoever relieves a believer in worldly trouble, Allāh *'azza wa jalla* will relieve him of hardship on the Day of Resurrection (Narrated by *Muslim*). Allāh *'azza wa jalla* will help his servant as long as the servant aids his brother. A *Muslim* and another *Muslim* are family (Narrated by Bukhari). If traditional

motivation achievement contains components of rivalry, in *Islām*, others are regarded more as collaborators.

The investigation expects to present the basic element of achievement *Islāmīc* motivation theory which we name as *Islāmīc* Vanguard Spirit and establish the scale measurement. We utilized previous instrument components as a guide to build the proposed measure. The consequence of this study improves the literature of IWE (*Islāmīc* Work Ethic) by considering religiosity's role at the organizational level instead of spirituality at the personal level.

## 2. LITERATURE REVIEW

### 2.1 WORK MOTIVATION

Most organizations, in general, fail to maintain a sustainable long-term relationship with their sales force. This happens because individuals in the organization feel that the organization has not paid attention to their welfare. This causes salespeople to have low commitment, low performance and failure to achieve organizational goals. A salesperson in a marketing team is more motivated to achieve personal goals than to achieve common organizational goals (Deci et al., 2001).

Emergence of negative perceptions from the sales force will further impact by decreasing sales compensation to a reduction in sales force. This phenomenon has negative impact on organizational commitment and the enthusiasm and motivation of salespeople who are still able to survive in the organization due to the increasing workload and higher pressure to improve performance. Even if the organization's conditions improve at some point, pessimistic salespeople perceptions may still linger. Organizational leaders and managers are required to understand the level of frustration they experience as a result of the difficulties faced from the previous work environment. Organizations need to review how they manage their sales team and at the same time better understand individual behavior, motivation and personality.

Salespeople who succeed in achieving sales targets, especially in difficult situations, are able to maintain internal motivation within themselves to maintain strength, compared to those who focus only on external conditions. It can be argued that the fulfillment of salesforce needs tends to come from achievement of internal drives. The need for achievement will be very beneficial for the organization. Several studies have shown that high enthusiasm to

meet the need for achievement of salespeople is related to achieving goals (Barrick, Mount, and Strauss, 1993), increased organizational commitment (Al-Mahdi et al., 2017), and increased sales performance (Miao, Evans, and Shaoming, 2007). In service organizations, attracting and retaining customers is a daunting task. Empowering employees psychologically will help them take proactive actions to serve customers better. The objective of this article is to study the influence of motivational needs on psychological empowerment. The independent variable is motivational need (need for growth, achievement, power and affiliation). Therefore, organizations require deep understanding of which salespeople have a high demand for achievement with potential to improve their performance and their organizational commitment.

## 2.2 ACHIEVEMENT THEORY

Motivation is crucial for an organization because it improves performance. In this context, organizational success is increasingly dependent on management and leadership including keeping employees motivated (Ferreira, 2017). Motive is the cause or reason for an action, while motivation is the reason (conscious or not) that causes a person to perform a specific action or tends to achieve a certain goal (Hausser, 2014). Many forms of motivation exist, including extrinsic, intrinsic, psychological and performance motivation. Individuals will meet their needs through different means, for various reasons both internal and external (Chetri, 2014). Motivation theory was advanced by David McClelland who was renowned for his theory of need for achievement, stating that the motivation differs according to the person's strengths and needs of accomplishment. Individuals have a potential energy reserve; how this energy is released and developed depends on the strength or encouragement of individual motivations, situations and opportunities available. According to the expectancy-value theory by Atkinson et al. (1960). An individual's achievement motivation depends on two elements namely inclination to succeed and failure prevention. Achievement motivation is called high when the desire for success is greater than fear of failure. Self-motivation can be interpreted as a desire to do the work accompanied by an individual's ability to achieve a business goal.

Maslow's theory illustrates the origin of the basic human need theory with 5 levels of a pyramid. The theory proposes that the five types of needs are fulfilled sequentially and relate to each other in the hierarchy. The bottom most level means the current most urgent needs that must be met before the next need, in this order: Physiological needs, security needs, social needs, appreciation needs, and self-actualization needs. Then the Maslow theory changes with 7 levels of need detailed as follows: Biological and physiological; Safety and protection; ownership and love; self-esteem; Cognitive; Aesthetic; Self-actualization and transcendence. The need for transcendence-for example: helping others to achieve self-actualization.

Furthermore, there is a two-factor theory from Herzberg stating that two factors affect a person's work motivation, namely the motivator factor (the fertilizer) and the hygiene factor (health). Maslow's theory speaks about the need to be met to motivate a person, while Herzberg's theory talks about the cause of contentment and dissatisfaction in achieving the efforts to work and to achieve factors that lead to motivation and demotivation.

Based on the definition of motivation theory it can be concluded that the existing motivation theory is only focused on individual achievement and does not involve other parties either in its input, process or output. So far, in general the urge to achieve success has not been based on the intention to worship so that success is only based on worldliness. In *Islām*, the intention of worship should be the basis of all human activities. Allāh 'azza wa jalla said in the Holy *Qur'ān* (*Adz-Dzariyaat*: 56) "I have not created the jinn and mankind except that they worship Me." The main motivation of a Muslim is the need for worship, spirituality and *hidayah* where the three are interconnected, meaning that the fulfilment of one need will meet other needs. The absence of intention of worship leads to a success standard only seen from the "eyes themselves" and "the eyes of others" but ignores the "The eyes of Allāh 'azza wa jalla." It is the standard that ultimately color all the spirits in achieving success in the perspective of conventional motivational theories, such as: Focus on personal excellence, resource inefficiencies, selfishness, neglect of ethical behavior, no encouragement of others, emphasizing competition rather than cooperation that led to rivalry between each other and no spirit of learning. Therefore, conventional motivation theory needs to be intervened with an approach to *Islāmic* values. Internalization of *Islāmic* values in the theory of motivation empowers the spirit and gives meaning because it contains three duals, namely:

Dual relationship (*habluminnallah* and *habluminnannas*), dual dimension of time (in the world and hereafter) and dual empowering (self-empowering and empowering others).

### 2.3 THE ISLĀMIC VALUES OF WORK MOTIVATION

*Islām* as the *deen* or way of life is a perfect religion, does not require additional, any deduction or alteration from anyone. *Islām* gives a complete arrangement of living that is established in ethics, and as adherents' guidance in all everyday issues including social and monetary life. *Islāmic* religion is universal, meaning it can pass the time limit, space and culture, can be followed anytime, anywhere and for anyone. *Islāmic* religion is a religion that follows the journey of the universe until the end times. *Islām* implies submission to God.

To be submissive to God, one must, as a matter of first importance, have a firm trust in God's presence. Then, at that point a person must understand that God is Almighty (*Tauhid*), there is just a single God who is the maker, ruler, and caretaker of the Universe. Unlike the concept of Western religiosity, *Muslims* make *al-Qur'ān* and *al-Hadeeth* as their "way of life." Both books teach that in working one only expects the blessing of Allāh *'azza wa jalla* (Sharabi 2012). For a *Muslim*, work is worship (Pfeffer and Veiga, 1999; Zahrah et al., 2016). It is to gain the reward of Allāh *'azza wa jalla* and avoid His punishment. The obligation of work is not detached from human position as caliph to prosper the earth. To manage the Earth, Allāh *'azza wa jalla* gives the facility by subjecting the Earth and its contents to human beings. Submission of this Earth is potential so people must endeavor to explore and sustain it. For that purpose, work becomes mandatory.

Work is a part of worship. Worship is defined as "humanism theocentric" in *Islāmic* teachings. That is, every act of worship in *Islām* is focused on the pursuit of blessings from Allāh *'azza wa jalla*, but the benefits are to all humans. Submission to Allāh *'azza wa jalla* in the dimension of rulings or *habluminnannas* is reflected by complying with all of His rules. Allāh *'azza wa jalla* said: "And if the people of the land have faith and fear, surely we will bestow upon them the blessings of heaven and earth..." (Holy *Qur'ān. Al-A'raf: 96*). The relationship between human beings in the link is not explained in detail, but it is handed over to man regarding his form. *Fastabiqul khoirat* is the concept of *Islām* that wants all mankind to do great



behavior, not to defer, and to continuously make repairs. Assuming other people also do the same thing, then they seek to do the best quality and sustainable work. *Islām* recognizes the term ‘*Adwamuha wa in qalla*’ (sustainability).

## 2.4 THE MEANING OF ACHIEVEMENT IN *ISLĀM*

Individual spirits always strive to do their utmost. Individuals who work solely for seeking the blessing of Allāh ‘*azza wa jalla*’ believe that working is obligatory for all Muslims and that work is one of the manifestations of a *Muslim's* obedience to God. Therefore, the individual, will always be eager to work as well as possible to the standard of goodness in *Islām* depending on the principles of *Islām* (Holy *Qur’ān* and *Al-Hadīth*; *Al-Aidros*, Shamsudin, and Idris 2013), thus giving the best is viewed from the hereafter world. Something that is done and gained in the world is just as *wasilah* for the afterlife. An individual is always eager to provide the best by using available resources as efficiently as possible. Wastefulness is something banned in *Islām* (Holy *Qur’ān. Al-Furqon: 67*). On the other hand, in the presence of humans, one must perform better by carrying out tasks, reaching the set objectives, avoiding mistakes, having a strong work ethic, and offering comprehensive service. In addition, *Muslims* believe that what they are doing is in the supervision of God (*Ihsan*) so that they must do their best (Zahrah et al., 2016). Allāh ‘*azza wa jalla*’ said in the Holy *Qur’ān. Al-Hadid:4*: “And He is with you wherever you are. God has seen what you do.”

Individuals who are enthusiastic about performing the best behaviors with intention of worship are conscious that every activity is under the constant monitoring of Allāh ‘*azza wa jalla*’ (*Ihsan*) and as a result they work professionally. But in the process of achieving the best results, they use their power efficiently because waste is prohibited in *Islām*.

## 3. METHOD

### 3.1 SAMPLE

Snowballing-effect sampling technique with purposive (non-probability) sampling was used to select the respondents. The use of non-random sampling technique was due to unknown total population, hence obviating random sampling. The questionnaire was distributed

to 407 participants from *Islāmic*-based institutions in Indonesia. We only chose *Muslims* with more than two years of employment in their organizations – in light of the items that were established using *Islāmic* terms derived from the *Qur'ān* and the *Sunnah*. After a few months, 324 usable questionnaires (85.5%) were returned.

We also consulted with a panel consisting of six experts in the field of management science and *Islāmic* worldview, three sales managers, and three *sharia* insurance agents through Focus Group Discussion (FGD) to test the validity of the recommended scale. We chose *Muslim* scholars depending on their cooperation in the *Islāmic* University Association, and *Islāmic* organization board committee. Also, we recruited instructors from *Islāmic* studies department who specifically teach *Qur'ān* lessons.

### 3.2 MATERIALS

Characterizing the *Islāmic* Vanguard Spirit began with a review of current measurement of Achievement Motivation Theory (AMT). We utilized the current instrument elements as a benchmark in fostering the proposed measurement of *Islāmic* Vanguard Spirit as AMT from the *Islāmic* perspective .

We utilized four essential sources as the reason for establishing instruments. Scholars have consistently thought *Al-Qur'ān* to be the essential legitimate wellspring of *Islāmic* statute, while *Sunnah* – disclosure enhancing *Al-Qur'ān*– comprises of clarifications from Prophet Muhammad (*ṣal-Allāhu 'alayhi wa sallam*) as far as his discourse, behaviors, and silence that have generally explained matters not referenced in *Al-Qur'ān*. Following Prophet Muhammad's (*ṣal-Allāhu 'alayhi wa sallam*) demise, *Muslim* law specialists collected information and arrived at an agreement, known as *Ijma*, to *Islāmic* laws that ought to be passed down to people in the future. *Ijtihad*, or law specialist understanding of specific issues based on current reality, is the final source of *Islāmic* jurisprudence.

### 3.3 PROCEDURE

In order to design the concept, a few essential steps were taken. To begin, we needed to build item creation and characterize the pertinent components of *Islāmic* need for achievement. Second, for validity and reliability evaluation, we needed to make scales/gauges.

### 3.3.1 STEP 1: ITEM GENERATION

This investigation aimed at making valid-reliable instrument tools for achievement motivation in *Islām*. Now, the essential spotlight was on content legitimacy, which was the base psychometric necessity for estimating sufficiency and the initial phase in developing approval of recently created things (Schriesheim et al., 1993). In his study, Oosterveld (1996) presumed that deductive methodologies are favored contrasted with outside and prototyping strategies. The main method, which is also called “logical partitioning” or “classification from above” and how it is applied, relies on current status information regarding the interest (Hinkin, 1998).

Our scale was developed using a deductive approach in this study, which necessitated use of a classification schema or typology prior to data collection. This approach requires an understanding of the current achievement motivation phenomenon through an intensive literature review in order to establish the theoretical meaning of the construct.

We took the necessary steps to ensure content validity. In this regard, we fostered the proposed idea of *Islāmic* AMT using the available literature, and afterward consulted specialists or boards in appropriate fields. We established the construct domain using previous work on the need for achievement, or AMT. It appears that the *Islāmic* concept of spirituality and that of most religions have a shared belief in the presence of incomparable force and the value of the linkages with this preeminent force (Kamil, Al-kahtani, and Sulaiman, 2011).

We consulted *Muslim* scholars from various schools of thought after defining the relevant elements of *Islāmic* vanguard spirit. We conducted deep interviews and held FGD at this point. After administering four rounds of FGD, the committee part of the group projected 19 items for the *Islāmic* Vanguard Spirit scale.

### 3.3.2 STEP 2: DEVELOP SCALE

During scale development, we followed three steps: study-design, scale building, and reliability-test. We used various scholars’ questionnaire design principles (e.g. Hair et al., 2019; Sekaran and Bougie, 2016) to develop an *Islāmic* Vanguard Spirit scale, which included words, elements, questionnaire setting, and presentation. A simple, understandable and clear statement regarding the workforce spirit to achieve the best workplace performance is critical to support

the respondent's understanding. Furthermore, we produced the statements in Bahasa, as the native language of the study participants. We eliminated multiple choice statements, ambiguous or deceptive terminology, leading questions, and emotive language in the questionnaire to prevent misunderstanding, as advised by scholars (e.g., Hair et al., 2019; Sekaran and Bougie, 2016).

Finally, on the 12, 15, and 20-item surveys, we administered the scale and then asked the respondents to rate their approval level. The survey was accompanied by a letter outlining the research scope. It guaranteed all responders that their answers would be kept private. To ensure the scale's quality, a checklist was created for classifications, decoding, scale, reliability, and instrumental validity. To evaluate the validity of each measured item, we utilized linear association, Exploratory Factor Analysis (EFA), and Confirmatory Factor Analysis (CFA). Meanwhile, we ran a Cronbach's alpha reliability test.

The reliability-test on each workplace-spirituality factor was determined based on internal consistency (Cronbach's  $\alpha$ ) for the entire scale. Initially the measurement of *Islāmic Vanguard Spirit* used 19 items. Then it was developed with six management science experts and the *Islāmic* world view, three sales manager areas and three *sharia* insurance agents through FGD into 15 items.

## 4. FINDINGS

### 4.1 STAGE 1: ITEM GENERATION

Appropriateness of sample size is an important consideration in item generation. The 324 participants were deemed appropriate for this study. We proposed an *Islāmic Vanguard Spirit* measure based on available literature at the beginning.

This was divided into four tiers: 15 items representing each of the four dimensions. We wanted to utilize the scale as a tool to assess the level of Sharia workers' achievement motivation, therefore we contacted a panel of academics, *Muslim* scholars, and employees about the suggested measurement. The FGD panel group members and deep interviews resulted in 15 items of *Islāmic Vanguard Spirit* measuring scale that have been adjusted with reference to *Islāmic* law (Table 1, Appendix 1/ separate file).

The total of 15 items created in this phase reflect the need of maintaining the appropriate area sampling and relativism in order to

attain content and construct validity (Cronbach and Meehl, 1955). Answers may be influenced by scale range (Rozewski, 1989) and scales with too many elements may cause response biases. To guarantee that the scale creates enough variance among respondents for data analysis, we employed Likert-scale with 5 points answer choice.

## 4.2 STAGE 2: SCALE DEVELOPMENT

We utilized EFA and CFA to ensure the scale validity and reliability. Kaiser's criterion, also known as the eigenvalue rule, was used in this study as it is one of the techniques most widely used. Using this criterion, only factors having an eigenvalue of 1.0 or above are preserved for further examination. The most commonly reported factoring method was the main components analysis with orthogonal rotation. The major common criterion for factor retention was to keep factors with eigenvalues greater than one, though we did occasionally report the use of scree test based on a sharp drop in eigenvalues (Hinkin, 1995).

### 4.2.1 EFA

Essentially, we proposed a single-dimension scale to assess workplace spirituality. Four common factors with eigenvalues higher than one were selected. Religiosity refers to the manifestation of one's religious viewpoint and God-consciousness through "holy acts," which is encouraged by all major faiths and which refer to a broad range of practices (Krauss, Hamzah, and Idris, 2007). Religiosity is prioritizing religion in individual belief systems, as opposed to collective religious practice. Religiosity describes how well people interpret their surroundings through the lens of religious beliefs, which are predicted not to be affected by their religious engagement but are not formed by religious attendance.

Furthermore, all of the items for each factor showed a value (loading factor  $> 0.30$  and cross-loading  $< 0.4$ ) (Hair et al., 2020). The factor analysis findings show that the 15 eligible variables have been distributed among four groups. The four factors explained 74.312 percent of the variance, which exceeds the required threshold of 60% in social science research (Hair et al., 2006). These four factors are then named according to the variables included in them. The names of each factor along with the variables included in it are as follows: Factor 1 is the Excellence Achievement Spirit (EAS) in the order of the variables covered namely: EAS<sub>3</sub>, EAS<sub>1</sub>, EAS<sub>2</sub>, EAS<sub>4</sub>. Factor 2 that

is Long Life Learning Spirit (3LS), in the order of the variables covered: 3LS<sub>4</sub>, 3LS<sub>3</sub>, 3LS<sub>2</sub>, 3LS<sub>1</sub>. Factor 3 is Voluntary Asking Spirit (VAS), with the order of variables covered: VAS<sub>1</sub>, VAS<sub>2</sub>, VAS<sub>3</sub>. Factor 4 is the Voluntary Helping Spirit (VHS) with the order of variables covered being: VHS<sub>2</sub>, VHS<sub>3</sub>, VHS<sub>4</sub>, VHS<sub>1</sub>. According to the EFA results, all items had correlation values exceeding 0.3. We examined the “Measure of Sampling Adequacy” (MSA) with a value greater than 0.50 for individual item factor using a matrix of Anti-Image correlation. The Kaiser-Meyer-Olkin “MSA” is 0.884 suggesting that the data is suitable for factor analysis, since a value  $\geq 0.60$  is required (Hair et al., 2006). The results of Bartlett’s test illustrate that correlation of each item is entirely significant ( $p < 0.00 < 0.05$ ). Table 2 (Appendix 1/separate file) presents the result of the EFA analysis.

#### 4.2.2 CFA

We conducted CFA to back up the construct validity of *Islāmic* AMT and carried out CFA to test the hypothesis. We described the hypothesized *Islāmic* AMT measurement model in the organizational context by four dimensions: Excellent Achievement Spirit (EAS), (Long Life Learning Spirit (3LS), Voluntary Asking Spirit (VAS) and Voluntary Helping Spirit (VHS).

#### 4.2.3 RELIABILITY TEST

Based on the calculations, it was shown that a variable Reliability (CR) of the ‘EAS’ (Excellence Achievement Spirit) variables amounted to 0.866, Long Life Learning Spirit\_3LS) amounting to 0.855, ‘VAS’ (Voluntary Asking Spirit) by 0.857, and ‘VHS’ (Voluntary Helping Spirit) of 0.873. All of the CR values of those variables have a value exceeding 0.7 and have a value of variance extract greater than 0.5, namely ‘EAS’ (Excellence Achievement Spirit) of 0.618, ‘3LS’ (Long Life Learning Spirit) of 0.569, ‘VAS’ (Voluntary Asking Spirit) of 0.666, ‘VHS’ (Voluntary Helping Spirit) amounting to 0.633. This indicates that all indicators observed in the construct used as observed variables are able to explain the latent variables that they formed.

## 5. DISCUSSION

This study provided a solution by offering a new notion, the 'IVS' (*Islāmic Vanguard Spirit*). This concept is the result of a synthesis of theories: manifest need, social capital and the values of *Islām*. IVS became a new concept based on *Islāmic* values that compete in *mu'amalah* activities (*fastabiqul khoirat*), in line with the Holy *Qur'ān* (*Al-Baqarah:148*). This is a one-of-a-kind and complete notion. This one-of-a-kindness stems, first and foremost, from being related to the universe and the afterlife. In the concept of *fastabiqul khairat*, individuals want to do their best (excellence achievement spirit) based on a reference with a determined intention. They trust that anything they receive in this universe is merely a *wasilah* for their afterlife. It is plainly mentioned in the Holy *Qur'ān* (*Al-Baqarah:148*) that All *Muslims* are required to be firm in making an application. Not just thinking but continuing to strive to continue learning or adopt long life learning.

People's spirits have a significant impact on human life because, without them, people do not have any worth. When one speaks of religiosity, what is referred to is the quality of one's spirit as adherents. *Islām* governs the overall level of life: individual, social, economic, political, and spiritual. This must motivate everyone to seek God's blessing in their activities and to continually strive to perform them in the greatest way possible, knowing that they are being observed by Allāh 'azza wa jalla, the perpetual supervisor who is all knowing.

IVS has four dimensions, namely EAS, 3LS, VAS, and VHS. Stage one and two are the stages of self-empowering (empowering oneself) while the third and fourth stages are the stages of empowering others. Self-empowering precedes other empowering because basically, individuals must 'save themselves' first before saving others. This spirit is the embodiment of *Islāmic* values as stated in the Holy *Qur'ān* (*At-Tahrim: 6*), Allāh 'azza wa jalla said: "*Quuu anfusakum wa ahlikum naaro*", which means: "Protect yourselves and your families from hellfire."

According to Milliman, Czaplewski, and Ferguson (2003), an organization is one that provides a channel for its members to meet their inner needs, has a positive impact on society, fosters strong bonds with others, and is consistent between someone's fundamental beliefs and organizational values.

Kamil et al. (2011) state that the kind of motivation that is clear and based on spirituality, is needed by *Muslim* employees. The

study's findings assist non-*Muslims* in becoming more conscious of their *Muslim* co-workers' spiritual requirements at work.

## 6. CONCLUSION AND IMPLICATION

Following completion of the validation process, we decreased the 19 items-scale developed as an outcome of FGD to 15 items. By experimentally examining the dimensionality of *Islāmic* intrinsic motivation components in the setting of Indonesia, the study's findings contribute to the literature on human resource development, particularly in the workplace spirituality field. The instrument may be used by *Islāmic* human resource managers to assess their workers' spirit or motivation. Spirituality is a criterion for jobs in an *Islāmic*-based organizations, and this is expressed in their recruiting and selection process. Scholars and professionals should use the results of the study to validate their efforts in planning, creating, and applying effective learning and performance enhancement strategies so that Muslim employees' IVS can continue to rise.

Before it can be widely used as a model for organizational transformation to encourage organizational growth, the instrument has to be validated using multiple techniques in diverse organizational contexts across cultures and nations to achieve consistent findings. Furthermore, the rising number of *Islāmic* management practices scales necessitates additional research on their applicability to non-Muslim workers. This option raises the question of how to globally adapt a scale established for a specific religious group and representing the distinctiveness of the community's religious worldview (Krauss et al., 2007).

Although the instrument validation stage has been carried out and resulted in 15 measurement items, this study still has a limitation, such as the absence of question items that explicitly measure individual motivation to get the afterlife reward. Therefore, it is recommended for future research to consider a more complete instrument.

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**APPENDIX 1**

TABLE 1  
Proposed Measurement of *Islāmic* Vanguard Spirit

Items	Source
1. For me, the best work is worship/ <i>ibadah</i> .	Khan, Breitenecker, and Schwarz (2015); Knapp, Breitenecker, and Khan (2015); Haq (2014); Fryling, Johnston, and Hayes (2011); Yu et al. (2013); Mahrooian and Forozia (2012); Olowookere, Oguntuashe, and Adekeye (2016); Cardoso and Mone (2016); FGD with 6 management science experts and Islamic worldview, 3 Area Sales Managers and 3 sharia insurance agents.
2. I believe that working professionally is God's commandment.	
3. As a salesperson, I don't load resources on the process of achieving the best.	
4. For me, co-workers are the partners achieving the best results.	
5. For me, being excited in improving <i>istiqomah</i> performance is worship.	
6. To me, excited to be "better", shouldn't be with "getting rid of" co-workers.	
7. I was able to take the wisdom out of my pas sales experience.	
8. I always make the failure and success of my friends' sales process as a very valuable lesson.	
9. I was excited to invite my friends to do the best sales activity.	
10. I always use good language when I invite my friends to do the best sales activity.	
11. I try to give the best example before I invite my friends to do the best sales activity.	
12. I was very excited to help my friend in doing his sales activity.	
13. I'm very excited to help my friend in doing his sales activity spontaneously.	
14. I'm very excited to help my friend in doing his sales activity without expecting a reward. I was very excited to help my friend though not related to my assignment	

TABLE 2  
*Islāmic Vanguard Spirit: Factors and Item's Loading*

Items	Factors			
	1	2	3	4
Factor: excellence achievement spirit				
1. For me, the best work is worship/ <i>ibadah</i>	0.847	0.144	0.052	0.112
2. I believe that working professionally is God's commandment	0.824	0.093	0.150	0.208
3. As a salesperson, I don't load resources on the process of achieving the best	0.822	0.172	0.178	0.197
4. For me, co-workers are the partners achieving the best results	0.816	0.111	0.101	0.127
Factor: long-life learning spirit				
1. For me, being excited in improving <i>istiqomah</i> performance is worship	0.107	0.844	0.175	0.133
2. To me, excited to be "better", shouldn't be with "getting rid of" co-workers	0.126	0.836	0.065	0.174
3. I was able to take the wisdom out of my pas sales experience.	0.101	0.780	0.214	0.198
4. I always make the failure and success of my friends' sales process as a very valuable lesson	0.201	0.762	0.186	0.170
Factor: voluntary asking spirit				
1. I was excited to invite my friends to do the best sales activity.	0.133	0.108	0.86	0.115
2. I always use good language when I invite my friends to do the best sales activity.	0.121	0.092	0.844	0.076
3. I try to give the best example before I invite my friends to do the best sales activity.	0.031	0.192	0.782	0.149

TABLE 3 (continued)

Items	Factors			
	1	2	3	4
Factor: voluntary helping spirit				
1. I was very excited to help my friend in doing his sales activity	0.185	0.224	0.763	0.13
2. I am very excited to help my friend in doing his sales activity spontaneously	0.248	0.166	0.116	0.845
3. I am very excited to help my friend in doing his sales activity without expecting a reward	0.243	0.202	0.129	0.831
4. I was very excited to help my friend though not related to my assignment	0.123	0.276	0.209	0.781
KMO	0.884			
Sphericity Barlett test	2915.872			
Df	105			
Sig.	0.00			

TABLE 4  
Eigenvalue

Component No.	Observed eigenvalue	Percentiles
1.	6.066	40.439
2.	2.065	13.766
3.	1.767	11.781
4.	1.249	8.327
5.	0.502	3.349
6.	0.461	3.070
7.	0.435	2.897
8.	0.381	2.538
9.	0.364	2.429
10.	0.358	2.389
11.	0.303	2.020
12.	0.289	1.928
13.	0.274	1.825
14.	0.266	1.776
15.	0.220	1.466





## **REDUCING FINANCIAL EXCLUSION AND ENHANCING CONTRIBUTION OF NON-INTEREST (ISLAMIC) BANKS IN NIGERIA**

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### **ABSTRACT**

Financial exclusion denies people access to useful and affordable financial products and services including transactions, payment, savings, credit, and insurance. Thus, Nigeria launched its National Financial Inclusion Strategy in October 2012 to reduce financial exclusion to 20.0% by end 2020 from 46.3% in 2010; and the licensed *Islāmic* banks are stakeholders in this declaration. Thus, the study adopts an exploratory approach to discuss the contribution of Non-Interest (*Islāmic*) Banks in achieving the set target from the supply-side. The study found that *Islāmic* banks in Nigeria have contributed to reducing the exclusion rate from the supply-side to 35.9% in 2020 by financing customer centric *Shari'ah* compliant products; growth in branch network and other touch points; agent banking operations; and participation in the Central Bank of Nigeria non-interest intervention schemes. The study recommends the spread of their financial touch points to the unbanked rural populace in other states; while it encourages the government, the Central Bank of Nigeria, and all other stakeholders to sustain efforts in reducing financial exclusion.

JEL Classification: E58, G21, G53, O16

Keywords: Financial inclusion strategy, *Islāmic* banks, Financial exclusion, Supply-side analysis, Nigeria

Submitted: 27/09/2021      Accepted: 27/01/2023      Published: 28/06/2024



## 1. INTRODUCTION

Financial exclusion is a situation where individuals lack access to appropriate and affordable financial services and products (Connolly et al., 2011); for Devlin (2005), it means a proportion of the population has limited access to mainstream financial services. The Financial Services Authority (2000) in Britain defines financial exclusion (FE) as the lack of access to financial services, but it takes different shapes, wears many hats, and can be manifested in many forms by different groups. Over the decades, FE arising from economic deprivation and widespread poverty has been a global phenomenon that made governments, central banks, and non-governmental organizations (NGOs) renew efforts in combating this menace that has endangered growth and development, especially of emerging and developing economies. One such effort by the global community is ‘the 2011 Maya Declaration’. More than 80 countries endorsed the 2011 Maya Declaration on financial inclusion, which is the first global and measurable set of commitments by developing and emerging country policy makers to unlock the economic and social potential of 2.5 billion people through greater financial inclusion (Alliance for Financial Inclusion – AFI, 2011). In 2012, the Federal Government of Nigeria and Central Bank of Nigeria (CBN) launched the National Financial Inclusion Strategy aimed at achieving a 20.0% financial exclusion rate by 2020 from 46.3% in 2010, implying that 80.0% of adult population (age 18+) would have access to financial services such as payments, savings, credit/loans, insurance, and pension products at affordable cost by 2020. Some progress was made and by 2020, since the exclusion rate has dropped to 35.9%, which is about 15.9% from the set target of 20.0%.

Literature identified several factors responsible for FE including societal factors, such as cultural and psychological barriers, social deprivation and poverty, and self-exclusion; demand factors resulting from low financial literacy, non IT savvy people, aged people with few or no assets; and supply factors arising from geographical and physical barriers (access exclusion), identity requirements and other terms and conditions as barriers to opening accounts (condition exclusion), and affordability (price exclusion). Furthermore, Burkett and Sheehan (2009) and Pearce (2010) acknowledged faith-driven FE. Bhalla and Lapeyre (1997) suggested research on social and FE on different spatial scales including minorities, ethnic groups, gender, and so forth; while Connolly et al. (2011) encourage research on persons born abroad especially from non-English speaking

communities, who could be financially excluded as a result of their origin, faith, or even their current neighborhood.

Several studies have been conducted in Nigeria on the importance of enhancing financial inclusion for poverty reduction, economic empowerment, and inclusive growth (e.g., Clementina and Oyims, 2015; Fadun, 2014). Some have reported on the role of *Islāmic* banking and finance in enhancing financial inclusion in Nigeria (Abdullahi, Othman and Kassim, 2020; Shinkafi, Yahaya and Sani, 2019; Mustafa, Baita and Usman, 2018; Ya'aba and Mika'ilu, 2018; Adeyemi, Pramanik and Meera, 2012). The World Bank (2013) said *Islāmic* finance can play a significant role in enhancing financial inclusion in *Muslim* majority countries.

The study by Ya'aba and Mika'ilu (2018) was the first to explore the contribution of an *Islāmic* bank (Jaiz Bank Plc – the first full-fledged *Islāmic* bank in Nigeria) in enhancing financial inclusion and deepening. Ya'aba and Mika'ilu (2018) analyzed the financial deepening indicators leveraging on the work of Levine (2005); and Sarma (2008) who developed a composite financial inclusion index covering banking penetration index, banking usage index, and banking services index. Thus, the work of Ya'aba and Mika'ilu (2018), and also this study, examined the supply side conditions. But this study covers the operational *Islāmic* banks as against the case study approach in Ya'aba and Mika'ilu (2018).

This study focuses on the supply-side, exploring the contribution of the non-interest (*Islāmic*) banks in Nigeria in reducing FE. It builds on the maiden study carried out by Ya'aba and Mika'ilu (2018), but the study period and coverage of Ya'aba and Mika'ilu (2018) was extended; and *Shari'ah* compliant products offered by the banks from three dimensions of accessibility, availability and usage/adoption were analyzed. Following this introduction is the literature review as section two. Section three and four present the methodology and discussion of results, respectively. Section five concludes the paper by highlighting the major findings and policy recommendations.

## 2. LITERATURE REVIEW

### 2.1 EVOLUTION OF *ISLĀMIC* BANKING

In early 1960s, modern *Islāmic* banking evolved in Egypt covering its *Islāmic* image for the fear of being seen as a manifestation of *Islāmic* fundamentalism that was repugnant to the then political regime in

Egypt. Ahmad Elnaggar in 1963 pioneered the establishment of an *Islāmic* bank in the form of savings bank based on the profit-sharing principle in Mit Ghamr, an Egyptian town. This was followed by establishment of the *Islāmic* Development Bank in 1974 by the Organization of *Islāmic* Countries; Dubai *Islāmic* Bank (1975); Kuwait Finance House (1977); Jordan *Islāmic* Bank for Finance and Investment (1978); Bank *Islām* Malaysia (1983); Al-Rajhi Banking and Investment (1984); Arab Gambia *Islāmic* Bank (1996); *Islāmic* Bank of Britain (2004); European *Islāmic* Development Bank (2006) as the United Kingdom's first independent bank for *Sharī'ah* compliant investments; the *Islāmic* Bank of Asia (2007); among others. Besides that, several conventional banks offered *Sharī'ah* compliant services on a 'window-basis including the United States Michigan-based University Bank, HSBC Investment Bank, Lloyds TSB, Royal Bank of Scotland, Bank of Ireland, and so forth. On the African continent, Nigeria, Sudan, Libya, Tunisia, Morocco, the Gambia, among others, have successfully institutionalized *Islāmic* banking in their respective financial systems; as there are statutory regulations guiding the licensing, operations and functioning of *Islāmic* banks. The *Islāmic* Financial Services Board (2020) indicated that *Islāmic* banking assets grew by 12.7% year-on-year and accounted for 72.4% (US\$1.766 trillion) of the *Islāmic* Financial Services Industry (IFSI) asset portfolio of US\$2.44 trillion. The asset portfolio is expected to reach US\$3.69 trillion in 2024.

In Nigeria, the defunct Habib Nigeria Bank Limited was granted license in 1992 to offer non-interest banking services on a 'window basis', but it commenced operations seven years after, in 1999. The bank, however, operated without a regulation guiding its conduct, as there was no regulatory framework for the licensing and operations of *Islāmic* banking in Nigeria then. Thus, in 2011 the CBN issued the Guidelines for the Regulation and Supervision of Institutions Offering Non-Interest Financial Services in Nigeria and the Guidelines on *Shari'ah* Governance for Non-Interest Financial Institutions in Nigeria. It also issued the Guidelines for the Regulation and Supervision of Non-Interest (*Islāmic*) Microfinance Banks in Nigeria in 2017.

At end-June 2021, Nigeria has three full-fledged *Islāmic* banks, namely: Jaiz Bank Plc; Taj Bank Plc and Lotus Bank Plc as 'specialized non-interest (*Islāmic*) banks'; while two conventional banks – Sterling Bank Plc and Sun Trust Bank Plc – offer 'window' non-interest banking services. Founded in 2003, Jaiz Bank Plc obtained regional license on 11<sup>th</sup> November 2011 and a national

license in 2016. Taj Bank Plc obtained a regional license on the 3<sup>rd</sup> of July 2019 and opened to customers on 2<sup>nd</sup> December 2019. The most recent of them is Lotus Bank Plc that was granted a regional license on 17<sup>th</sup> of June 2021 but has yet to commence operations. Also, it is worth noting that Nigeria has been an *Islāmic* Development Bank (IDB) member since 2006. Nigeria's membership of IDB preceded the commercial licensing of the first full-fledged *Islāmic* bank – Jaiz Bank Plc. Nigeria also has *Islāmic* microfinance banks, *Islāmic* mutual funds, *Islāmic* insurance (*Takaful*) firms, and the *Islāmic* bond (*Shukūk*) market also. Al-Barakah Microfinance Bank was the first licensed *Islāmic* microfinance bank in Nigeria, and it commenced operations in Lagos in April 2010; while the Halal Fund of Lotus Capital Limited established in 2004 was the first *Shari'ah* compliant ethical mutual fund company in Nigeria; and it is registered with the Securities and Exchange Commission (Abdullahi, 2010).

## 2.2 REDUCING FINANCIAL EXCLUSION IN NIGERIA: POLICY INITIATIVES

The CBN has formulated and issued several regulatory frameworks and guidelines aimed at reducing FE and promoting economic activities for inclusive economic growth and development. A taxonomy of the relevant frameworks and guidelines meant to support this target is presented in Table 1:

TABLE 1  
List of Regulatory Frameworks and Guidelines Issued to Support Financial Inclusion

Regulatory Frameworks and Guidelines	Date Issued	Support For Financial Inclusion
National Financial Inclusion Strategy	October 2012	A roadmap for reducing financial exclusion to 20% by end 2020
Guidelines for the Regulation of Agent Banking and Agent Banking Relationships in Nigeria	February 2013	Use banking agents as delivering channel for enhance financial inclusion
Guidelines for Mobile Money Services in Nigeria	2015	For adoption of mobile channel to drive financial inclusion to the unbanked

TABLE 1 (*continued*)

Regulatory Frameworks and Guidelines	Date Issued	Support For Financial Inclusion
Regulatory Framework for Mobile Money Services in Nigeria	2015 and July 2021 (Revised)	For adoption of mobile channel to drive financial inclusion to the unbanked
Regulatory Framework for Licensing Super Agents in Nigeria		To enhance financial inclusion of the unbanked
Guidelines for Licensing and Regulation of Payment Service Banks in Nigeria	August 2018 and October 2020 (Revised)	To leverage on mobile and digital channels to enhance financial inclusion to low income earners and the unbanked

Source: Compiled by authors

### 2.3 FINANCIAL EXCLUSION AND ACCESS TO FINANCIAL SERVICES IN NIGERIA

In Nigeria, a baseline survey on access to financial services was conducted in 2008 by the Enhancing Financial Innovation and Access (EFInA). EFInA found that out of 86.6 million adults (18+ years), about 53.0% (or 45.4 million) of them were financially excluded. As part of its commitment to endorsing the 2011 Maya Declaration by Nigeria, however, the CBN launched the National Financial Inclusion Strategy (NFIS) on 23 October 2012 with a major target of reducing the FE rate to 20.0% by 2020 from 46.3% in 2010. With this deliberate strategy of combating FE, the rate fell to 39.7% in 2012 and further to 36.8% and 35.9% in 2018 and 2020, respectively (EFInA, 2020). Furthermore, the banked population rose from 18.3 million adult populations in 2008 to 28.6 million in 2012 and further to 39.5 million and 47.6 million adults in 2018 and 2020, respectively; while the unbanked population as of 2020 stood at 58.5 million adults (EFInA, 2020).

### 2.4 DIMENSIONS AND CAUSES OF FINANCIAL EXCLUSION

Different papers have explored the dimension of financial inclusion measurements and a few of their findings are reviewed here. Ali, Sakti and Devi (2019) use three dimensions of accessibility, availability and

usage to measure the *Islāmic* Financial Inclusion Index as propounded by Sarma (2012). Another measure is ownership of a bank account, its usage for savings and access to credit/loan (Zins and Weill, 2016). Likewise, ownership of an account, saving in it and frequency of usage are reported by Allen et al. (2012).

On the forms of FE, the following forms of FE were found in the literature, namely: (a) access exclusion resulting from the remote location of people and/or process of risk management; (b) condition exclusion is when exclusion occurs due to inappropriate condition facing some people; (c) price exclusion is when exclusion arises from high cost of financial products; (d) marketing exclusion is when only profitable segments of the adult population are targeted; and (e) self-exclusion is when people exclude themselves for cultural or psychological reasons (Kempson and Whyley, 1999). Furthermore, these forms of FE were coded into (i) societal factors causing exclusion (Burgstaller, 2013; Mitton, 2008; Atkinson and Kempson, 2006; McDonnell and Westbury, 2002; and Collard, Kempson and Whyley, 2001); (ii) demand factors (Healey, 2011; Osei-Assibey, 2010; and Beck and Dermigue-Kunt, 2008); and supply factors (Saunders, 2011; Burkett and Sheehan, 2009; and Datta, 2009).

In Nigeria, EFINA (2018) identified the main barriers to financial inclusion to include lack of products and services, lack of awareness and knowledge, institutional exclusion, and affordability. EFINA, however, did not investigate whether religious beliefs contributed to exclusion.

## 2.5 ROLE OF ISLAMIC BANKS IN REDUCING FINANCIAL EXCLUSION

The role of *Islāmic* banks in reducing financial exclusion (FE) is still being debated. Thus, a literature review was conducted to understand the dimensions and forms of FE. The Managing Director of the World Bank in 2012 – Mr. Mohieldin, opined that “*Islāmic* Finance has the potential to meet more people’s banking and investment needs, expand its reach, and contribute to greater financial stability and inclusion in [the] developing world.”

Many studies have emphasized the positive role of *Islāmic* finance in reducing FE or enhancing financial inclusion. According to Alhajam (2017), an overwhelming demand for *Islāmic* finance exists in Libya because people believe that it will favor economic development, social justice and poverty reduction. Brekke (2018) investigated whether religious norms financially exclude Muslims in

Norway and found that almost 90.0% of the *Muslims* sampled agreed with the statement that “conventional banks provide interest based loans, which are totally forbidden in *Islām*”, and thus, it is a real problem in their lives that interest free loans are unavailable in Norway. In terms of awareness Sain, Rahman and Khanam (2018) and Brekke (2018) found increasing awareness and demand for *Islāmic* financial products and services among respondents. As for affordability, Sain, Rahman and Khanam (2018, 2016) found that Muslims in Australia are ready to use *Islāmic* banking products and services regardless of the cost.

Mohieldin et al. (2012) argued that *Islāmic* finance enhances financial inclusion or access to finance through (a) promoting risk-sharing contracts as a viable alternative to conventional debt-based financing and (b) the use of specific instruments (*Zakāt*, *Sadaqat*, *Wāqf* and *Qard-al-hasan* – benevolent loan) of wealth redistribution in the Organisation of *Islāmic* Cooperation (OIC) countries. Evidence from Sub-Saharan Africa revealed that the introduction of *Islāmic* banking and finance in some OIC countries enhanced financial inclusion, as households from OIC countries with *Islāmic* banking and finance operations are more likely to be financially included than their counterparts in OIC countries without the same (Abdu et al., 2018). Jouti (2018) opined that *Islāmic* finance not only enhances inclusion but has potential of attracting financial migration to *Islāmic* banks. Ya’aba and Mikailu (2018) explored the contribution of Jaiz Bank Plc to financial inclusion and deepening in Nigeria as a maiden study. Their exploratory work centered on the broad definition of financial deepening indicators (deposit liabilities, financing facilities and total assets) by Levine (2005); and financial inclusion indicators (banking penetration index – BPI, banking services index – BSI, and banking usage index – BUI) as found in Sarma (2008, 2012). They concluded that Jaiz bank had contributed enormously to achieving the Maya commitments.

Following the Sachar Committee report that Muslims in India are financially excluded, Nazar (2017) surveyed the Kerala Community and found that most respondents owned bank accounts, but the extent of usage was only for namesake. He also found that awareness of and preference for *Islāmic* banking among *Muslims* and *Non-Muslims* was very high. Thus, he suggested the introduction of *Islāmic* banking in India, also as recommended by Mohieldin et al. (2012) and Abdu et al. (2018) for OIC countries without *Islāmic* finance; while Jouti (2018) recommended the same in Morocco.

Principally, the role of *Islāmic* finance in reducing FE is rooted in *Islām* over 1400 years ago in the following verse of the Holy *Qur'an*:

Whatever Allah restored to His Messenger from the inhabitants of the villages belongs to Allah, and to the Messenger, and to the relatives, and to the orphans, and to the poor, and to the wayfarer; so that it may not circulate solely between the wealthy among you (*Qur'an*, 59:7).

### 3. METHODOLOGY

This study obtained secondary data, relevant published documents on the activities and operations of the Non-Interest (*Islāmic*) Banks in Nigeria. Data were collected on number of bank accounts, total assets portfolio, total deposit portfolio, total financing on products offered, and branch network as qualitative proxies used by Ya'aba and Mika'ilu (2018) and Ali, Sakti and Devi (2019)<sup>1</sup>, leveraging on the propositions of Sarma (2008, 2012) and Levine (2005). This article, however, discussed the number of unique customers as well as number of bank accounts. Customers are unique because a customer could own numerous bank accounts.

The inclusion of off-site automated teller machines (ATMs) count to support banking penetration dimension, as in the study of Maity and Sahu (2020), was considered. In contrast, this study used total ATMs (on-site and off-site) count because they make banking services available even when branches close doors to customers, and so do the point-of sales (PoS) terminals at agent banking locations and merchant shops. In addition, the current role of mobile money operators through agent banking in driving financial inclusion cannot be ignored. Hence, this study also considers the number of agent networks under the agent banking operations of the non-interest (*Islāmic*) banks in Nigeria as a measure of banking penetration, banking services availability and usage. Agents provide services such as cash-in/deposit; cash-out/withdrawal; fund transfer; bill payment; airtime purchase and facilitate account opening and registration of customers on the bank verification number (BVN) platform in Nigeria. The CBN non-interest intervention schemes also exist. Another key variable is financial literacy, which Koku (2015) and Bihari (2011)



found to be positively related to financial inclusion. Thus, this study is exploratory in nature and employed descriptive and content analysis for discussion of results from a supply-side perspective.

#### 4. RESULT DISCUSSION

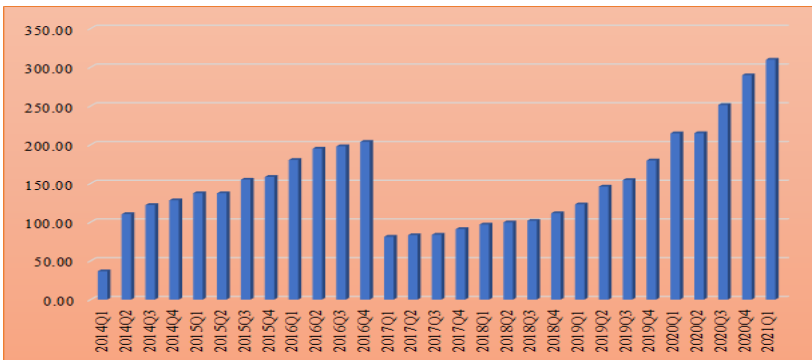
Analysis of the result centers on the non-interest (*Islāmic*) banks contribution in reducing FE in Nigeria, from the supply-side perspective. The financial inclusion indicators of interest in this article as identified in the literature and explained in the methodology section include: (a) total assets portfolio; (b) total deposit portfolio; (c) total financing portfolio; (d) number of unique customers and bank accounts; (e) number of branches, ATMs, PoS and agents – as financial touch points; and (f) CBN non-interest intervention schemes. These indicators are analyzed in turn.

##### 4.1 TOTAL ASSETS PORTFOLIO

Available data showed that total assets portfolio of non-interest (*Islāmic*) banks in Nigeria grew steadily on a quarterly basis for three years from ₦36.50 billion in 2014Q1 to ₦203.64 billion in 2016Q4; after which it dipped to ₦81.07 billion in 2017Q1. However, it picked up in 2017Q2 and rose steadily to ₦214.64 billion in 2020Q1 before the COVID-19 lockdown in Nigeria (April 2020). Despite the COVID-19 storm, the total asset portfolio of the non-interest banks rose moderately till it peaked at ₦309.72 billion in 2021Q1 (Figure 1).

FIGURE 1

Value of Total Assets of Non-Interest Banks in Nigeria (₦Billion)



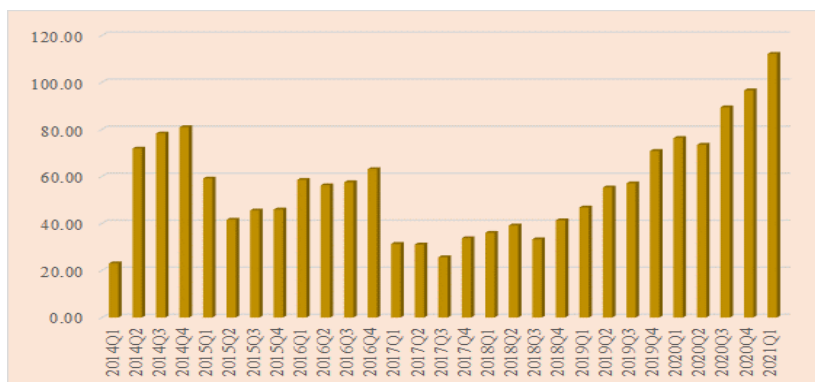
Source: Central Bank of Nigeria

#### 4.2 TOTAL DEPOSIT PORTFOLIO

The total deposit portfolio of the non-interest (*Islāmic*) banks leaped in 2014Q2 to ₦71.84 from ₦23.03 billion in 2014Q1 and maintained steady growth throughout 2014; and thereafter, it experienced undulation through 1 2017Q3. From the fourth quarter of 2017, it grew progressively to ₦112.13 billion in 2021Q1; except for the mild declines in 2018Q3 and 2020Q2 (Figure 2). The growth in total deposit indicates the increasing role of the *Islāmic* banks in savings mobilization, which is an indicator in monitoring decline in FE.

FIGURE 2

Value of Total Deposit Portfolio of Non-Interest Banks (₦Billion)

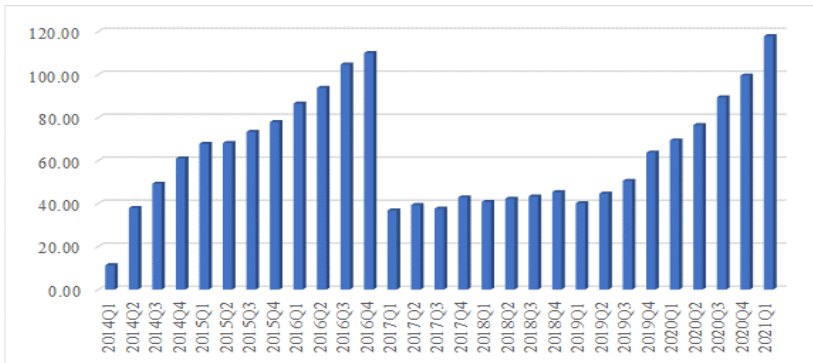


Source: Central Bank of Nigeria

#### 4.3 TOTAL FINANCING PORTFOLIO

The non-interest (*Islāmic*) banks financed such contracts as the ‘*Ijārah*’ (operating lease); ‘*Ijārah Wa Iqtina*’ (finance lease); ‘*Ijārah*’ (rental receivable); ‘*Murābahah*’ (cost-plus); ‘*Mushārahah*’ (equity partnership); ‘*Istisna’a*’ (project finance); and ‘*Qard*’ (benevolent loan) as their product offerings. The non-interest (*Islāmic*) banks performed remarkably well exhibiting two cycles: (a) the first cycle starts in 2014Q1 to 2016Q4; and (b) second cycle starts in 2017Q1 to 2021Q1. Their financing grew from ₦11.31 billion in 2014Q1 to ₦110.05 billion in 2016Q4; but it dipped in 2017Q1 to ₦36.82 billion, and thereafter, it rose gradually to a peak of ₦117.95 billion in 2021Q1. Furthermore, it grew steadily all through the COVID-19 period – 2020Q2 to 2021Q1 (Figure 3). This is an indication of bank resilience operationally and inclusivity of financial consumers.

**FIGURE 3**  
Total Financing by Non-Interest (*Islāmic*) Banks (₦Billion)

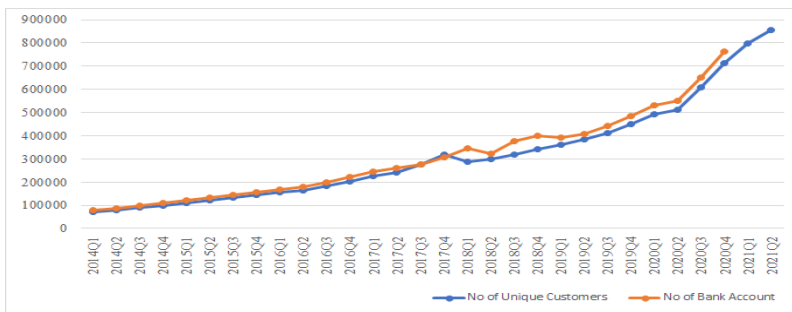


Source: Central Bank of Nigeria

**4.4 NUMBER OF UNIQUE CUSTOMERS AND BANK ACCOUNTS**

Number of unique customers of the non-interest (*Islāmic*) banks stood at 70,850 in 2014Q1. The number rose exponentially to 318,287 customers in 2017Q4 and further to 448,936 as at end-December 2019 (2019Q4) when Taj Bank commenced operations. By end of 2021Q2, the non-interest (*Islāmic*) banks have 854,801 total unique customers. Similarly, individual, joint and corporate deposit accounts with the non-interest (*Islāmic*) banks stood at 77,258 as at 2014Q1 and rose to 108,335 deposit accounts by end of 2014Q4. It further skyrocketed to 308,356 accounts, 484,685 accounts and 763,888 accounts in 2017Q4, 2019Q4, and 2020Q4, respectively (Figure 4).

**FIGURE 4**  
Number of Unique Customers and Bank Accounts of Non-Interest (*Islāmic*) Banks



Source: Non-Interest Banks in Nigeria

#### 4.5 NUMBER OF BANK BRANCHES, ATMS, POS AND AGENT BANKING LOCATIONS

Bank branches, ATMs, PoS and agent banking locations are financial touchpoints for accessing financial products and services. The branch network of the non-interest (*Islāmic*) banks rose from 12 in 2014Q to 27 branches at end of 2016Q4<sup>2</sup>. It rose to 41 branches by end of 2019Q4<sup>3</sup>, and further to 44 and 50 branches at end of 2020Q4 and 2021Q2, respectively. In the northern part of Nigeria, there are 41 branches spread across Abuja – the Federal Capital Territory and 16 states out of 19 in the region; while 9 branches are located in Lagos (4), Osun (1), Oyo (3) and Rivers (1) states in southern Nigeria, which is made up of 17 states. Likewise, the number of ATMs deployed rose from 36 in 2015Q1 to 175 by end of 2020Q4. Available data reveals that the number of PoS terminals deployed and connected stood at 1,679 as at end-June 2021 compared with 1,426 terminals as at end-December 2019. From the agent banking operations, the non-interest (*Islāmic*) banks are principals to a network of 3,600 agents as at end 2021Q2 relative to 1,058 and 84 agents in 2020Q2 and 2020Q1, respectively.

#### 4.6 THE CENTRAL BANK OF NIGERIA NON-INTEREST INTERVENTION SCHEMES

To increase access to finance by non-interest (*Islāmic*) banks and reduce FE in Nigeria, the CBN on July 21, 2020 introduced eleven (11) financing schemes to cater for the non-interest financial institutions. The intervention schemes are targeted at the agricultural sector; textile industry; micro, small and medium enterprises (MSME); health sector; and creative industry among others. The schemes leverage on *Islāmic* financing contracts such as '*Murābahah*', '*Istiṣnā*', '*Mushārahah*', '*Diminishing Mushārahah*', '*Muḍārahah*', '*Ṣukūk* and *service Ijārah*'. The CBN Non-Interest Intervention Schemes recognize the non-interest (*Islāmic*) banks as the only participating banks. The CBN lends funds to the non-interest (*Islāmic*) banks who in turn lend to economic actors operating in the identified sectors.

## 5. CONCLUSION

Nigeria's commitment to reducing FE for inclusive growth is expressed in its National Financial Inclusion Strategy with a set target and specific timeline. To achieve this laudable goal, different initiatives and programs were introduced including the licensing of non-interest (*Islāmic*) banks to cater for the adult population that are financially excluded for religious reasons. This study builds on the maiden work of Ya'aba and Mika'ilu (2018) who studied the only non-interest (*Islāmic*) banks operating within their study period, to discuss the contribution of the non-interest (*Islāmic*) banks in reducing FE in Nigeria. This study focused on supply-side analysis of the various financial inclusion indicators that mirror accessibility, availability and usage - the three dimensions of financial inclusion<sup>4</sup>. We found that the non-interest (*Islāmic*) banks have contributed in increasing accessibility to financial touch points, availability of financial services and deepened usage. The existence of the non-interest (*Islāmic*) banks has also necessitated extension of the CBN conventional intervention schemes with non-interest versions. The paper recommends that a required enabling environment should be created to enable the non-interest (*Islāmic*) banks to spread their presence to other parts of the country.

Our study has its limitations' one is its inability to source data on the operations of the two non-interest windows of conventional banks and primary data from survey to evaluate the level of financial literacy. Thus, we encourage further research, especially a focus on getting comprehensive data for empirical evidence such as developing a composite *Islāmic* financial inclusion index for Nigeria.

## ENDNOTES

1. See also Koku (2015), Kumar (2013), Bihari (2011), & Chithra and Selvam (2013).
2. Jaiz Bank Plc was granted national banking license in 2016.
3. Taj Bank Plc commenced operations.
4. Sarma (2008, 2012).

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# **THEORY OF PLANNED BEHAVIOR IN DETERMINING FACTORS INFLUENCING TOURISTS' TRAVEL INTENTIONS DURING THE COVID-19 PANDEMIC**

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## **ABSTRACT**

After more than a year since the COVID-19 pandemic, almost all worldwide industries, particularly tourism, have been affected by it. Tourism demand dropped as destinations and travel-related enterprises were constrained. This study looked at the elements influencing tourists' travel plans during the COVID-19 pandemic. Apart from the Theory of Planned Behavior, the study considered additional elements that might influence travel plans, such as perceived risks, knowledge, and word of mouth. Kaiser-Meyer-Olkin (KMO), Bartlett Tests, Principal Axis Factor, Promax Rotation and multiple regression tests were used. According to the findings based on 1,568 usable questionnaires obtained through online convenience sampling, all of the factors were found to affect tourist intention to travel during the pandemic. Despite their relatively small effect sizes, perceived behavioral control was the most important variable, followed by subjective norm, word of mouth, and attitude. The conclusions could help policymakers and industry experts in developing the optimal tourist strategy for winning public trust and generating revenue for the host destination.

**Keywords:** Tourism, Knowledge, Theory of Planned Behavior, COVID-19 pandemic, Word of mouth.

**JEL classification:** D190, D910

**Submitted:** 20/02/2022    **Accepted:** 12/02/2023    **Published:** 28/06/2024

## 1. INTRODUCTION

Travel and tourism are two of the most pleasant and enjoyable things for individuals. Tourism benefits host destinations in many ways including foreign exchange earnings, job opportunities, facilities development, and other economic development. Throughout this time, international tourism has been gradually expanding. International tourist visits totalled 1.5 billion in 2019, according to statistics, representing the tenth straight year of growth (UNWTO, 2020). According to the United Nations (United Nations, 2017) news, around 1.8 billion people are estimated to travel globally by 2030. Undoubtedly, tourism is one of the world's most important economic sectors; regrettably, it is also one of the most vulnerable to crises and natural disasters (Pforr and Hosie, 2008). Faulkner (2001) noted that a growing number of disasters and crises, ranging from natural to human-caused calamities, were harming tourism-related industries. Terrorist attacks, political instability, economic crisis, biosecurity issues, and natural disasters, to name a few, have all had an impact on the tourism industry in the last ten years. The 2019 novel coronavirus (2019-nCoV) is a new pandemic that has caused a recent respiratory ailment outbreak in Wuhan, the capital of the Republic of China's Hubei province. After a year, as of March 28, 2021, Malaysia has recorded a total of 341,944 confirmed cases of COVID-19 and 1,255 deaths due to the virus, according to the World Health Organisation (WHO, 2021). To curb the COVID-19 pandemic, the World Health Organization (WHO) (2020) has advised a physical distancing policy. According to this guideline, while individuals are outside, they must preserve physical distance, avoid congested areas, and refrain from gathering. In certain countries, lockdown or movement restriction laws have been enacted. Only food and health-related companies and industries are allowed to operate during this critical period. As a consequence of the government's preventive measures such as lockdowns, quarantines, and border closures (Goodell, 2020), almost every business has suffered. The tourism industry, in particular, felt the negative effects. In the crisis aftermath, the tourism and hospitality sectors emerged as the greater losers (Gössling, Scott and Hall, 2020). Closed borders prevented flights from arriving while quarantine restrictions restricted travel options (Nicola et al., 2020).

Following the COVID-19 pandemic, various articles addressed this unusual occurrence, including revealing the pandemic impact on overall life on Earth, as well as the travel and tourism industry in particular (Cheam and Wan Ya'Acob, 2021; Brouder et al.,

2020,). The majority of studies (Goodell, 2020; Nicola et al., 2020) focused primarily on the existing effects and negative implications across a variety of economic sectors, including tourism. Some studies focus on the supply side, assessing the harm caused and predicting the impact of shifting and remodelling tourist offerings (Gössling et al., 2020). Because it was still relatively new and unexpected in terms of economics and infection risk, demand-side research is sparse (Zencker and Kock, 2020). Only a few studies have looked into the early signs of market recovery and willingness to renew holidays (Ivanova, Ivanov, and Ivanov, 2021; Enger et al., 2020; Collins, 2020).

When COVID- 19 hit Malaysia, the then Human Resources Ministry reported that 99,696 Malaysians had lost their jobs following implementation of the movement control order (MCO) from March till November 2020 (Tan et al., 2020). Tourism, entertainment, food and beverage industries (particularly restaurants) were all affected by this pandemic (Martin et al., 2020). Aside from the economic implications, the pandemic period has had a societal impact on nearly every element of life. In the tourism industry particularly, certain studies discovered that some tourists may have changed their opinions, tastes, and attitudes toward travel as a result of the COVID-19 pandemic on health and the economy (Peters, Peters, and Peters, 2020). As the world's infection rate has fluctuated over time, policymakers have begun to devise policies to reintroduce travel and economic development (Fakhrudin, Blanchard, and Ragup, 2020; Collins, 2020). In this light, the goal of this study was to see how the 2019 COVID-19 outbreak affected respondents' travel intentions, as well as other variables. This study is unique in that it looks at both cognitive (knowledge) and non-cognitive (attitude, subjective norms, perceived behavioral control, perceived risk, and word of mouth) factors that influence Malaysian tourists' travel intentions.

Since the tourism industry is well-known for its vulnerability to natural disasters and pandemic, this research also added to existing knowledge by allowing for quick comprehension of a real-time pandemic, with the goal of determining whether domestic tourist travel intentions will change as a result. This is especially important considering the dire circumstances in which the global tourist and hospitality industry is working, with lives lost, businesses closing, and the public on high alert. Understanding what influences these individuals' decisions will help policymakers create welcoming and comfortable policies for tourists. This is not only a good strategy to assist tourism practitioners and policymakers in developing unique,

successful strategies to improve tourist confidence following the COVID-19 pandemic, it can also restore and stabilize travel and economic growth, allowing the achievement of long-term development goals.

## 2. LITERATURE REVIEW

Tourists' intention, in the tourism context, is a psychological state that emerges as a result of evaluative views, subjective standards, and other situational circumstances that emerge during the early phases of travel preparation (Moutinho, 2000). The Theory of Planned Behaviour (TPB), a component of the Theory of Reasoned Action, is extremely useful in characterizing a person's purpose to visit. This theory predicts and explains a person's behavioral intention based on mood, perceived behavioral control, and social norms (Ajzen, 1991). TPB is a useful framework for investigating people's travel preferences and behaviors (Han et al., 2020). Some research used TPB to reveal tourist intentions during global health crises, including COVID-19 (Li, Nguyen, and Coca-Stefaniak, 2021; Seong and Hong, 2021; Han et al., 2020). In different contexts, the impact of attitude, perceived behavioral control, and social norm would differ, according to Ajzen (1991). Therefore, this study used TPB, as well as perceived risk, knowledge, and word of mouth, to predict tourists' travel intentions in Malaysia during the COVID-19 pandemic.

Attitude refers to the psychological predispositions shown by a person's positive or negative judgements. In a number of studies, travellers' attitudes have been utilized to predict their intentions toward tourist sites (Chaulagain, Wiitala, and Fu, 2019; Jalilvand et al., 2012; Ajzen, 1991). Attitude is regarded as one of the most important indicators of tourist behavior toward any site in the context of cultural tourism (Xu, Jin and Lin., 2018; Jalilvand and Samiei, 2012; Jalilvand et al., 2012). TPB identifies attitude as a key aspect in establishing a person's behavioral purpose, alongside subjective norm and perceived behavioral control (Ajzen, 1991). Surprisingly, a tourist's positive attitude toward a destination is directly related to his or her desire to visit that location (Lee, 2009). According to Soliman (2021), and Huang, Chang, and Backman (2018) and attitude has a significant influence on behavioral intention to return to a tourism site. Similarly, attitudes influenced travelers' future behavioral intentions in the post-pandemic period (Pahrudin, Chen and Liu, 2021; Rahmafitria et al., 2021; Han et al., 2020). Meanwhile, an increased risk aversion attitude reduces travel intention, as previously shown by

Sánchez-Caizares et al. (2021), Zhu and Deng (2020), and Han et al. (2020). It is unknown what tourists' attitudes are during pandemic, which may influence their visit intentions. Therefore, the proposed hypothesis is: Ha1- Malaysians' intentions to travel during the COVID-19 pandemic are positively influenced by their attitude.

Subjective norm denotes how society influences a person's decision-making. In terms of the disposition of any activity, it refers to a person's awareness of the ideas of persons significant to them (Ajzen, 1991). In travel and tourism research, the subjective standard has been proven to be a crucial influence on tourists' intention to visit any place. Subjective norm is the most important element influencing Taiwanese tourists' intention to visit Hong Kong, according to Lam and Hsu (2006). Similarly, Beerli and Martin (2004) discovered that a person's travel intention is influenced by his or her immediate family members' opinions. While some studies reveal no relationship between subjective norm and behavior intention (Pahrudin et al., 2021; Huang, et al., 2018), others argue that subjective norm influences tourism intention during COVID-19 (Rahmafritria et al., 2021; Han et al., 2020; Li et al., 2020). Can the subjective norm still have a favorable impact on tourists' intentions to visit Malaysia or Malaysians' intentions to visit other countries in the wake of the COVID-19 pandemic? Thus, the proposed hypothesis is: Ha2- Malaysians' intentions to travel during the COVID-19 pandemic are positively influenced by their subjective norm.

The degree to which persons believe their behavior is under their control is referred to as perceived behavioral control (Trafimow et al., 2002). People are more likely to act when they have the money, time, chance, or opportunities to do so. In the tourism industry, research has shown a strong link between perceived behavioral control and the behavioral intentions of tourists going on vacation abroad (Su, Huang and Hsu, 2018; Lam and Hsu, 2006). The TPB hypothesis including Attitude, Subjective Norms, and Perceived Behavioral Control has a significant relationship with Intention and has been assessed and extended in tourist and consumer behavior studies (Hwang et al., 2020; Kim and Hwang, 2020; Wu, Tsai and Lee, 2017). Similarly, during the COVID-19 pandemic, a link between perceived behavioral control and behavior intention was identified (Pahrudin et al., 2021; Rahmafritria et al., 2021; Han et al., 2020; Li et al., 2020). To determine the third variables in TPB, thus, the proposed hypothesis is: Ha3- Malaysians' intentions to travel during the COVID-19

pandemic are positively influenced by their perceived behavioral control.

In the tourism context, Mansfeld (2006) described perceived risk as an individual's judgment of the chance that his/her behavior will expose him/her to risk, and that this will have a negative impact on the decision to travel beyond specific boundaries. The extent to which individuals perceive risk is critical in tourism since it has the capacity to affect their travel decision to a specific location (Sönmez and Graefe, 1998). The attitudinal connotation of cognition is influenced by the degree of perceived risk for something, resulting in a positive behavioral intention (Quintal and Polczynski, 2010; Lepp and Gibson, 2003). Tourists' opinions of a site are influenced by their risk beliefs, according to studies (Loureiro and Jesus, 2019; Khan et al., 2017). These threats frequently affect safety and security, as well as health. Health risk in tourism refers to the possibility of injury to a tourist's health and well-being when participating in travel and tourism activities (Olya and Al-ansi, 2018). In today's travel and tourism climate, tourists' perceptions of health risk are one of the most important factors in their decision-making process (Huang, Dai, and Xu, 2020). Travelers are more likely to cancel their trip plans to visit a destination if they believe the risks of infectious disease, terrorism, or natural catastrophe are high, because personal safety is the most important aspect to consider in destination selection (Hsu, Tsai and Wu, 2009; Kozak, Crotts and Law, 2007). Tourists who perceive more risk may have decreased travel intention, according to research done by Bae and Chang (2021), Neuburger and Egger (2021), Hotle, Murray-Tuite, and Singh (2020), and Zhu and Deng (2020). Thus, the proposed hypothesis is: Ha4 - Malaysians' intentions to travel during the COVID-19 pandemic are negatively influenced by their perceived risk.

Knowledge is the amount of information kept in one's memory (Tan, 2011). Tourists' knowledge of a destination as an internal resource can be linked to a variety of factors, ranging from assessing the destination's quality to obtaining new information at a destination (Baloglu and McCleary, 1999) as well as the status of COVID-19 there. In general, tourists who are made aware of the COVID-19 status for an intended destination are more likely to travel. Several findings have been made, including travel intention is negatively influenced by knowledge of COVID-19 risks, perceived risk, and risk aversion attitude. People who have travelled since the outbreak's start are more inclined to travel again. This finding is consistent with Das and Tiwari (2020), Ivanova et al. (2021), and

Turnšek et al. (2020). Furthermore, increased risk knowledge can diminish respondents' propensity to travel, which is consistent with the findings of Han et al. (2020) and Hotle et al. (2020). In terms of risks, tourists' behavior is heavily influenced by perceived knowledge (Han et al., 2020). When people are at risk, they attempt to lessen the danger by adopting reasonable measures such as complete or partial avoidance (Zhu and Deng, 2020). Despite high levels of knowledge having been connected to behavior (Traore, 1998; Wilson, 1996), there was no evidence of a correlation between these variables in several studies (Stofferahn, 2009; Schneider and Francis, 2006; Winter and Lockwood, 2005). Because the study is about COVID-19 risk knowledge in the host destination, it is proposed that: Ha5-Malaysians' intentions to travel during the COVID-19 pandemic are negatively influenced by their knowledge.

Word-of-mouth (WOM) is commonly acknowledged as having a substantial impact on customer perceptions and behaviors (e.g., Xia and Bechwati, 2008; Sen and Lerman, 2007). As the Internet has been more widely used, digital exchanges between tourists have become increasingly prevalent (Litvin et al., 2008; Vermeulen and Seegers, 2008). A rising number of people are seeking information on the Internet and through online services (Gursoy and McCleary, 2004). As a result, WOM has been found as a strong influence on behavioral intention (Rajaratnam et al., 2015; Chang, Backman and Huang, 2014; Canny, 2013; Žabkar, Brenčič, and Dmitrović, 2010; Alegre and Cladera, 2009; Cronin et al., 2000; Baker and Crompton, 2000). According to Compete (2007), one-third of potential tourists visited a message board, website, or online group before completing an online travel purchase. They did so because they believed that reading online reviews would assist them in making a more informed purchase decision.

Furthermore, a study found that a positive WOM not only draws more potential tourists, but it also demonstrates a desire to preserve a positive relationship with a specific destination (Liu et al., 2015). Similarly, Gretzel and Yoo (2008) discovered that over 70% of consumers consider interaction and internet feedback from experienced travellers to be important sources of knowledge when it comes to leisure and travel. This finding was backed up by Forrester's (2006) assertion that word of mouth is a critical factor for travellers. Aside from Bashar (2020) who discovered a positive relationship between WOM and tourist intention in Jordan and Qadri (2021) in Batam, Albarq (2014) found that electronic WOM also has a positive



impact on tourist intentions and attitudes toward destination selection. Can WOM impact on Malaysian tourists' intentions to travel in the wake of the COVID-19 pandemic. Therefore, the proposed hypothesis is: Ha6- Malaysians' intentions to travel during the COVID-19 pandemic are positively influenced by word of mouth.

### 3. RESEARCH METHOD

The present study was a quantitative research on the factors influencing tourist intention to travel during the COVID-19 pandemic, when travel is allowed. To investigate the stated hypotheses, a questionnaire was randomly sent to participants via WhatsApp application. In December 2020, convenience sampling yielded a total of 1,638 completed questionnaires. After screening for blank and straight lining responses as well as outliers, however, the full scale study was able to use only 1,568 responses. The questionnaire was divided into three sections: demographics, travel preferences, and 25 questions about the subject. Finally, main study factors such as intention, attitude, subjective norms, perceived behavioral control, perceived risk, knowledge, and word of mouth were evaluated using a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). It is believed that using a 7-point Likert-type scale improves the scale sensitivity, resulting in better response stimulus. Table 1 lists the sources of research instruments in the study.

TABLE 1  
Sources of Research Instruments

Variables	Sources
Intention	Luo and Lam (2020); Kim and Kwon (2020)
Attitude (Att)	Li et al. (2020); Kim and Kwon (2020), Chen and Tung (2014) and Wang and Ritchie (2012).
Subjective Norms (SN)	Li et al. (2020), Chen and Tung (2014) and Wang and Ritchie (2012).
Perceived Behavioral Control (PBC)	Li et al. (2020), Chen and Tung (2014) and Wang and Ritchie (2012).
Perceived Risk (Prisk)	Luo and Lam (2020)
Knowledge	Bults et al. (2011)
Word of Mouth (WoM)	Bashar (2020)

The Kaiser-Meyer-Olkin (KMO) Test was used to determine whether the data were suitable for factor analysis and whether there were any significant KMO findings that indicated that factor analysis should be performed. Factor analysis is one of the most useful tools for examining and assessing the internal structure of instruments (Henson and Roberts, 2006; Kieffer, 1999; Pedhazur and Schmelkin, 1991; Nunnally, 1978). The instruments were investigated using the Principal Axis Factor and Promax Rotation, followed by a reliability test. Prior to regression analysis, seven multiple regression assumptions were evaluated, including normality, normality of the error term, linearity, multicollinearity, constant variance, outliers, and autocorrelation. Finally, bootstrapped multiple regression was used to look at the impact of attitude, subjective norms, perceived behavioral control, perceived risks, knowledge, and word of mouth on respondents' intention to travel.

#### 4. FINDINGS

This section goes into great detail about the studies performed and the results obtained. For the proposed hypotheses, the study data were subjected to factor analysis, reliability analysis, Pearson's correlation coefficient, multiple regression assumptions, and regression analysis. The following Table 2 gives the sample profile.

TABLE 2  
Profile of Respondents

	Frequency	Percentage
Gender		
male	426	27.2
female	1142	72.8
Age		
<=20	327	20.9
21-30	1003	64.0
31-40	88	5.6
41-50	97	6.2
51-60	39	2.5
>60	14	0.9
Marital status		
single	1248	79.6
married	283	18.0
divorced/widowed	37	2.4

TABLE 2 (continued)

	Frequency	Percentage
<b>Education</b>		
primary	11	0.7
secondary	111	7.1
certificate	109	7.0
diploma	550	35.1
bachelor	720	45.9
master	53	3.4
doctorate	10	0.6
others	4	0.3
<b>Employment</b>		
student	929	59.2
government	209	13.3
private	240	15.3
self-employed	108	6.9
unemployed	62	4.0
retiree	15	1.0
others	5	0.3
<b>Monthly income</b>		
<=2000	1222	77.9
2001-5000	225	14.3
5001-8000	76	4.8
8001-11000	18	1.1
11001-14000	9	0.6
14001-17000	10	0.6
17001-20000	8	0.5

Table 2 illustrates the basic demographics of the 1568 participants, with females accounting for 72.8% (n = 1142) and males accounting for 27.2% (n = 426). A majority of them (64%; n = 1003) were between the ages of 21 and 30. Furthermore, an astounding 79.6% (n = 1248) was single [most of the respondents have tertiary education either at diploma, bachelor, master or doctorate level, 85.3% (n = 1337)]. The majority were students, 59.2% (n = 929), 15.3% (n = 240) private sector employees, 13.3% (n = 209) government sector staff, and so on, whereby 77.0% (n = 1222) earned less than RM2000 in contrast to (0.5%; n = 8) earning 17001 and over.

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) test was used to determine data acceptability for factor analysis, and a result of 0.944 was obtained, suggesting a desirable index. In the same way, Bartlett's test shows a significant reading. The data were found to be suitable for factor analysis, as evidenced by

these findings. Meanwhile, Anti-image Correlation Matrix was computed in SPSS by looking at the diagonal value next to each value with the 'a' letter (Table 3). All 25 variables were found to produce values greater than 0.5, as required by the measures of sampling adequacy (MSA). Hence, all of the study variables were considered viable for further factor research.

In the current literature, several variables have been described as influencing tourist intention to travel. As a result, the goal of Exploratory Factor Analysis in this study was to notify the system of the presence of seven variables in the data set; however, did the SPSS program agree with the seven factors? The factor analysis was utilized to create seven variables using Principal Axis Factoring and Promax rotation, indicating that the loading (i.e. correlation between the items and the construct) and cross loading were both more than 0.5 (Table 3).

Because their communality values were less than 0.5, seven of the mentioned problematic items (were deleted from the list. As a result, only 25 items remained from the original 32 in the questionnaire, with all communalities exceeding the cut-off value of 0.5. Table 3 also shows the percentage of variance that was eliminated by reducing the 25 items to seven variables. The analysis was only able to keep 71.85% of the original 100%, indicating a loss of around 28.15 percent. The number of factors extracted aligns with the hypothesis that they may influence tourist intention to travel (see the literature review section), resulting in a total of seven factors in the factor analysis.

The independent and dependent variables in the data set were used to establish the items belonging to which factors. Items Att1 to Att6 were then loaded onto Factor 1, while Prisk3, Prisk4, Prisk5, and Prisk6 were loaded onto Factor 2. In the meantime, items WoM1 to WoM4 were loaded onto Factor 3, items Intention2 to intention4 were loaded onto Factor 4, items knowledge3 and knowledge4 were loaded onto Factor 5; Pcb1, Pcb2, and Pcb4 were loaded onto Factor 6, and items SN1 to SN3 were loaded onto Factor 7. Factors 1 - 7 were defined and suggested to be labelled as attitude, subjective norms, perceived behaviour regulation, perceived risks, knowledge, and word of mouth respectively, after an observation of the items loading on each factor.

Then, for each of the seven variables (attitude, subjective norms, perceived behaviour control, perceived risks, knowledge, word of mouth, and intention to travel), reliability tests were conducted. The

reliability of existing scales should be about 0.8-0.9, according to Nunnally (1978). Both Cronbach's alpha values obtained in this analysis were greater than 0.80, according to the results of the research (Table 3).

Then, to gain insight and determine the relationship between tourist intention and its independent variables, Pearson's correlation analysis was used. Table 4 shows that, with the exception of perceived risk, all independent variables are positively correlated.

The normality of error terms was then determined using a histogram and a normal Probability-P plot. The residuals of the dependent variable were generally normally distributed, according to the histogram analysis, with mean (-4.25E-15) and standard deviation (0.998) values near to 0 and 1. (Appendix 1). Meanwhile, the standard Probability P-Plot revealed that some of the points were extremely close to the line, while others were directly on the line, indicating that the errors were normally distributed (refer Appendix 1). A partial regression plot between the dependent and independent variables was also used to assess linearity; both graphs were random and without any identifiable patterns (Appendix 3). The Variance Inflation Factor (VIF) was also used to determine the multicollinearity, which yielded values less than 3.4. Furthermore, in collinearity diagnostics, the largest condition index was 23, which was less than 30, and the variance proportion for all independent variables was less than 0.9. As a result, the data were discovered to be multicollinearity-free (Table 5). In the meantime, the distributions in the regression residual and regression standardized residual scatter plots were evaluated to check for any constant variance (homoscedasticity). The variance could then be determined to be stable, indicating that the constant variance problem had been solved (Appendix 2). Last but not least, autocorrelation was 1.978 based on the Durbin-Watson value; literature says that autocorrelation is not an issue as long as the number is between 1.5 and 2.5.

After the multiple regression assumptions were met, the next step was to examine the six variables of attitude, subjective norms, perceived behavior control, perceived risk, knowledge, and word of mouth in predicting tourist intention to travel. ANOVA result,  $F(6,1568) = 359.191$ ,  $p < 0.01$ , indicated that the model is statistically relevant and that one could be produced. The  $R^2 = 0.583$  value indicated that all six independent variables together could explain 58.3 percent of the difference in tourist intention to travel, leaving 41.7 percent unexplained.

Table 5 shows that all variables are significant predictors of intention to travel. In particular, attitude ( $B = 0.192$ ,  $t(1568) = 6.361$ ,  $p < .01$ , BCa 95% CI [0.147, 0.278]), subjective norm ( $B=0.217$ ,  $t(1568)=7.695$ ,  $p < .01$ , BCa 95% CI [0.169, 0.284]), perceived behaviour control ( $B=0.321$ ,  $t(1568)=10.928$ ,  $p < .01$ , BCa 95% CI [0.267, 0.384]), and word of mouth ( $B=0.149$ ,  $t(1568)=6.835$ ,  $p < .01$ , BCa 95% CI [0.139, 0.252]) were positively related to intention to travel during Covid-19 pandemic. Contrastingly, perceived risk ( $B=-0.089$ ,  $t(1568)=-4.480$ ,  $p < .01$ , BCa 95% CI [-0.165, -0.065]) and knowledge ( $B=-0.052$ ,  $t(1568)=-2.513$ ,  $p < .05$ , BCa 95% CI [-0.131, -0.016]) were negatively linked to intention to travel. Overall, all of the variables measured were statistically significant. In the meantime, all of the variables' effect sizes ( $F^2$ ) were small. Among the small effect sizes, perceived behavioral control has the highest value, followed by subjective norms, word of mouth, attitude, perceived risk, while the least went to knowledge.

TABLE 3  
Results of Factor Analysis

	1	2	3	4	5	6	7	Communalities	Anti-image Correlation
Att1	0.829	-0.050	0.012	0.019	-0.034	-0.071	0.058	0.697	0.962 <sup>a</sup>
Att2	0.875	-0.078	0.014	-0.015	0.079	-0.052	0.021	0.753	0.961 <sup>a</sup>
Att3	0.680	0.046	-0.035	0.026	-0.102	0.047	0.109	0.599	0.981 <sup>a</sup>
Att4	0.925	-0.010	0.022	-0.015	-0.014	-0.006	-0.097	0.752	0.966 <sup>a</sup>
Att5	0.849	0.021	-0.047	0.020	-0.008	0.001	0.038	0.738	0.976 <sup>a</sup>
Att6	0.779	0.063	0.034	0.015	-0.041	0.044	-0.037	0.658	0.975 <sup>a</sup>
SN1	0.332	-0.010	-0.010	-0.041	0.068	0.053	0.645	0.793	0.957 <sup>a</sup>
SN2	0.283	0.025	0.026	0.026	0.001	-0.016	0.712	0.852	0.946 <sup>a</sup>
SN3	0.358	0.001	0.012	0.013	0.039	0.025	0.595	0.791	0.963 <sup>a</sup>
PBC1	0.303	-0.034	-0.042	-0.047	-0.004	0.683	0.050	0.808	0.958 <sup>a</sup>
PBC2	0.248	-0.047	-0.018	-0.003	-0.009	0.719	-0.005	0.800	0.955 <sup>a</sup>
PBC4	0.318	0.006	0.034	0.048	0.017	0.591	-0.022	0.781	0.967 <sup>a</sup>
PRisk3	0.085	0.637	0.034	-0.085	0.183	0.040	-0.042	0.615	0.885 <sup>a</sup>
PRisk4	0.133	0.542	0.042	-0.043	0.229	0.101	-0.144	0.565	0.890 <sup>a</sup>
PRisk5	-0.089	0.901	-0.028	0.062	-0.096	-0.061	0.078	0.715	0.779 <sup>a</sup>
PRisk6	-0.036	0.939	-0.002	0.032	-0.082	-0.044	0.036	0.802	0.787 <sup>a</sup>
Knowledge3	-0.066	0.022	0.054	0.000	0.837	-0.016	0.040	0.745	0.818 <sup>a</sup>
Knowledge4	-0.036	0.027	-0.053	0.042	0.846	-0.032	0.042	0.677	0.804 <sup>a</sup>
Intention2	0.133	-0.055	0.040	0.650	0.080	0.130	-0.039	0.718	0.963 <sup>a</sup>
Intention3	0.079	0.030	-0.049	0.934	0.026	-0.013	-0.012	0.896	0.922 <sup>a</sup>
Intention4	0.067	0.015	0.018	0.909	-0.031	-0.071	0.020	0.858	0.922 <sup>a</sup>
WoM1	0.089	0.014	0.702	0.028	0.042	-0.009	-0.036	0.604	0.952 <sup>a</sup>
WoM2	0.041	0.029	0.762	-0.026	-0.018	-0.072	0.012	0.553	0.938 <sup>a</sup>
WoM3	-0.071	0.024	0.906	-0.084	-0.013	0.011	0.016	0.721	0.916 <sup>a</sup>
WoM4	-0.004	-0.073	0.680	0.136	-0.029	0.052	0.037	0.587	0.958 <sup>a</sup>
Cronbach alpha	0.929	0.867	0.852	0.926	0.837	0.917	0.928		
Eigenvalue % of Variance	11.091	3.902	1.124	0.913	0.606	0.540	0.506		
	42.657	15.009	4.324	3.512	2.330	2.077	1.946		

TABLE 4  
Correlation Analysis

	Attention	Subjective Norms	Perceive Behavioural Control	Perceived Risk	Knowledge	Word of Mount	Intention
Attitude	1						
Subjective Norms	0.764**	1					
Perceive Behavioural Control	0.778**	0.741**	1				
Perceived Risk	-0.010	-0.014	-0.029	1			
Knowledge	0.082**	0.034	0.076**	0.525**	1		
Word of Mount	0.491**	0.421**	0.485**	0.313**	0.420**	1	
Intention	0.671**	0.661**	0.694**	-0.062*	0.023	0.460**	1

\*\*p<0.01, \*p<0.05

TABLE 5  
Hypothesis Testing

Hypothesis	Unstd. Beta	Std. Error	Std. Beta	t-value	p-value	LL	UL	VIF	f <sup>2</sup>
H1 Attitude	0.212	0.033	0.192	6.361	P< .001	0.147	0.278	3.369	0.026
H2 Subjective Norms	0.227	0.029	0.217	7.695	P< .001	0.169	0.284	2.937	0.038
H3 Perceive Behavioural Control	0.326	0.030	0.321	10.928	P< .001	0.267	0.384	3.199	0.077
H4 Perceived Risk	-0.115	0.026	-0.089	-4.480	P< .001	-0.165	-0.065	1.464	0.014
H5 Knowledge	-0.074	0.029	-0.052	-2.513	0.012	-0.131	-0.016	1.559	0.005
H6 Word of Mouth	0.195	0.029	0.149	6.835	P< .001	0.139	0.252	1.765	0.031



## 5. DISCUSSION AND CONCLUSION

At the time of writing, the tourism industry in Malaysia has yet to recover from the COVID-19 pandemic. The study focused on Malaysian tourists' intentions and employed a demand-side strategy. Policymakers and practitioners need to listen to the viewpoints of tourists and consider altering the necessary travel demand in the aftermath of the COVID-19 outbreak. Thus, the Theory of Planned Behavior (Ajzen, 1991) was used, together with perceived risk, knowledge, and word of mouth, to analyze Malaysians' tourist intentions during the pandemic. Kaiser-Meyer-Olkin (KMO), Bartlett Tests, Principal Axis Factor, Promax Rotation and multiple regression were conducted. Based on 1568 respondents, all of the factors were found to significantly affect tourist intention. The effect sizes for all the variables were relatively small, however, and this was most likely because the country is still suffering from the spread of COVID-19 at time of writing and the curve of reported COVID-19 positive cases has yet to flatten.

The main goal of TPB is to anticipate and explain a person's behavioral intention, perceived behavioral control, and social norms (Ajzen, 1991). The idea was used to determine tourist intention to travel during the COVID-19 pandemic in Malaysia. Tourist intention to travel was positively related to the variables in the theory of planned behavior, namely attitude, subjective norm and perceived behavior control. According to Lee (2009), a tourist's optimistic attitude toward a destination is highly related to his or her desire to visit that destination, which is consistent with Pahrudin et al., (2021); Rahmafritria et al. (2021) and Han et al., (2020). It has also been discovered that a person's travel intention can be influenced by the perceptions of his or her close family members and relatives. This is consistent with the findings of Rahmafritria et al. (2021); Han et al. (2020); Li et al. (2020); Lam and Hsu (2006), and Beerli and Martin (2004). Aside from that, the study discovered that tourist intention to travel had a significant relationship with perceived behavioral control, a finding that has been supported by Pahrudin et al. (2021); Rahmafritria et al. (2021); Han et al. (2020); Li et al. (2020); Halpenny, Kono, and Moghimehfar (2018), and Su et al. (2018) and Lam and Hsu (2006). To summarize, during the COVID-19 pandemic, attitudes, subjective norms, and perceived behavioral control were found to positively influence Malaysian tourist intention to travel, which was comparable to the situation pre- pandemic.

Perceived risk was reported to have a negative impact on tourist intention to travel during the COVID-19 pandemic. This is consistent with the studies by Bae and Chang (2021), Neuburger and Egger (2021), Zhu and Deng (2020), Hotle et al. (2020), Khan et al. (2017), and Loureiro and Jesus (2019). Tourists' perceptions of a destination are influenced by their perceptions of risk. Travelers show an intention to visit if the perceived risk is low. Likewise, they would have their travel plan intention change if the risk perception of the destination is high. Tourists are more inclined to seek out areas with well-developed infrastructure and high-quality medical services as a result of the COVID-19 outbreak. As a consequence, in order to promote domestic and international tourism, local governments must first stabilize the local COVID-19 pandemic situation. Only then will they be able to show their ability to protect tourists, allowing the tourists to relax and enjoy themselves in the host destinations. Apart from this, the local government must plan adequate facilities to counter emerging or current COVID-19 pandemic so that tourists can travel with confidence and experience less stress in host destinations. Besides, it is important to think about hygiene, disinfection, and a safe health system when making a travel decision (Çelik and Dedeoğlu, 2019; Wijaya et al., 2018); tourists should get vaccinated from time to time and get travel insurance while planning vacations to ensure that they are protected in the event of illness, such as COVID-19.

According to this study, word-of-mouth (WOM) has a positive impact on tourist intention to travel during the COVID-19 pandemic, consistent with Qadri (2021), Bashar (2020) and Albarq (2014). It can be assumed that as a tourist's WOM of a particular destination grows, so does his or her intention to pick, revisit, and suggest that destination to others (Mohaidin, Wei and Murshid, 2017; Mohd Isa and Ramli, 2014; and Prebensen, Skallerud and Chen, 2010). As a result, WOM plays an important role in informing potential tourists about a specific destination. Similarly, Albarq (2014) discovered in his online tourism analysis that electronic WOM has a positive effect on tourists' intention to select a destination. During a pandemic, some timely reviews are even more critical and helpful for tourists to learn about the actual issue and situation in the destination's hotels, attractions, and restaurants.

This study, on the other hand, discovered that knowledge had a negative impact on tourist intention to travel following the COVID-19 pandemic, which is similar with the findings of Han et al. (2020) and Hotle et al. (2020). Tourists are less likely to visit a destination if

they are aware of the outbreak. Talking about knowledge, thanks to developments in information and communications technology and social media networks, tourists can get accurate, trustworthy, and real-time information about a specific region. They can also gain quick access to information on the areas' resources, policies, and infrastructures. As a result, they will have a better understanding of the destination information, which will influence their decision to visit.

The tourism industry is struggling from the effects of the COVID-19 pandemic. Following this event, it is critical that the company listens to 'consumers' and understands their shifting lifestyle and travel demands. This study helps tourism businesses/industries develop and adapt their service to meet the changing demand due to the pandemic by exploring tourist intentions to travel. The predicted findings suggest that Malaysians' travel behavior during the pandemic period could be similar to that of people all over the world, suggesting that the findings may be generalized to tourists from other states and foreign tourists. Understanding what factors affect these people's decisions can aid policymakers in developing accommodating and convenient policies for tourists during the present COVID-19 pandemic or any future crisis. This is not only a smart strategy for assisting tourism practitioners and policymakers, but it also has the potential to restore and stabilize travel, tourism earnings and economic growth, enabling achievement of long-term development targets.

This study's main limitation is that it is biased toward single female respondents aged 21 to 30. Though this is consistent with The Malaysia Reserve report that women make up more (62%) of the undergraduate population than men (Azuar, 2022), it should be improved. Future research should focus on diverse age groups with varied backgrounds to assess people's actual travel behavior following the pandemic to establish its determinants. Next, the study used convenience sampling via the WhatsApp application to collect data during the pandemic's peak. Future studies should utilize the right sampling strategy to enhance the representativeness of the intended population to ensure the applicability of the findings.

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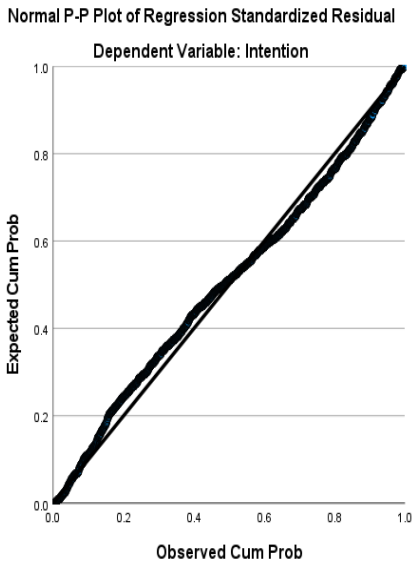
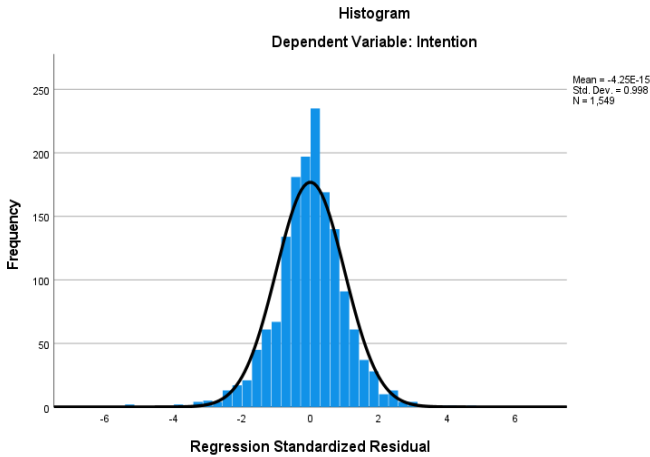
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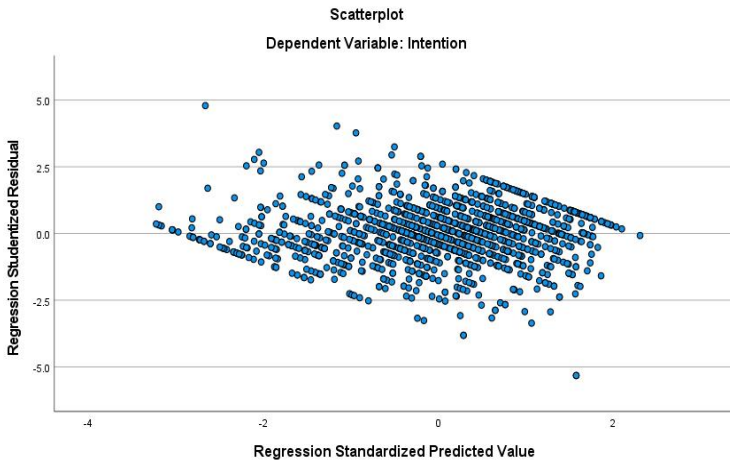
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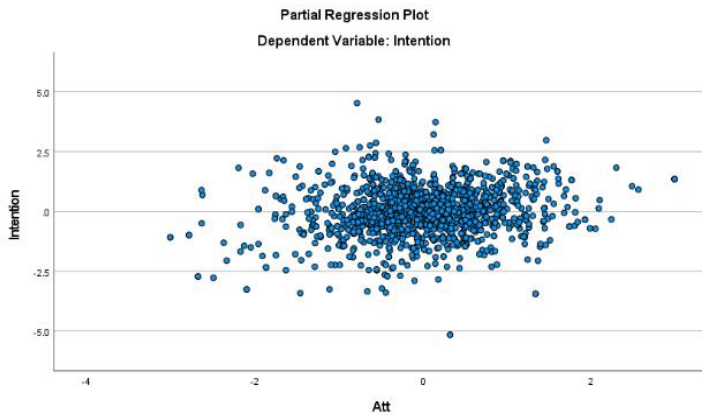
### APPENDIX 1 Normality Error Terms

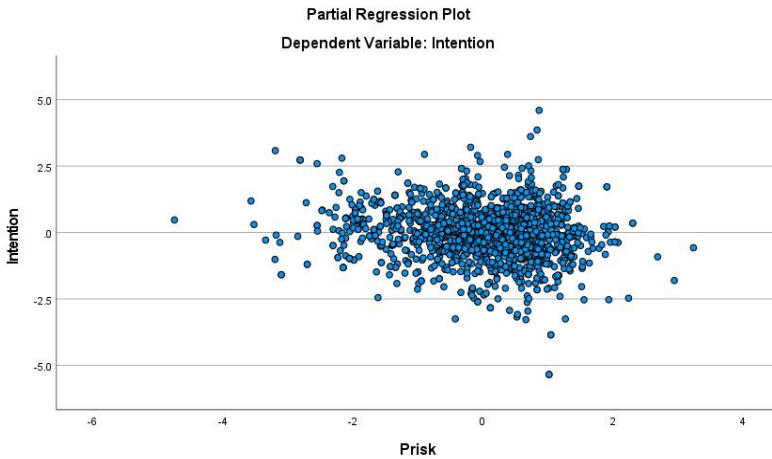
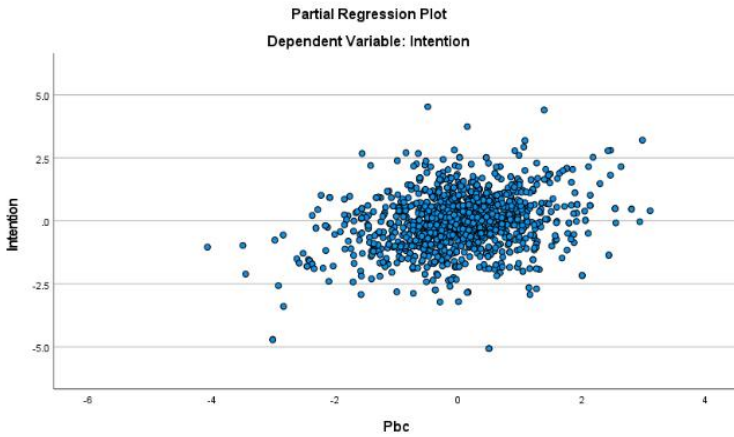
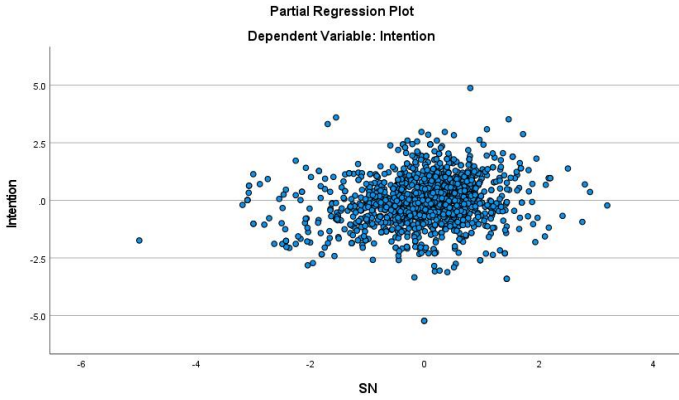


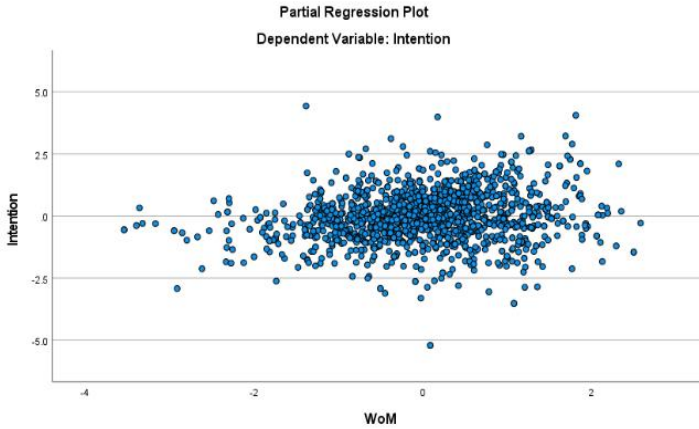
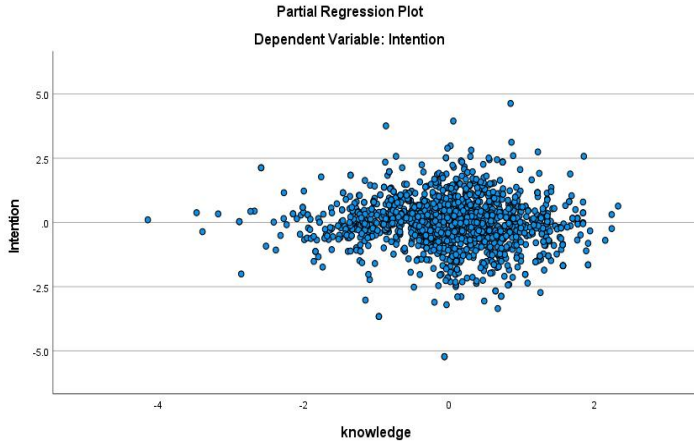
## APPENDIX 2 Constant Variance



## APPENDIX 3 Linearity













## **KNOWLEDGE MANAGEMENT PRACTICES AND ACADEMICIAN WELL-BEING: A CASE STUDY OF SELECTED PRIVATE UNIVERSITIES IN MALAYSIA**

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### **ABSTRACT**

Academics and practitioners have considered knowledge management practices as the keys to organizational competitive advantage which would contribute to the success of a business organization. Previous studies on knowledge management practices and employee well-being, however, have received little attention. Hence, the purpose of this paper is to empirically investigate the relationship between knowledge management practices, specifically knowledge acquisition, knowledge sharing, knowledge creation, knowledge codification and knowledge retention on academics' well-being. A questionnaire-based survey was conducted to gather data from academics in selected private universities in Malaysia. Questionnaires were distributed and gathered with a total of 170 usable responses. The analysis of the findings was conducted using structural equation modeling (SEM-PLS). The findings suggested that knowledge acquisition, knowledge creation and knowledge retention are likely to improve academics' well-being. The findings also revealed that knowledge sharing and knowledge codification are not significant with academics' well-being. This paper is limited to academics in private higher education institutions. Hence, this limits the generalizability of the results. Future research could therefore test the applicability of these findings beyond the higher education sector. Studies comprising the relationship between the five main knowledge management

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practices and academicians' well-being are still lagging in the academic literature. This study provides theoretical as well as practical information on a relatively unexplored area.

JEL Classification: I23, I31, J28, O15

Keywords: Knowledge management, Employee well-being, Academicians, Private university

Submitted: 01/01/2022    Accepted: 06/05/2023    Published: 28/06/2024

## 1. INTRODUCTION

Higher education institutions not only function as a provider of knowledge but also as pertinent sectors for the nation's growth and societal well-being (Mabaso and Dlamini, 2018). The universities are known as knowledge-based organizations and serve as knowledge reservoirs. According to Krishnan and Kasinathan (2017), educational institutions are experiencing a paradigm shift in which the employees are dealing with a more and more demanding working environment. Private universities in Malaysia face numerous challenges to compete in the private higher education industry in order to achieve the government's vision to transform Malaysia into an education hub in the Asian region. Four Malaysian private universities have been listed in the QS World University Rankings of 2020 (QS Asia University Rankings, 2020).

Since 2010, there has been a rapid expansion of private universities which then contributed to an increase in the number of foreign students, which led to private universities intensely competing to get equipped with potential academicians and at the same time, to retain greater profitability (Manogharan and Thivaharan, 2018; Krishnan and Kasinathan, 2017). Besides that, private universities must ensure that they provide high-quality educational services and produce a skilled workforce (Choong et al., 2013). It is therefore not surprising that the rise in establishment of private universities demonstrates that knowledge management practices are also important in educational institutions as they are in the corporate world. Academicians play a vital role in determining the quality of a private university. Hence, efforts to transform organizational practices that can improve the well-being of academicians are highly desirable (Othman, Lamin, and Othman, 2014).

The gravity of declining well-being can be clearly observed from a report published by the Malaysian Employers Federation which

highlighted the education sector in general has been reported to have a high turnover rate. The turnover rate remained high at 29.8% and decreased to 16.6% for the period of July 2017 to June 2018 and July 2018 to June 2019 respectively (Malaysian Employers Federation, 2019). Although there was a decreasing trend between the years 2018 and 2019, it is noticeable that the turnover rate among academicians remains high and improvement is progressing slowly. The issue of turnover, well-being, and adequate quality of human resources remains an exhausting issue for many developing countries, including Malaysia. Hence, this impacts on Malaysia to achieve high-quality labor and high-productivity employees with healthy physical and mental conditions (Arshad and Malik, 2015).

Employee well-being is the most researched topic in organizational behavior and psychology; however, it is rarely approached from a KM perspective. Employee well-being can be described as “an individual’s life satisfaction and happiness” (Huang et al., 2016). As recommended by Kianto, Vanhala, and Heilmann (2016), KM can be “added to the toolbox of managers, consultants and other organizational developers attempting to improve the conditions for well-being at work”. There is a significant gap in the literature in offering a comprehensive well-being concept that has been analyzed and proven. Only a relatively small number of empirical research studies, however, has focused on employee well-being from the perspective of KM (Kianto et al., 2016; Chung et al., 2016; Chung et al., 2014). Drawing on the conservation of resource theory (COR) that links KM practices and well-being is hypothesized in the following section. As a result, the purpose of this study will be to investigate the relationship between knowledge management and employee well-being among academicians in Malaysia’s private higher education sector.

## 2. LITERATURE REVIEW

### 2.1 EMPLOYEE WELL-BEING

Well-being is used interchangeably by scholars with other concepts or terms such as satisfaction, happiness, and quality of life (Achour et al., 2017; Kefeli et al., 2017; Kianto et al., 2016). It is frequently mentioned as a component of a multidimensional quality of life. Physical well-being, material well-being, social well-being, emotional well-being, and development and activity are the five dimensions of

well-being (Kefeli et al., 2017). Since this study focuses on employee well-being, it is perceived as workplace well-being or quality of working life (Chan and Wyatt, 2007). The term that specifically defines well-being at the organizational level has evolved and broadened over time. In general, the bottom line is that well-being can be defined as a positive evaluation of one's life satisfaction and happiness (Mellor et al., 2016; Hills and Argyle, 2002).

Research has found that various instruments and concepts have been studied for an individual's well-being. According to the study conducted by Caesens, Stinglhamber, and Luypaert (2014), job satisfaction, perceived stress and sleep disorders are indicators of one's well-being. Their findings have revealed that work engagement is positively linked to the well-being indicator. Similarly, work engagement has been shown to lead to a decline in illness and contribute to better well-being for both life satisfaction and job performance, while workaholism has resulted in a lack of employee well-being. Shimazu et al. (2015) looked at well-being with various indicators including psychological distress, physical complaints, job satisfaction and family satisfaction.

Further, Kianto et al. (2016) examined the impact of KM practices on job satisfaction among Finnish municipal organizations and pointed out that KM had a connection to employee job satisfaction. KM is a crucial element and should be an organization's current focus with the aim of improving employee well-being at work. This is because job satisfaction is closely related to the concept of well-being and it is well-known as a well-being indicator by many scholars (Chung et al., 2016; Kianto et al., 2016; Shimazu et al., 2015; Caesens et al., 2014). In the same vein, Alzyoud (2016) highlighted a positive relationship between job satisfaction and employee well-being. Job satisfaction is commonly characterized as well-being; however, job satisfaction differs from well-being as it is actually only part of employee well-being. People's job satisfaction depends largely on their workplace well-being. This is because job satisfaction is highly interrelated and associated with individual life satisfaction (Chung et al., 2014).

Most of the studies focused on a wide range of antecedents or determinants that will affect an individual's well-being which has been conducted in different settings or organizations. Nevertheless, it can be concluded that limited studies focus on the perspectives of KM and how this component can improve employee well-being. As such, it would be of great interest to investigate the subject matter and dwell

further on the practice of KM and employee well-being among academicians.

## 2.2 KNOWLEDGE MANAGEMENT PRACTICES

KM refers to the process of identifying and influencing collective knowledge that contributes to organizational competitive advantage which would assist organizations to compete in their operating market (Kianto et al., 2016). Scholars discussed that KM practices can be divided into several categories (Kianto et al., 2016; Alavi and Leidner, 2001; Nonaka and Takeuchi, 1995). Following Kianto et al. (2016), this study proposes that KM can be divided into five main practices: knowledge acquisition, knowledge sharing, knowledge creation, knowledge codification and knowledge retention. These five main KM practices are important as it is proven that KM impacts on “soft” human issues (i.e., satisfaction and well-being) which are largely unexplored in previous research (Pruzinsky and Mihalcova, 2017; Kianto et al., 2016).

Knowledge acquisition refers to the collection of external sources of information for an organization (Kianto et al., 2016). Knowledge acquisition is devoted to the task of transferring knowledge from one or more sources to other users (Pruzinsky and Mihalcova, 2017). Knowledge sharing can be defined as one of the fundamental KM practices that involve two or more individuals or groups to mutually exchange or share knowledge (Wang and Wang, 2012). Knowledge must be transferred or shared in order for it to have a broad organizational impact (Kianto et al., 2016).

Knowledge creation can be described as an organization's ability to encourage the development of proposing new or useful ideas and solutions (Kianto et al., 2016). Any business in the current highly competitive era, needs a solid knowledge creation setup in its organization. This helps in creating opportunities in setting up one's blue ocean strategy (Hashim, Talib and Alamen, 2014). Knowledge codification refers to the transformation activity of tacit knowledge into a codified or explicit form of knowledge which is known as “people-to-document” (Bettiol et al., 2012). Following Nonaka and Takeuchi (1995), the transformation of tacit knowledge into explicit forms of knowledge is through the externalization process. The process of codification is critical where sufficient resources are needed, such as proper tools or systems for communication and information technology (Kianto et al., 2016). According to Kianto et al. (2016), knowledge retention refers to activities related to managing

personnel turnover and the associated loss of expert knowledge which is the key strategic resource for an organization. According to Motshegwa (2017), this involves a process of focusing on critical knowledge that poses a risk of loss to an organization.

### 2.3 CONSERVATION OF RESOURCES (COR) THEORY

Conservation of Resources (COR) theory serves as the theoretical foundation for the antecedent of KM practices and the outcome of employee well-being in this study. The theory has been widely used and cited in organizational psychology and organizational behavior (Halbesleben et al., 2014; Avey et al., 2010; Hobfoll, 2002). COR theory suggests that people “seek to obtain, retain and protect resources or those things that they centrally value” (Hobfoll et al., 2018; Avey et al., 2010). It is a theory of human motivation that explains much of human behavior based on the evolutionary need to acquire or conserve resources. According to Hobfoll’s definition of resources, anything that holds value to someone could be considered a resource (Halbesleben et al., 2014). On the other hand, resources are often loosely perceived as objects resources (e.g., car, tools for work), conditions resources (e.g., seniority, employment, tenure), personal resources (e.g., key skills, self-efficacy), energy resources (e.g., knowledge, credit, money) and other things that people value (Hobfoll et al., 2018; Halbesleben et al., 2014). These include commonly valued resources such as health, well-being, family, self-esteem, and a sense of meaning in life.

This study proposes that KM practices and employee well-being may be supplemented by the principles of the COR theory to better understand why they contribute to individual well-being. The resource investment principle of COR stated that people must invest resources in order to protect against resource loss, recover from losses and gain resources (Hobfoll et al., 2018; Hobfoll, 2002). This study, therefore adopts the COR theory, according to which people have an inherent need to grow and develop by acquiring and preserving their knowledge (personal and energy resources) for the protection and acquisition of their individual valued resources, the greater well-being. Employees must invest knowledge resources to protect themselves from losing their valued resources, which is their well-being.

Knowledge is considered as one’s personal resources or energy resources and is embedded at the individual, group, or at the organizational level. Meanwhile, KM practices exist in both employees and organizations. This is related to the resource caravans

of the COR theory where Hobfoll (2002) theorized that resources do not exist individually but travel in packs or caravans, both for individuals and organizations. Organizations with successful KM practices would be perceived as an organizational resource that gives employees empowerment, trust, a feeling of happiness, well-being and energy at work (Yan et al., 2019; Kim, Lee, and Yun, 2016). Furthermore, many psychological researchers have taken the initiative to examine the impact of people's resources on their resistance to stress and well-being. Well-being is in fact a subjective experience. Avey et al. (2010) stressed that well-being is a primary resource, and it is secured by secondary work-related resources. Guler and Cetin (2019) emphasized that personal resources can increase employee well-being. In line with the resource investment principle of COR theory, this study proposed that acquiring, sharing, and creating resources through KM practices, can motivate employees to protect, preserve and improve their valued resources – employee well-being.

### 3. HYPOTHESES DEVELOPMENT AND RESEARCH FRAMEWORK

#### 3.1 KNOWLEDGE MANAGEMENT AND EMPLOYEE WELL-BEING

Employee well-being from the positive psychology perspective has been thoroughly studied in the existing literature (Shimazu et al., 2015; Caesens et al., 2014). Discussions on the relationship between KM and employee well-being, however, are scarce in the literature. This shows that KM scholars rarely addressed the effect of KM on “soft” performance issues, such as employee well-being. As the term job satisfaction is closely linked to the concept of well-being, past studies have shown a connection between KM and job satisfaction (Arif and Rahman, 2018; Pruzinsky and Mihalcova, 2017; Kianto et al., 2016). The research done by Kianto et al. (2016) involving Finnish municipal organizations also found that KM practices (knowledge sharing, knowledge codification and knowledge retention) in the working environment are linked to high employee job satisfaction. They also noticed that only knowledge acquisition and knowledge creation have no relation to job satisfaction. Consistent with this, Pruzinsky and Mihalcova (2017) concluded that only knowledge acquisition and knowledge creation have no connection with job satisfaction. Based on their study conducted among the public organization employees in south-eastern Slovakia, it was shown that there exists a relationship between KM practices involving knowledge



sharing, codification and retention with job satisfaction. Although some KM practices have a negative relationship with job satisfaction, more future studies are needed to enrich findings on the relationship between KM and job satisfaction (conceptualized as well-being) so that it can be accurately proven. It is noteworthy that scholars considered job satisfaction as a construct or dimension for well-being (Kianto et al., 2016; Shimazu et al., 2015; Caesens et al., 2014).

### 3.2 KNOWLEDGE ACQUISITION AND EMPLOYEE WELL-BEING

Singh and Sharma (2011) stated that knowledge acquisition enhances employee well-being based on research done among knowledge workers in Indian telecommunications organizations. Similarly, the effect of knowledge acquisition on student employability and improved well-being has been discovered by Xu et al. (2020). According to Kianto et al. (2016), KM practices will boost employee job satisfaction and thereafter become an additional organizational practice to enhance employee well-being at work. The results of his study on effect of KM on job satisfaction, however, showed that knowledge acquisition had little to no effect on job satisfaction. One could argue that the study that has been done thus far on knowledge acquisition and employee well-being is relatively limited and inconclusive. Knowledge acquisition is anticipated to have a beneficial impact and the ability to enhance employee well-being. Hence the first hypothesis is:

H1: Knowledge acquisition has a significant positive relationship with employee well-being.

### 3.3 KNOWLEDGE SHARING AND EMPLOYEE WELL-BEING

Job satisfaction is closely related to the concept of employee well-being. Employees' workplace well-being is expected to improve as the process of sharing knowledge internally within an organization is the key process for improving job satisfaction. Rafique and Mahmood (2018) conducted a systematic literature review to find empirical evidence on the current relationship between knowledge sharing and job satisfaction. Three studies were conducted in China, two in Taiwan, and one in Malaysia, with participants from a variety of public and private organizations including the higher education sector. The results clearly showed that knowledge sharing had a significant positive impact on job satisfaction (conceptualized as well-being). In

the same vein, Wang, Yang and Xue (2017) also identified the roles of knowledge sharing on individual innovation behavior and found that knowledge sharing positively influences employee well-being. On the basis of these arguments, it is possible to conclude that knowledge sharing practices play an important role in improving employee well-being.

H2: Knowledge sharing has a significant positive relationship with employee well-being.

### 3.4 KNOWLEDGE CREATION AND EMPLOYEE WELL-BEING

Knowledge creation can be a source of competitive advantage because it contributes to the development of new and innovative ideas (Bratianu, 2015). Very little research considered the connection between knowledge creation and employee well-being. Maciocha et al. (2012) analyzed the relationship between knowledge creation and employee well-being and found that the knowledge creation process is the mediating factor to improve an organization's productivity and performance if the organization focuses on enhancing employee well-being. Since the study was conducted on the basis of relevant literature reviews, it advised on the need for empirical evidence on the relationship between knowledge creation and employee well-being. Kianto et al. (2016) emphasized that knowledge creation can be an important driver in improving employee well-being, but that more empirical research is needed. Regardless, knowledge creation has the potential to improve employee well-being.

H3: Knowledge creation has a significant positive relationship with employee well-being.

### 3.5 KNOWLEDGE CODIFICATION AND EMPLOYEE WELL-BEING

Kianto et al. (2016) and Pruzinsky and Mihalцова (2017) discovered a significant positive relationship between knowledge codification and job satisfaction (conceptualized as well-being). Knowledge codification specifically improves well-being by enabling employees to easily search for new information as well as manage and discover new ways to perform their daily tasks effectively and efficiently (Pruzinsky and Mihalцова, 2017). Many organizations are aware of KM, but the impact of knowledge codification on employee well-being appears to be neglected in KM research. Empirical testing

should therefore be conducted (Arif and Rahman, 2018), and the following hypothesis is proposed in this study:

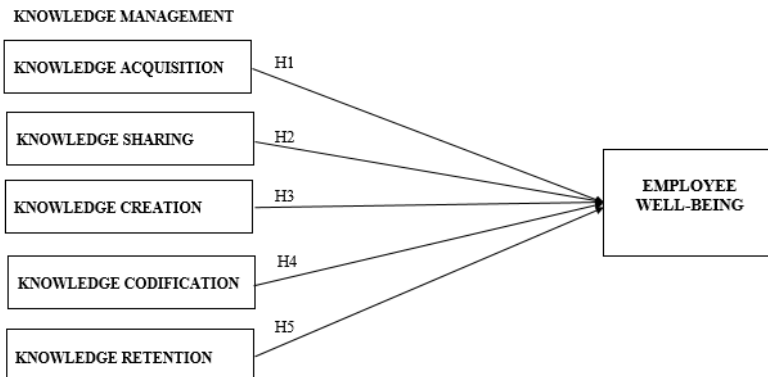
H4: Knowledge codification has a significant positive relationship with employee well-being.

### 3.6 KNOWLEDGE RETENTION AND EMPLOYEE WELL-BEING

In a study conducted in a Finnish municipal organization, internal knowledge retention and knowledge sharing have been identified as key processes that can enhance job satisfaction (conceptualized as well-being) (Kianto et al., 2016). Furthermore, Pruzinsky and Mihalcova (2017) conducted a study on KM and job satisfaction among municipal employees in Slovakia. The findings indicated that knowledge retention is the key KM process that can improve employee job satisfaction. This means that continuous learning and knowledge retention among employees is critical to ensuring employee job satisfaction, thus improving employee well-being. It is therefore critical to reduce organizational knowledge loss through knowledge retention practices that improve employee well-being. The current study aims at investigating the effects of knowledge retention on academicians' well-being at selected Malaysian private universities. The research framework is illustrated in Figure 1:

H5: Knowledge retention has a significant positive relationship with employee well-being

FIGURE 1  
Research Framework



## 4. METHODOLOGY

### 4.1 RESEARCH SETTING AND PARTICIPANTS

Based on the research philosophies of positivism, this study has adopted a deductive approach or quantitative research design. Deductive research emphasizes more heavily the need to explain causal relationships between variables, moving from theory to data, and the need to select samples in order to generalize conclusions (Saunders et al., 2007). Furthermore, this study is a descriptive study since the objective of this study is to “portray an accurate profile of reasons, events or situations” (Saunders et al., 2007). Mooi and Starsted (2011) explained that descriptive research is used to describe certain phenomena, characteristics, or functions. The quantitative method uses deductive reasoning and seeks to test the formulated hypothesis (McBurney and White, 2010). The main objectives of this research are to conduct hypothesis testing on KM practices (independent variables) and their impact on academicians' well-being (dependent variable).

Data were gathered through a survey; hence, multivariate normality was determined using web software; <https://webpower.psychstat.org/models/kurtosis/>, as suggested by Cain et al. (2017). The Mardia coefficient of multivariate skewness was 5.076 and the kurtosis was 59.811 (with cut-off values of  $\pm 1$  and  $\pm 20$ , respectively, DeCarlo, 1997), indicating that the data were not multivariate normal. As a result, SmartPLS 3.0, a second-generation structural equation modeling (SEM) software, was chosen to perform bootstrapping on the model. As suggested by Memon, Salleh, and Baharom (2017) and Hair, Sarstedt, and Ringle (2017), recent advances in quantitative research suggest that second-generation methods of analysis, structural equation modeling, could have an impact on the literature by using PLS-SEM to examine the hypothesized model. Furthermore, Hair et al. (2017; 2014) proposed that PLS-SEM is the best statistical tool for social science studies, which frequently face the issue of unusual data characteristics (i.e., non-normal data).

The collected data were then analyzed by using structural equation modeling (SEM) which includes analysis of measurement models, structural models, and model fit. Results of factor loadings, as well as the average variance extracted and composite reliability, were evaluated to ensure the measurement items were valid and reliable. All of the criteria for the measurement model had to be established in this

study in order to meet the thresholds of all of the assessments involved. The evaluations begin with an examination of the internal consistency reliability, which includes the construct's convergent validity. Finally, in order to evaluate the structural model, discriminant validity had to be established (Hair et al., 2017; 2014). Next, the structural model analysis that represents the underlying structural theory of the path model in the research study was examined. Essentially, assessment of the structural model involved examining its predictive capabilities and the relationships between the constructs in the path model (Ramayah et al., 2018).

Data were obtained via a self-administered questionnaire among academicians from selected Malaysian private universities. The unit of analysis in this study was the individual employee, which refers to the academicians. The stratified random sampling approach was adopted in this study. As a result, from the total of 53 private universities, only 36 private universities would be the target population based on the regions located in the Klang Valley zone or Greater Kuala Lumpur. The sampling frame was first divided into geographic sampling areas, regions representing states and territories in Malaysia. This is because most private universities are located in the Klang Valley area which includes the central cities of Kuala Lumpur, Cyberjaya, and Putrajaya as well as adjacent cities and towns in the State of Selangor. In this study, 170 responses were usable for analysis, and this number exceeds the minimum sample size required for the study, which, based on G\*Power statistics, is 138 minimum samples.

From the total respondents, female respondents accounted for 58.8% of all respondents, while male respondents formed only 41.2%. Most of the respondents were from the group of young and middle-aged academicians since the majority of respondents were between 26 to 45 years old (83.5%) and mostly held Lecturer and Senior Lecturer positions (94.7%). The remaining 5.3 % were senior academicians with the academic positions of Associate Professors and Professors.

#### 4.2 MEASUREMENT INSTRUMENTS

Multi-item scales were used to measure the five knowledge management practices and employee well-being. A seven-point Likert-type scale (1 = strongly disagree to 7 = strongly agree) was used so the respondents could answer based on how much they agreed or disagreed with the specific statements. A questionnaire was developed from past studies and modified to suit the context of this study. The

items for knowledge management practices have been developed by Kianto et al. (2016). It focused on the five main KM practices which are knowledge acquisition, knowledge sharing, knowledge creation, knowledge codification and knowledge retention. To measure employee well-being, items are adapted and adopted from the Oxford Happiness Questionnaire (OHQ) developed by Hills and Argyle (2002). This has been widely used and commended for its robust validity by previous scholars.

## 5. DATA ANALYSIS

To estimate the hypothesized model, the PLS-SEM method and statistical software SmartPLS 3.0 were used. In terms of analysis, two steps are required in evaluating PLS-SEM results, including the examination of measurement models and structural models (Memon et al., 2017; Hair et al., 2017). Structural models can only be tested if the measurement models meet all the necessary requirements (Hair et al., 2019). The assessment of the measurement model is to determine the indicator and construct reliability as well as the validity of the measurement model. Then, the structural model assessment is performed to examine the model's predictive capabilities and the relationship between the constructs in the path model (Hair et al., 2014).

According to Podsakoff et al. (2003), if the data were collected from a single source, common method variance needs to be examined. To further identify the common method variance in PLS-SEM, full collinearity tests are performed as suggested by Kock and Lynn (2012). In this context, Kock and Lynn (2012) proposed the full collinearity test as the comprehensive procedure for simultaneous assessment of both vertical and lateral collinearity. The threshold value for the result of variance inflation factors (VIFs) should be equal to or lower than 3.3 for the model to be considered as free of common method variance (Kock and Lynn, 2012; Kock, 2015). Table 1 shows the VIFs generated from a full collinearity test and the result indicates that no collinearity exists in the model of this study.

**TABLE 1**  
Full Collinearity Estimates

Latent Variable	VIF
Employee Well-Being	1.452
Knowledge Acquisition	1.521
Knowledge Codification	2.401
Knowledge Creation	3.176
Knowledge Retention	2.371
Knowledge Sharing	2.509

### 5.1 MEASUREMENT MODEL

In this study, the five main knowledge management practices and employee well-being were tested as a first-order construct. To assess the measurement model, the literature suggests the researchers to look at convergent validity and discriminant validity (Memon et al., 2017; Sarstedt et al., 2017). As suggested by Hair et al. (2014), factor loading, average variance extracted (AVE) and composite reliability are to be considered in determining convergent validity. Additionally, indicators with an outer loading between 0.4 and 0.7 should be considered for removal from the scale. As a result, two items for knowledge management practices (KAC3 and KAC4) and three reversed coded items for employee well-being (EWB1, EWB4, and EWB8) were removed due to low loading. Finally, the results showed that all the items loading were valued higher than 0.5, the AVE was higher than 0.5 and also the CR was above 0.7 (Table 2).

In assessing discriminant validity, the heterotrait-monotrait ratio (HTMT) of the correlation technique developed by Henseler, Ringle, and Sarstedt (2015) has been utilized. Following the guidelines by Kline (2011), the HTMT threshold value of 0.85 is a stringent criterion and the HTMT value above 0.9 resulted in a lack of discriminant validity of the constructs. Table 3 represents the HTMT values for all constructs and all values meet the HTMT criterion, with values ranging from the lowest value of 0.417 to the highest value of 0.815. This indicates that the discriminant validity is established for the constructs of this study. To summarize, the model assessments provide reliable evidence of validity and reliability for the operationalization of the study model.

TABLE 2  
Measurement Model

Latent variable	Item	Loading	AVE	CR	Cronbachs Alpha
Knowledge Acquisition	KAC1	0.714	0.548	0.828	0.722
	KAC2	0.817			
	KAC5	0.690			
	KAC6	0.733			
Knowledge Sharing	KSH1	0.677	0.594	0.910	0.885
	KSH2	0.788			
	KSH3	0.844			
	KSH4	0.813			
	KSH5	0.694			
	KSH6	0.803			
	KSH7	0.759			
Knowledge Creation	KCR1	0.765	0.644	0.935	0.921
	KCR2	0.733			
	KCR3	0.830			
	KCR4	0.881			
	KCR5	0.834			
	KCR6	0.796			
	KCR7	0.754			
	KCR8	0.820			
Knowledge Codification	KCO1	0.812	0.707	0.923	0.898
	KCO2	0.824			
	KCO3	0.779			
	KCO4	0.904			
	KCO5	0.879			
Knowledge Retention	KRE1	0.908	0.823	0.933	0.895
	KRE2	0.901			
	KRE3	0.912			



TABLE 2 (continued)

Latent variable	Item	Loading	AVE	CR	Cronbachs Alpha
Employee Well-Being	EWB2	0.755	0.596	0.880	0.832
	EWB3	0.689			
	EWB5	0.811			
	EWB6	0.800			
	EWB7	0.800			

TABLE 3  
Discriminant Validity (HTMT Ratio)

	Employee Well-Being	Knowledge Acquisition	Knowledge Codification	Knowledge Creation	Knowledge Retention
Knowledge Acquisition	0.561				
Knowledge Codification	0.417	0.546			
Knowledge Creation	0.546	0.601	0.789		
Knowledge Retention	0.505	0.557	0.746	0.770	
Knowledge Sharing	0.450	0.645	0.713	0.815	0.710

## 5.2 STRUCTURAL MODEL

Based on Table 4, the result indicated that out of five predictors for employee well-being, only three predictors had a significant positive relationship with employee well-being. Knowledge acquisition with  $\beta=0.25$  and  $p<0.05$ , knowledge creation  $\beta=0.30$  and  $p<0.05$  and knowledge retention  $\beta=0.19$  and  $p<0.05$  had a positive relationship with employee well-being. Thus, hypotheses for H1, H3 and H5 were supported. On the other hand, knowledge sharing (H2) and knowledge codification (H4) did not have a significant relationship with employee well-being.

Following the rule of thumb, the  $R^2$  values of 0.75, 0.50, and 0.25 were explained as substantial, moderate, and weak levels of

predictive accuracy (Hair et al., 2019; Ramayah et al., 2018). The  $R^2$  value for employee well-being is 0.311, which is above the 0.25 value indicating a moderate model. This shows that the five KM practices are able to explain 31.1% of the variance in employee well-being. Hair et al., (2014) have suggested that to examine the change in the  $R^2$  value,  $f^2$  needs to be examined. Table 4 shows the results of  $f^2$ . The guideline for assessing  $f^2$  is that the values of 0.02, 0.15 and 0.35, respectively, represent the small, medium, and large effects of the exogenous construct (Cohen, 1988).

TABLE 4  
Structural Model - Hypotheses Testing

	Relationship	Std Beta	Std Error	t-values	p-values	95% Confidence Interval	$f^2$	Hypotheses Results
H1	Knowledge Acquisition > Employee Well-Being	0.25	0.09	2.79	0.00	[0.102, 0.390]	0.06	Accepted
H2	Knowledge Sharing > Employee Well-Being	-0.03	0.11	0.28	0.39	[-0.192, 0.151]	0.00	Rejected
H3	Knowledge Creation > Employee Well-Being	0.30	0.12	2.41	0.01	[0.119, 0.527]	0.04	Accepted
H4	Knowledge Codification > Employee Well-Being	-0.05	0.11	0.49	0.31	[-0.221, 0.137]	0.00	Rejected
H5	Knowledge Retention > Employee Well-Being	0.19	0.10	1.93	0.03	[0.012, 0.342]	0.02	Accepted

\*\*Significance (p<0.05)

Coefficient of Determination	
	$R^2$
Employee Well-Being	0.311

## 5.3 MODEL FIT

TABLE 5  
Model Fit

	Saturated Model	Estimated Model
SRMR	0.053	0.052
d_G	0.816	0.814
d_ULS	1.469	1.461

The bootstrap-based test for exact overall model fit was used to assess overall model fit. The results displayed in Table 5 show that the values of the discrepancy measures which are geodesic distance (dG), SRMR, and squared Euclidean distance (dULS), fall below the corresponding critical value, namely the 95% quantile of the corresponding reference distribution. The results show that the specified model adequately fits the data. It demonstrates that the proposed model adequately captures the available information in the data.

## 6. DISCUSSION

Higher education institutions need to develop strategic knowledge management practices to enhance their academicians' well-being which would then contribute to better performance among academicians in the ever-changing business environment. This study has indeed contributed to the academicians' well-being by showing that KM practices, namely knowledge acquisition, knowledge sharing, knowledge creation, knowledge codification, and knowledge retention contribute to better employee well-being among academicians in the selected private universities. Specifically, the findings suggested that only knowledge acquisition, knowledge creation, and knowledge retention had a significant connection with employee well-being.

Also, findings have shown that knowledge acquisition is an important facet of KM practices among academicians in private universities. This could be due to the nature of the work performed by academicians, carrying the role of educators, who provide lessons to the students and constantly acquire new knowledge for self-improvement. This has to do with the job characteristics of academia which enable them to acquire new knowledge outside the university by attending academic conferences and setting up networking for

future partnerships or collaboration on research and the educational agenda. This finding was consistent with the previous work of Singh and Sharma (2011) which confirmed the said significant results.

Besides that, knowledge creation is a key KM practice that promotes employee well-being for academicians. Academicians experience a greater feeling of well-being and happiness when they are involved in the knowledge creation process. This has shown that such activity is strongly encouraged by organization whereby private universities believe that implementing knowledge creation helps the organization to generate new and innovative ideas that would eventually contribute to organizational development (Hashim et al., 2014). Hence, the creation of new knowledge and innovative ideas is critical for private universities to sustain their competitive advantage in the higher education industry. In the same vein, knowledge retention also had a positive significant relationship with employee well-being which was consistent with previous findings by Kianto et al. (2016) and Pruzinsky and Mihalcova (2017). This showed that the continuous learning and preservation of knowledge among academicians are important in safeguarding employee well-being. Therefore, knowledge retention practice is critical for private universities to minimize organizational knowledge loss, hence improving academicians' well-being.

Contrary to our expectations, the remaining two KM practices; knowledge sharing and knowledge codification – were shown to be unrelated to employee well-being among academicians at the private universities. Unexpectedly, knowledge sharing has no effect on employee well-being, and this is a rather surprising finding. There is still a lack of knowledge sharing culture in Malaysia and it remains the biggest challenge for many Malaysian organizations (Hashim et al., 2014). Similarly, findings have shown that knowledge codification has no relationship with employee well-being among academicians. This process requires additional time, energy and commitment from academicians. Since academicians are well-known for their busy schedules and need to cope with diverse workloads (Winefield et al., 2014), therefore knowledge codification practices are seen as a complicated process and out of their interest.

## 6.1 IMPLICATIONS FOR THEORY AND PRACTICE

Even though this study has discussed the basic conceptual framework of KM practices and employee well-being, there is a huge opportunity for future research to expand the framework and explain the role of

the major construct that influences employee well-being. This study contributes in a number of ways to the literature and current body of knowledge. First, given the lack of prior relevant research, this study contributes to providing a better understanding of the importance of KM practices as additional tools for organizations to improve the current state of employee well-being. Previous research seemed to focus specifically on the effect of KM on organizational performance (Mustapa and Mahmood, 2016; Batra and Anand, 2014). As a result, further observance of KM effects on non-organizational performance such as employee well-being and satisfaction has been hindered. Therefore, the findings of this study provide empirical evidence that KM practices – knowledge acquisition, knowledge creation and knowledge retention – clearly benefit the institutions in enhancing well-being of academicians.

Second, the findings from this study support the COR theory as a theoretical basis to explain the relationship between KM practices and employee well-being. The resource investment principle of COR theory suggests that people must invest or acquire resources in order to protect against resource loss and gain valued resources. KM practices involving knowledge acquisition, knowledge creation and knowledge retention practices are found to be significant in influencing academicians' well-being. This indicates that by acquiring and gaining new resources (i.e., new knowledge) through involvement in knowledge acquisition, knowledge creation and knowledge retention practice, academicians can protect and gain their valued resources – their well-being. This study adds to the KM and organizational psychology literature by considering personal or energy resources (i.e., KM practices) in predicting the academicians' well-being.

In terms of practical implications, the new findings from this study may convince higher education institution management of the importance of KM practices. This is because the results show knowledge acquisition, knowledge creation and knowledge retention have a significant positive relationship with employee well-being. On the other hand, analytical results have shown that knowledge sharing and knowledge codification practices have an insignificant relationship with employee well-being. This may be attributed to the nature of most private universities wherein the academicians are reluctant to share and transfer knowledge and this contributes to resistance to the knowledge codification process. Therefore, managers should take a proactive approach to create an appropriate atmosphere to foster KM culture among employees.

Besides that, this study may convince top management of private universities to emphasize the outcome of human relations, which is the academicians' well-being. Managers tend to value the economic and rational outcomes more such as the Key Performance Index (KPI) than the human relations outcomes. Managers are usually more concerned with maximizing profit when implementing new policies or organizational practices than enhancing employee well-being. Hence, the private university management is encouraged to develop a well-being index to promote greater employee well-being.

## 7. CONCLUSIONS, LIMITATIONS, AND FUTURE DIRECTIONS

In summary, this study revealed that some facets of KM practices (i.e., knowledge acquisition, knowledge creation, and knowledge retention) in selected private universities have a significant relationship with employee well-being. Although another two KM practices -- knowledge sharing, and knowledge codification -- showed a negative relationship with employee well-being, this signifies that there is room for improvement in higher education institutions. Based on the research findings, this study provides insight into how to improve employee well-being through KM practices among academicians. This study also broadens knowledge in organizational behavioral or psychological studies, which helps the organization gain a better understanding of the importance of employee well-being. From a practical viewpoint, this study provides an important guide to private universities, specifically, organizations, policymakers as well as industry practitioners. In general, the findings of this study can help the private university to understand how academicians evaluate their level of well-being when involved in KM practices and how to encourage academics to engage in organizational KM practices. Eventually, both employees and employers will benefit from KM implementation practices within the organization. It is therefore important to develop a positive sense of well-being among employees by implementing the five KM practices. Employee well-being and KM practices are critical for any organization, and managers should prioritize KM practices to improve employee well-being.

Despite its novel findings, this study has the following limitations and several avenues that may be overcome by future research. First, it is recommended that future research should also include not only the academicians but also the non-academicians as well. To further validate the findings, future researchers should

include a wider population comprising private and public universities or organizations beyond the higher education sector. Second, this study applied cross-sectional research data that might limit the result since it is restricted by a certain time frame. This study is unable to identify the long-term or causal effects between KM practices and well-being. Thus, future studies could consider applying causal effects and longitudinal research methods.

In addition, this study focuses solely on the five KM practices as antecedents to the academicians' well-being in private higher education institutions. Many other factors, however, can be considered to enhance employee well-being. Future researchers may consider a different set of factors or antecedents that could improve employee well-being such as including knowledge types, knowledge hiding, and employee commitment which can be used as contingency variables. Besides that, potential fruitful avenues for future research may include adding closely related issues such as digital well-being and examining the connections between knowledge work performance, big data, and employee well-being, which would suggest and contribute to more interesting topics for future research.

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## **FOOD NEOPHOBIA: EXPLORED AND UNEXPLORED TERRAINS**

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### **ABSTRACT**

Food neophobia is being regarded as an individuals' reluctance to try unfamiliar or novel food and consequently the inclination to stay away from it. In addition, unfavorable taste, odor and appearance of novel foods signifies the definition of neophobia. Since research pertaining to food neophobia is limited, review is aimed at exposing the disparity in research on past, current and future trends pertaining to research on food neophobia. Studies on food neophobia are essential as food neophobia has impact on food preferences. Understanding the factors influencing food preferences is vital for implementing and promoting positive changes in the food habits of any society. The identification and compilation of all food neophobia-related publications covered publications produced between 2010 and 2020. Articles were selected from the three most prominent and popular online databases/search engines, namely 1) EBSCOHost (<http://search.ebscohost.com>), 2) Science Direct (<http://www.sciencedirect.com>), and 3) Google Scholar (<http://scholar.google.com>). Based on the results, a thorough analysis was achieved concerning the following: (1) theory pertaining to food neophobia, (2) measures of food neophobia, (3) importance of research pertaining to food neophobia, (4) researches on food neophobia, and (5) directions for future research on food neophobia. The study concerning food neophobia is essential as food neophobia influences food preferences. Understanding the factors prompting food preferences is crucial towards the implementation and promotion of positive changes in the food habits of any society. This study adds to the academia and industry by discovering several inadequacies in the existing studies and bestowing an outline for future research. Further studies are certainly imperative to empirically authenticate the concept of food neophobia through systematic investigations and devise a means to quantify it.

JEL Classification: L66, Q18

Keywords: Ethnic food, Food neophobia, Food quality, Food safety

Submitted: 19/01/2022

Accepted: 06/05/2023

Published: 28/06/2024

## 1. INTRODUCTION

Food neophobia is considered a prominent determinant of a consumer's food selection (Ting et al., 2016). Prior researchers termed food neophobia as individuals' reluctance on trying unfamiliar or novel food and consequently the inclination of staying away from it (Białek-Dratwa et al., 2022; Łoboś and Januszewicz, 2019). Furthermore, it can be defined as one's tendency to avoid or fear new food, unfavorable taste, odor or appearance of novel foods (Park and Choo, 2016; Ting et al., 2016).

Prior researchers regarded the phobia of new food as a mental opposition or a conventional force which functions to reassure a consumer that consumed food is safe by preferring familiar (known to be harmless) foods and refusing unfamiliar foods (Mascarello et al., 2020). It was identified that food refusal is instigated by the following: i) hatred of sensory quality, ii) fear of undesirable outcomes of food consumption and iii) revulsion towards a food's fundamental nature or source (Lafraire et al., 2015). As a whole, these reasons jointly express food neophobia pertaining to unknown food as the dissimilarities in native habits from that of travelers delay their aim to attempt native foods as well (Samant et al., 2018). A common instance is observed in countries such as Korea, China, and Hong Kong, where fish can be seen swimming in tanks at the entrance of restaurants. Scholars posited that some travelers felt awkward and disgusted in seeing the fish being slayed and cooked for them with regard to their requirements (Lepp and Gibson, 2003). As pointed out by Lepp and Gibson (2003), this "weird food" is among the seven consequences for universal travelers as well as peril for example health, political issues, terrorism, and cultural barriers. Despite examples from previous studies, research pertaining to food neophobia is scarce. Thus, the aim of this review is to ascertain the disparity in research on past, current and future trends pertaining to research on food neophobia. The study pertaining to food neophobia is specifically essential as food neophobia has an impact on food preferences. Understanding the factors influencing food preferences is vital when implementing and promoting positive changes in food habits of any society.

## 2. METHODS

### 2.1 SEARCH STRATEGY, DATA SOURCES, INCLUSION AND EXCLUSION CRITERIA

The identification and compilation of all food neophobia-related publications were conducted for sources published between 2010 and 2020. Articles were selected from the three most prominent and popular online databases/search engines, namely 1) EBSCOHost (<http://search.ebscohost.com>), 2) Science Direct (<http://www.science-direct.com>), and 3) Google Scholar (<http://scholar.google.com>). Since this study aimed at providing a comprehensive summary of articles on food neophobia, keywords related to the subjects and contexts of food neophobia research were used to search for articles related to food neophobia published in academic journals. These keywords included theories pertaining to food neophobia, measures of food neophobia, the importance of research pertaining to food neophobia, research concerning food neophobia, and directions for future research on food neophobia. To further strengthen the article search, the terms ‘hotel’, ‘tourism’, ‘hospitality’ and ‘travel’ were incorporated, while articles cited in the selected publications were equally traced. Every selected article was examined by two researchers, who then ascertained each article’s validity for inclusion in this study. Like most review papers in various subject areas, this paper accepted only full-length publications from peer-reviewed academic journals for analysis, wherein the journals were primarily from the hospitality and tourism area. Excluded materials comprised abstracts, editor prefaces, conference reports, conference articles, Internet columns, and book reviews, given that these materials’ contribution to the knowledge in this field is little to none.

## 3. RESULTS

### 3.1 THEORY PERTAINING TO FOOD NEOPHOBIA

The Theory of Planned Behavior (TPB) by Ajzen (1991) is among the foremost theories for predicting and empathizing behavior of individuals precisely pertaining to food neophobia (Ukenna and Ayodele, 2019; Ajzen, 1991). With regard to the TPB, individual action is shaped by three types of beliefs, namely normative beliefs, control beliefs, and behavioral beliefs (Fang et al., 2017). Control



belief is termed as a person's insights into how control influences behavior, which is interconnected to perceived behavioral control (Martinez and Lewis, 2016; Ajzen, 1991). Normative belief, which signifies a person's belief about a specific conduct, generates a subjective norm. A behavioral belief, a person's insight into the consequences of a specific behavior, generates the person's attitude toward the behavior. This insight of control is associated with aspects that may accelerate or hinder behavioral performance and whether the person senses the behavior as easy or challenging to perform (Hardin-Fanning and Ricks, 2017). The TPB depicts that an individual's behavioral intention, which prophesizes whether he/she would execute a behavior, can be forecasted by his/her attitude, subjective norms, and perceived behavioral control (PBC). Generally, the more desirable an individual's attitude, subjective norms, and PBC about a given action, the greater his/her intention to execute the action; in turn, the greater the behavioral intention, the higher the likelihood that the individual will perform the action (Martinez and Lewis, 2016; Ajzen, 1991). The TPB has attained substantial consideration and has been applied extensively and effectively in the study of consumers (Maichum et al., 2016), comprising research concerning food choice (Nystrand and Olsen, 2020) and food neophobia (Ting et al., 2016).

Past studies often adopted the TPB, which was deemed as an effective tool in predicting customer behavior of non-Muslims within the context of *halal* tourism (Khalek and Ismail, 2015). Contrary to expectation, numerous *halal* food literature embraced the TPB to exhibit the factors that motivate consumers to buy *halal* food (Maghsoodi Tilaki et al., 2016; Haque et al., 2015; Khalek and Ismail, 2015; Shah Alam and Mohamed Sayuti, 2011). The elementary teachings of Islam are to support inclination through the appropriate utilization of the resources granted by God. Thus, *Islāmic* law classifies the conception of *halal* and *haram* for Muslims (Khalique, Ramayah and Hina, 2020). Muslim consumers consume *halal* foods and products as a religious obligation, and an act in full compliance with the *Sharī'ah* (Nor et al., 2019). On the other hand, for non-Muslim consumers, *halal* foods and products represent the symbol of hygiene, quality and safety (Laluddin et al., 2019).

Along with TPB, the Triandis Model (TRIANM) has been commonly utilized to study consumer behavior of *halal* food choice (Wibowo and Ahmad, 2016; Kim and Lee, 2012). These two models have been a foundation for examining consumer food choices (Wibowo and Ahmad, 2016). As TPB explained human behavior through attitude, subjective norm and perceived behavioral control

(Ajzen, 1991), which connected strongly to cognitive aspects, TRIANM described human behavior through attitude, contextual factors, personal capabilities and habits (Triandis, 1979), which associated strongly to the affective aspect.

Furthermore, Theory of Mind (ToM) is deemed suitable in studying *halal* food choice among individuals (Dennis et al., 2013). ToM (Dennis et al., 2013) described human behavior via three facets instead of a single facet, as depicted by TPB (Ajzen, 1991) and TRIANM (Triandis, 1979). Nevertheless, there are limited studies of ToM in getting to know human actions (Dietvorst et al., 2009; Apperly, 2012). Babicz-Zielińska (2006) mentioned that function of all three aspects in psychology prospect will influence motives, personality, and attitudes of consumers on food consumption and decision. From the tourism motivation standpoint, an individual's food choice would differ based on psychological aspects as tours are anticipated to satisfy diverse levels of needs of the customers and psychological needs (Mak et al., 2012).

Earlier food-related researches on tourism (Rousta and Jamshidi, 2020; Choe and Kim, 2018; Gonçalves et al., 2016) emphasized why consumers choose to purchase or not to purchase several particular products over others by embracing the Theory of Consumption Value (TCV), which was cultivated by Sheth et al. (1991). As such, the modified Theory of Reasoned Action and Complexity Theory were conversed in tourism studies. Olya and Al-Ansi (2018) described numerous risks such as quality risk, hygiene risk, psychological risk, and environmental risk that might arise when eating foods by adopting the Complexity Theory.

### 3.2 MEASURES OF FOOD NEOPHOBIA

Pliner (1994) and Raudenbush et al. (1998) each developed a valid scale for food neophobia. Pliner (1994) established the aspect of consumer behavior in their Food Neophobia Scale (FNS) by defining food neophobia as the avoidance of and/or unwillingness to consume new foods. The 10-item FNS (Pliner, 1994) is used for determining a person's inclination of prevention of novel foods. This scale is also employed to assess experience and familiarity with unique cuisines (Flight, Leppard and Cox, 2003), local food consumption among travelers (Kim, Eves and Scarles, 2009), food festivals (Kim, Suh and Eves, 2010), and discovering unusual tastes and smells of food (Raudenbush et al., 1998). This 10-item scale has five positive and

five negative statements, all of which are rated on a seven-point Likert-type scale marked from “(1) strongly disagree” to “(7) strongly agree”. An example of a positive statement is “I am constantly sampling new and different foods”, while an example of a negative statement is “I don’t trust new foods.” In accordance with this, low scores measured on the behavior affirmed as high neophobia. Next, Raudenbush et al. (1998) constructed the Food Attitude Scale (FAS-R) which measures consumers’ food neophobia by their willingness to sample cuisines they have never tried. On the other hand, studies pertaining to children’s feelings in consumption of specific novel food in certain situations were measured using Loewen and Pliner’s (2000) Food Situations Questionnaire (FSQ) (Białek-Dratwa et al., 2022).

Furthermore, the Food Neophobia Scale (FNS) (Pliner, 1994) was also surveyed among the British *Muslim* community (Boereboom et al., 2022). As posited by Boereboom et al. (2022), there is a greater food and food technology neophobia among the British *Muslim* population that can be described in terms of the *halal* principle, which makes *Muslims* more cautious with regard to foods unfamiliar to them. The survey carried out by Boereboom et al. (2022) consisted of an extra three questions that explicitly examined faithfulness toward *halal* lifestyle. This was inserted to gain understanding into the “religious strictness” of the *Muslim* population sample. Moreover, in the survey that was intended for the British *Muslim* community, the food neophobia scale was incorporated twice: first to measure food neophobia with regard to any food, and second, with regard to foods that were known to be certified *halal* (Boereboom et al., 2022). This discrepancy was made clear to respondents by an introductory declaration.

### 3.3 IMPORTANCE OF RESEARCH PERTAINING TO FOOD NEOPHOBIA

According to Jaeger et al. (2021), a strong relationship exists between novel food rejection with unhealthy eating habits categorized by low fruit and vegetable intake. In addition, the low intake of vitamins, minerals and fibers related with the overconsumption of fats and sugar (the so-called Western pattern diet) might enhance the possibility of overweight and obesity (Rakhra et al., 2020). Thus, the food neophobic behavior could influence not only the diet variation, but also and primarily its nutritional quality.

With regard to food neophobia, a lot of factors governs it, such as age, educational level, culture and genetics, time and

space/location, food insecurity, hunger and poverty and globalization. It is quoted that approximately 66 percent of the divergence in food neophobia is attributed to genetic elements and regardless being specifically general among children, food neophobia can occur until adulthood because of environmental factors such as food access, lifestyle and socio-demographic patterns (Scaglioni et al., 2018). Thus, urban-based individuals with greater educational level are less food neophobic in contrast to rural persons. This is because the urban atmosphere promotes more exposure to a wide variety of food and subsequently higher food acceptance (Jaeger et al., 2021).

Hence, foods could be prohibited for numerous aims such as underexposed or unawareness with specific food and also by taste. It is known that taste is one of the main factors that stimulate eating pleasure and preferences. With regard to taste, bitter food is often highly avoided (Nissim, Dagan-Wiener and Niv, 2017). Nevertheless, dislikes pertaining to bitterness can be overwhelmed by recurrent exposure to precise foods and particularly by the positive experiences and emotions associated with its consumption (Jaeger et al., 2021). Thus, acquaintance with dissimilar kinds of food is a way to increase understanding and inclination to taste new foods, which must be encouraged from the earliest stages of life. Ultimately, understanding food neophobia as a factor that affects everyday food choices is essential to improve better eating habits. This will lead to valuable changes such as preventing obesity in childhood, adolescence and, subsequently, in adulthood.

### 3.4 RESEARCH ON FOOD NEOPHOBIA

Research on food neophobia has begun to intensify in recent years by being conducted with different age groups (Białek-Dratwa et al., 2022; Perry et al., 2015),

Precisely, scholars identified that food is extensively acknowledged as an essential quality that entices travelers to a specific destination (Lepp and Gibson, 2003). In tourism, scholars show five factors that motivate food choice, comprising excitement, cultural experience, sensory appeal, interpersonal association, and health concern (Mak et al., 2017). Diverse endeavors have attempted to segment travelers according to the factors driving food selection. For instance, travelers were segregated into five fragments, comprising value pursuers, service pursuers, adventure pursuers, atmosphere pursuers, and health pursuers (Chiciudean et al., 2019). Other

researchers sectioned three groups of travelers, namely taste pursuers, localization pursuers and experience pursuers (Alonso, Sakellarios, and Cseh, 2015). These researches pertaining to tourists' motivational influences and food segmentation typically presume that food is an appeal for travelers.

Nevertheless, food fails to constantly exemplify optimistic encounters. According to Bellia, Pilato and Seraphin (2016), food can be a mental and physical hurdle for travelers. For instance, Western tourists encounter food neophobia during their travel in developing nations due to the phobia of inadequate hygiene standards and health hazards in consuming local cuisine (La Barbera et al., 2018). Furthermore, the discrepancies between native customs and that of travelers hamper the desire to attempt local food. For instance, contemporary self-reliant travelers going to India are likely to spend more time in traveler areas with other tourists, which constrains their interaction with local guides and makes them consume similar food to cope with cross-cultural anxiety (Wang et al., 2018). In fact, the intake of fast food such as McDonald's at tourist spots is associated with lessening travelers' anxiety and 'culture shock' (Osman, Johns and Lugosi, 2014). When female solo travelers refuse local food, they feel like failures and are embarrassed to be watched by other travelers at Western eateries (Falconer, 2013). Such arising evidence highlights the dilemma faced by solo travelers with regard to food, having to choose between obtaining cultural capital or utilizing food as sustenance. This calls for modern solo travelers to change their consumption patterns towards the sensation-seeking features of solo travelers in the beginning of the 1970s, depicted by Cohen's (1972) traveler categorization.

In terms of age groups, there have been wide studies focused towards comprehending children's food preferences through the lens of food neophobia (Smith et al., 2017). It was identified that selective/choosy consumption among children is inspired by food neophobia. For instance, children with high food neophobia tend to avoid foods new to them (e.g., fruits and vegetables) in comparison to ones they recognize (Kaar et al., 2016). Food neophobia is also a substantial problem in the case of children with overweight or obesity, and those who grieve from diseases in which it is essential to follow a special diet (Białek-Dratwa et al., 2022). These children are obliged to stay on a diet, and their unwillingness to try new products makes it hard to execute dietary recommendations, which could influence the disease outcome.

Previous researchers identified three aspects that caused food neophobia, namely the sensory nature of food, food product information, and the views or personalities of consumers (Białek-Dratwa et al., 2022; Scaglioni et al., 2018). For example, taste and interior are the key causes that discourage Westerners' exploration of ethnic cuisines (Verbeke and Poquiviqui Lopez, 2005). In researching the effect of food neophobia on the tolerance of new food, Choe and Cho (2011) segregated 416 Korean respondents into groups with low, moderate, and extreme neophobia in line with their food neophobia rankings. The respondents' ease and readiness to sample 12 ethnic cuisines (American, African, Chinese, Greek, Indian, Italian, Japanese, Mexican, Mongolian, Thai, Turkish, and Vietnamese) were also estimated. Besides Chinese and American cuisine, those with extreme food neophobia were less inclined to try other ethnicities' foods in comparison to those with low neophobia. These discrepancies in the attitude toward numerous ethnic-flavored foods underscore that the influence of food neophobia on acknowledgement of new foods can differ with the kind of food. Additionally, a weaker inclination to taste ethnic cuisine could reveal a low intention to purchase the food items. A similar study in Finland (Tuorila et al., 2001) requested consumers to self-report how familiar they were with 20 common and uncommon ethnic foods. Respondents with greater food neophobia showed a lower likelihood of prior unfamiliar food consumption as well as a weaker tendency to try unknown native foods. The study, however, excluded assessments of the foods' sensory preference and its effect on purchase decisions.

Nevertheless, repeated exposure to novel foods may be decreased through multiple positive experiences with new foods (De Cosmi, Scaglioni, and Agostoni, 2017). In addition, flavor generalization may overcome food neophobia, for instance, generalized responses were found to similar-tasting food choices (McCrickerd and Forde, 2016). Moreover, an unknown food may be similar to a liked or unliked familiar food in appearance, taste, or smell (Mura Paroche et al., 2017).

### 3.5 DIRECTIONS FOR FUTURE RESEARCH ON FOOD NEOPHOBIA

Food plays an important part in enticing travelers and boosting travelers' destination encounters. Thus, future researchers might review travelers' demographic traits in relation to food neophobia and raise apt research questions such as "what are the predictors and

outcomes of travelers' food neophobic behavior?" and "how can food neophobia be overcome?"

Though food today is seen as safe in general, people may maintain some degree of discomfort when encountering novel or unusual food (Lafraire et al., 2015). Consequently, food neophobia has been studied as a moderating variable to evaluate its consequences on diverse behavioral results (de Beukelaar et al., 2019). Studies revealed that food neophobia is not associated with the attempt to consume ethnic cuisine (Ting et al., 2016). Nevertheless, little has been revealed on its impact on consumption intention in the ethnic food setting (Ma, Abdeljelil, and Hu, 2019).

With regard to Islamic Economics Principles, the role of research centers and discussion of *halal*, the *Islāmic* cultural economy and *halal* industries are in acute need of *halal* experts. This can be evident not only in *Muslim* majority countries, such as Malaysia's neighboring country Indonesia which aims at being a universal *halal* hub like Malaysia, but also in non-*Muslim* countries. Thus, further exploration of the studies of the *halal* food purchaser behavior in Western countries could also be useful applications in Malaysian companies intending to export their *halal* food products in those particular countries.

In a majority of studies on adults' food neophobia, scholars have assessed readiness to attempt unique foods as a behavioral outcome toward such foods (Mancini et al., 2019; Choe and Cho, 2011). Little empirical work, however, has emphasized food neophobia at the adult level. Even though prior research has identified that ethnic food's taste and aesthetics are the core reasons discouraging Western individuals from attempting it (Verbeke and Poquiqui Lopez, 2005), It remains unknown if these reasons prevail in Eastern countries (Ting et al., 2016).

Concurrently, the emergence of consumer ethnocentrism has strengthened the notion of food neophobia. Initial research defines consumer ethnocentrism as consumers' judgments about the suitability and ethicality of foreign product purchases (Vabø and Hansen, 2016). Additionally, this concept depicts emotional feedback in purchasing foreign made products which, consequently, portray one's belief that one's own country's products are superior. Karoui and Khemakhem (2019) pointed out the importance of consumer ethnocentrism in shaping consumer attitude and perception toward products from other countries. As such, a vivid comprehension of ethnocentrism's impacts on ethnic food consumption by travelers is highly significant in clarifying related issues such as food neophobia.

For instance, testing consumer ethnocentrism as a moderator of food neophobia can be important in contributing to the literature. All these exemplifies a huge prospective section that must be tackled in future studies.

#### 4. DISCUSSION

This review identified studies published in academic journals between 2010 till 2020 addressing theory pertaining to food neophobia, measures of food neophobia, importance of research pertaining to food neophobia, research concerning food neophobia, and directions for future research on food neophobia.

We found that the Theory of Planned Behavior (Ajzen, 1991) has attained substantial consideration and has been extensively and effectively applied in consumer research (Maichum et al., 2016), comprising research concerning food choice (Nystrand and Olsen, 2020) and food neophobia (Ting et al., 2016).

Concerning measures of food neophobia, scales generated by Pliner (1994) and Raudenbush et al. (1998) were the pioneers in scales related to measuring food neophobia. Precisely, to quantify children's emotions about the consumption of certain new foods in different settings, the Food Situations Questionnaire (FSQ) generated by Loewen and Pliner (2000) was utilized. Research regarding food neophobia is essential as there is a need to familiarize individuals to try different foods to enhance individuals' support in trying novel foods, that ought to be encouraged during the individual's early stages of life. Eventually, comprehending food neophobia as an aspect that influences everyday food choices is deemed important to enrich individuals' eating habits, which leads to inhibiting obesity in childhood, youth and eventually, in adulthood.

Studies are required on applying the Theory of Planned Behavior in Western and *Muslim* countries. Analysis of non-*halal* food purchaser viewpoints and attitudes should be examined. Data from these individuals can bestow insight regarding the factors involved with trying *halal* food the first time. Learning the aim for this group's non-*halal* food utilization might assist scholars to break down barriers to non-*halal* food purchasers' participation in *halal* food buying. Further examination of the studies pertaining to *halal* food buyer behavior in Western countries might also have beneficial applications in Malaysian companies intending to export their *halal* food products to those specific countries.



Pertaining to scholarly articles on food neophobia, there is a rising attention among scholars on consumers' perceptions of new or unknown food, paving the path for research on food neophobia. Future researchers could study traveler segments' demographic traits with regard to food neophobia by addressing the determinants and outcomes of their neophobic behavior as well as strategies to mitigate this phobia. Furthermore, there seems to be limited research pertaining to (1) consequence on consumption intention in the circumstance of ethnic cuisine, (2) food neophobia among adults, (3) food neophobia effects on individual-level consumer behavior (e.g., sensory acceptance or purchase behavior), and (4) food neophobia in relation to childhood obesity.

## 5. CONCLUSION

Food preferences portray a significant fragment in the estimation of human food selection, wherein food neophobia is among the foremost features affecting the diet quality and food preferences. Food neophobia is viewed as unwillingness to savor new foods. Individuals vary in their extent of food neophobia, with some of them exhibiting immense pleasure in consuming novel foods while others, especially travelers, displaying a robust hatred of new food as influenced by factors such as age, culture, and environment. Even though food neophobia has been valuable from an evolutionary perspective, it could lead to undesirable consequences on food preferences in a modern society with assured food safety, as food neophobic people stay away from novel food experiences and therefore have inadequate nutritional diversity. The intervention from professionals such as academicians and governments would assist to bestow more insight on food neophobia so that the public will be aware and achieve a better lifestyle and better eating habits.

Studies on food neophobia are essential as food neophobia stimulates food preferences. Understanding the factors prompting food preferences is crucial in implementing and promoting positive changes in the food habits of any society. Above that, for further enhancement of hospitality businesses, it is crucial to assimilate travelers' needs and wants toward food consumption (Park and Cho, 2016). Research on traveler food consumption, however, has been disregarded in hospitality and tourism related write-ups (Lim et al., 2019). A comprehensive knowledge concerning the determinants influencing tourist food consumption is important to the hospitality sector in providing pertinent tourism dining experiences that can lead

to tourist satisfaction. Presently, gastronomy is a fundamental element for tourists to discover the culture and traditions of a destination. Thus, as a potential line of study, it is highly recommended to study gastronomic tourism and to examine the loyalty stemming from the satisfaction achieved with the local cuisine.

Generally, this study adds to the literature by discovering several inadequacies in existing studies and bestowing an outline for future research. Further studies are certainly imperative to empirically authenticate the concept of food neophobia through systematic investigations and devise a means to quantify it.

### ACKNOWLEDGEMENT

The authors would like to thank the reviewers for reviewing this manuscript.

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## **RETURN AND VOLATILITY INTERACTION BETWEEN ISLAMIC INDICE AND BITCOIN: A COMPARISON OF TÜRKİYE AND MALAYSIA**

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### **ABSTRACT**

With technology development, investment tools also vary. Money and capital market instruments are at the forefront of these, and virtual currencies have become investment tools. Because virtual currencies are not religiously permissible by many organizations causes the devout people to stay away from them. This study investigates the return and volatility interaction between *Islāmic* Indices and Bitcoin in Türkiye and Malaysia. The study uses weekly data for the period 24 November 2013 – 2 January 2022 obtained from investing.com. Multivariate Dynamic Conditional Correlation (DCC-GARCH) and multivariate dynamic stochastic volatility models were used to determine the volatility dispersion between *Islāmic* indices and Bitcoin. Results show that the volatilities of Türkiye *Islāmic* Index, Malaysia *Hijrah Sharī'ah* Index and Bitcoin are permanent. Volatility of Bitcoin, however, has no effect on the return of the Türkiye *Islāmic* Index and the Malaysian *Hijrah Sharī'ah* Index. Likewise, the volatility of *Islāmic* indices does not affect the return of Bitcoin. According to the results of the DC-MSV model, the volatility of *Islāmic* indices and

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the volatility of Bitcoin do not affect each other. This indicates that *Islāmic* index investors and Bitcoin investors differ.

JEL Classification: E42, F21, F31, G11, G21

Keywords: Bitcoin, *Islāmic* Index, DCC-GARCH, Stochastic volatility

Submitted: 24/08/2022    Accepted: 03/10/2023    Published: 28/06/2024

## 1. INTRODUCTION<sup>1</sup>

New investment tools have entered our lives with technological advancement. One product of this development is the stock market while another one is virtual currency. Data of Malaysian and Turkish stock markets are discussed in this study. While Malaysia Stock Exchange was established in 1964 (<https://www.bursamalaysia.com>), the establishment of Istanbul Stock Exchange dates back to 1985 ([www.borsaistanbul.com](http://www.borsaistanbul.com)). With the development of the stock market, several indices have also entered the stock market, one of which is *Islāmic* Indices. *Islāmic* Indices are called by various names around the world. They are called the *Hijrah Shari'ah* Index in Malaysia and the Participation Index in Türkiye. The index, which is referred to as the *Islāmic* Index in world literature, is expressed as the Participation Index in Türkiye. This index has been prepared in accordance with international *Islāmic* Index standards. Therefore, *Islāmic* index and Participation Index mean the same thing. In our study, the *Islāmic* index was used for compliance.

'Standard of Share Certificate Issuance and Trade' has been prepared by the Participation Banks Association of Türkiye (TKBB) in 2020. Thus, *Islāmic* stock indices have become official ([tkbbdanismakurulu.org.tr](http://tkbbdanismakurulu.org.tr)). In Malaysia, *Islāmic* indices were included in the stock market with the establishment of the Malaysian Stock Exchange ([www.quantilia.com](http://www.quantilia.com)). According to the participation banks standard, it is acceptable to form and issue share certificates for firms whose activities are in accordance with *Islāmic* principles and rules. The companies dealing with the following transactions are excluded in these indices: Finance based on interest, production and trade of alcoholic drinks and tobacco, media which is against morals and *Islāmic* principles, gambling and gambling-like occupations, pig production and trading in pig products, entertainment contradicting

*Islāmic* moral standards, and forward gold, silver and currency trading ([tkbbdanismakurulu.org.tr](http://tkbbdanismakurulu.org.tr)).

Another variable of the study is Bitcoin. Looking at the historical development process of money, it is stated that the first metallic coins were introduced by the Lydians in VII. century BC. It is stated that the first leather money was used in 118 BC., and paper notes in 806 AD. by the Chinese. The printing of paper money started very late in the West by the USA and England in 1690 (Turkan, 2018, 328). The records of money ownership and movements, which were kept in a physical ledger in the past, have now begun to enter bank accounts electronically with the financial markets becoming more technological day by day. Since money exists in electronic environment rather than being kept in cash, it is called bank money and preferred more in today's financial world (Uzer, 2017, 7). In 2009, with technology development, new money models, called virtual money, were created. Virtual currencies are defined by the European Central Bank (ECB) (2015) as “the virtual representation of an asset that has not been issued by any central bank, credit institution or e-money institution and can be used as an alternative to money in some cases” (ECB, 2015, 6). As of April 2022, over 10,000 cryptocurrencies are seen to be traded (<https://coinmarketcap.com>). Today, the cryptocurrency with the highest market value is Bitcoin with 887 billion dollars. It is followed by Ethereum with \$423 billion and Tether with \$82 billion (<https://tr.investing.com>).

The decentralized currency Bitcoin emerged following the article “Bitcoin: A Peer-to-Peer Electronic Cash System” written by Satoshi Nakamoto in 2008 (<https://Bitcoin.org/Bitcoin.pdf>). Since cryptology is used in the security and production of Bitcoin transfers, it is also defined as crypto-currency (cryptocurrency). Bitcoin is neither owned by a company nor institution, nor does it have a headquarters. Since it is not associated with the central bank of any country, it is unaffected by the economic situation of any country (<https://www.mahfiiegilmez.com>). Although the theories on which Bitcoin is based are quite technical, it is stated that it is very comfortable to use. Bitcoin trading or transfer can be performed by installing any of the wallet programs. Bitcoin wallets are programs that store Bitcoins owned by individuals and allow transactions on them; Bitcoin can be divided up to eight digits, so a transaction of 0.00000001 Bitcoin can be made. The smallest unit is called the Satoshi. In other words, 100 million Satoshi is equivalent to one

Bitcoin. The Bitcoin system is designed to produce a total of 21,000,000 Bitcoins (Carkacioglu, 2016, 13).

As the number and value of virtual currencies increase day by day, they are also discussed from an *Islāmic* perspective. In the international *Islāmic* literature, virtual currencies are approached cautiously because they involve risk and uncertainty and are subject to speculation. Both *Islāmic* jurists and economists talk about the definition and properties of money in parallel with each other. The most important point emphasized is that money must either be valuable on its own and used (such as gold and silver) or it must have a generally accepted nominal form that is valued by the state and similar authorities (Turkan and Yasar, 2018, 1157). The Presidency of Religious Affairs of Türkiye states: “The use of digital cryptocurrencies, which have serious uncertainties in their essence, have a high risk of being deceived and deception, therefore do not have any assurance, and lead to unfair and unjustified enrichment of certain segments, such as practices known as the Ponzi scheme in the public, is not permissible.” (<https://kurul.diyenet.gov.tr>).

All *fatwas* that do not allow the use of virtual currencies are based on almost the same grounds. Cryptocurrencies are not seen as a means of exchange, there is no return if they are deleted in the virtual environment or the password is forgotten; they are not issued by central banks; they are very open to speculative movements; they rise and lose value quickly; they resemble gambling, contain ignorance and lack of security; moreover, it is stated that they are used for illegal purposes such as smuggling and drug trade, and their taxation is difficult (Turkan, 2019, 90-91). Considering all these explanations, this study aims to examine the relationship between virtual currencies such as Bitcoin, which is not considered religiously appropriate, and *Islāmic* stocks, which are considered Islamically appropriate. Further, whether religious sensitivity affects investment instruments or not is revealed.

It has been determined in many studies that there is a relationship between Bitcoin and conventional indices. Bitcoin is considered an alternative investment tool for conventional indices. However, since no study reveals the relationship between Bitcoin and *Islāmic* indices and whether Bitcoin's *Islāmic* indices are included in the portfolios of investors, it is thought that this study is important in terms of finance literature. For this reason, in this study, the relationship between Bitcoin and *Islāmic* indices in Türkiye and Malaysia was investigated with Dynamic Conditional Correlation

(DCC-GARCH) and Dynamic Stochastic Volatility (DC-MSV) models.

## 2. LITERATURE REVIEW

When the literature is searched, it is seen that the studies are handled from two different perspectives. In the studies, firstly, the causality between Bitcoin and conventional indices was investigated. Then, the relations between Bitcoin and *Islāmic* indices were examined. It is seen that the studies carried out mostly coincide with the period before the covid crisis. In this study, analyzes were carried out considering the effect of the covid crisis on *Islāmic* indices and Bitcoin. This study is carried out considering that the studies in this field in Türkiye are not up-to-date and sufficient.

When the studies conducted in recent years are examined, Tuncel and GURSOY's (2020) study comes first among the studies examining the relationships between Bitcoin and conventional indices. In this study, there is an Empirical Application study on the Causality Relationship Between Fear Index, Bitcoin Prices and BIST100 Index. In the study, the causality relationship between Bitcoin prices and the BIST100 and VIX fear index in Türkiye was tested. While it is seen that Bitcoin prices do not have a significant relationship on both variables, it has been determined that there is a one-way causality effect from the VIX index to the BIST100 index.

At the same time, SOYASLAN (2020) examined whether the Bitcoin currency has a relationship with BIST 100, BIST Bank and BIST Technology index in the short and long term by using time series analysis methods. According to the findings of the study, while there is a balance relationship between the Bitcoin price and the BIST 100 index in the long run at the 5% significance level, no relation has been found with the BIST Bank and BIST Technology index. In addition, when the Bitcoin price and the BIST 100, BIST Bank and BIST Technology indices are evaluated at a 5% significance level in the short term, no causality relationship has been found. KORKMAZGÖZ, ŞAHİN, and EGE (2022) examined the relationships between Bitcoin and the BIST 100 (XU100), BIST Financial (XUMAL) and BIST Technology (XUTEK) indices, which are among the leading Borsa Istanbul (BIST) indices among emerging markets, with the ARDL bounds test approach. In this study, it has been shown that there is a long-term relationship between Bitcoin price and Borsa Istanbul Financial Index. However, no evidence has been found for the existence of a long-term

relationship between Bitcoin price and other index prices. The short-term findings show that there is no significant relationship between Bitcoin price and Borsa Istanbul Financial price index.

Finally, Ustaoglu's (2022) study investigates the return and volatility dynamics and conditional correlations between Borsa Istanbul Stock Exchange 100 Index (BIST100) and Bitcoin (BTC), Ethereum (ETH), Ripple (XRP) and Litecoin (LTH) with the VAR-DCC-GARCH model. No two-way return spillover has been detected between BIST100 and cryptocurrencies. In line with the volatility spillover results of the study, it has been determined that there is a one-way shock transmission from BIST100 to BTC, XRP and LTH, and a one-way transfer of volatility from BIST100 to BTC and ETH. In addition, in the study, it has been determined that the dynamic conditional correlations between BIST100 and four cryptocurrencies have a highly variable structure over time and their average is very close to zero. However, the situation is reversed during possible panic periods.

Considering the relations between *Islāmic* Indices and Bitcoin, it is seen that the studies in this field in Türkiye are insufficient and should be reconsidered in the rapidly advancing time periods. This study, which examines the effect of the covid period, will maintain its currency. When the studies are examined, Rehman, Asghar and Kang (2020) investigated the risk dependence between Bitcoin and *Islāmic* stock markets. VaR, CoVaR and  $\Delta$ CoVaR have been applied as risk measures to examine the spillover between Bitcoin and *Islāmic* stock markets. It has been found that VaR of Bitcoin exceeds from VaR of *Islāmic* indices and CoVaR of both *Islāmic* and Bitcoin exceeds their respective VaR. It has been stated that this situation shows the existence of risk spillover among each other. Moreover, *Islāmic* equity market serves as an effective hedge in a portfolio along with Bitcoin. Mensi et al. (2020) examine the joint movements between Bitcoin (BTC) and the Dow Jones World Stock Market Index, regional *Islāmic* stock markets, and Sukuk markets. Cross wavelet transform and wavelet coherence analysis with a wavelet-based measure of value at risk are applied.

As a result of the analysis, it has been stated that the risk between Bitcoin and *Islāmic* stock markets will be avoided through investment diversification in the short run. The causality test shows that there is a short-run causality flow from Bitcoin to the Asia-Pacific *Islāmic* market and the Sukuk markets. It has also been stated that Bitcoin is the cause of the Asian-Pacific *Islāmic* stock markets in the long run. In the same year, Güçlü's (2020) study, the volatilities

of *Islāmic* and conventional stock indices in Türkiye, Malaysia, USA and the United Kingdom are estimated using GARCH, EGARCH and GJR-GARCH models. As a result of the analyzes made, while the volatility of the Turkish *Islāmic* stock index is lower than its conventional counterpart, the volatility in Malaysia is very close to each other. The volatility of the *Islāmic* stock index is estimated higher than the conventional index in the USA and the UK.

Among the *Islāmic* stock indices, the index with the lowest volatility belongs to Malaysia. Ahmed (2021) explores the differential sensitivity of Shariah compliant stocks to the positive and negative intraday return volatility of Bitcoin in bear, normal and bull market situations. For developed markets, the results indicate that upside volatility tends to exert contemporaneous and lagged negative influences on *Islāmic* stocks more in bear than in bull market conditions, whereas the downside counterpart positively affects returns when Sharia-compliant equities are in bear and bull phases. Finally, Yousaf and Yarovaya (2022) examined the return and volatility between *Islāmic* gold-backed cryptocurrencies (Onegram and X8X) and global *Islāmic* stock indices. They have shown that investors can increase their allocations in the Onegram gold-backed cryptocurrency to reduce the risk of the equity sector portfolio during the COVID-19 pandemic. They stated that *Islāmic* Sharia-based cryptocurrencies can reduce the risk of *Islāmic* sectoral stock portfolios.

### 3. RETURN AND VOLATILITY INTERACTION BETWEEN BITCOIN AND ISLAMIC INDICES IN TÜRKİYE AND MALAYSIA

#### 3.1 DATA SET AND METHOD

The main purpose of the study is to investigate the return and volatility interaction between Bitcoin and *Islāmic* indices in Türkiye and Malaysia. Weekly data, which were taken from investing.com, for the period of 24 November 2013 – 2 January 2022 were used in the study. Multivariate Dynamic Conditional Correlation (DCC-GARCH) and multivariate dynamic stochastic volatility (DC-MSV) models were used to analyze the volatility spillover between *Islāmic* indices and Bitcoin. In addition, the multivariate DCC GARCH model was used to analyze the return interaction between *Islāmic* indices and Bitcoin, and the multivariate stochastic volatility model



was used to determine the spillover of volatility between the variables.

The study was limited to considering only Bitcoin, one of the cryptocurrencies, and only the *Islāmic* indices in Türkiye and Malaysia, among the *Islāmic* indices. In addition, another limitation of the study was created by considering the data for the period of 24 November 2013 – 2 January 2022.

The Dynamic Conditional Correlation (DCC-GARCH) model was developed by Tse and Tsui (2002) and Engle (2002) (Hepsag and Akcali, 2016, 58).

$$(1) \quad r_t = \alpha + \sum_{i=1}^k \beta r_{t-i} + y_t$$

The  $k$  term in the equation describes the averaging model following a vector autoregressive (VAR) process at the  $k$  level.

$$(2) \quad \gamma_{A,t} = \sqrt{h_{A,t}} \varepsilon_{A,t}$$

$$(3) \quad \gamma_{B,t} = \sqrt{h_{B,t}} \varepsilon_{B,t}$$

$$(4) \quad \rho_t = COV(\beta_{A,t}, \beta_{B,t}) = (1 - \theta_1 - \theta_2)\rho + \theta_1\rho_{t-1} + \theta_2\rho_{t-2}$$

$\rho_t$  represents the correlation coefficient that changes with time. For this parameter to be meaningful, the equality of  $0 \leq \theta_1, \theta_2 < 1$  and  $\theta_1 + \theta_2 \leq 1$  must be met.

$$(5) \quad \begin{bmatrix} h_{A,t} & h_{B,t} \end{bmatrix} = \begin{bmatrix} y_1 & y_2 \end{bmatrix} + \begin{bmatrix} \phi_{1,1} & \phi_{1,2} & \phi_{2,1} & \phi_{2,2} \end{bmatrix} \begin{bmatrix} y_{A,t-1}^2 & y_{B,t-1}^2 \end{bmatrix} \\ + \begin{bmatrix} \delta_{1,1} & \delta_{1,2} & \delta_{2,1} & \delta_{2,2} \end{bmatrix} \begin{bmatrix} h_{A,t-1} & h_{B,t-1} \end{bmatrix}$$

The parameters in Equation (5),  $\phi_{11}$  ve  $\delta_{11}$  explain whether the volatility of the first financial asset is permanent or not. The parameters must be statistically significant, the coefficients must be positive, and their sum must be less than 1. The parameters explaining the volatility of the second financial asset  $\phi_{22}$  ve  $\delta_{22}$  must be statistically significant, their coefficients positive, and their sum must be less than 1. It explains the interaction of the second financial asset on the returns of the first financial asset with parameters  $\phi_{12}$  ve  $\delta_{12}$ . The parameters describing the effect of the first financial asset on the returns of the second financial asset,  $\phi_{21}$  ve  $\delta_{21}$ , must be statistically significant.

Yu and Meyer (2006) multivariate stochastic volatility model is not constant. DC-MSV model is

$$(6) \quad r_t = a + \beta r_{t-1} + y_t$$

a model with more than one variable and takes first-order vector autoregressive processes into account.

$$(7) \quad y_{A,t} = \exp(h_{A,t}/2)\varepsilon_{A,t}$$

$$(8) \quad y_{B,t} = \exp(h_{B,t}/2)\varepsilon_{B,t}$$

$$(9) \quad \rho_t = \text{cov}(\varepsilon_{A,t}, \varepsilon_{B,t}) = \frac{\exp \exp(q_t) - 1}{\exp \exp(q_t) + 1}$$

$$(10) \quad q_{t+1} = \Psi_0 + \Psi_1(q_1 - \Psi_0) + \sigma_q v_t$$

$$(11) \quad h_{A,t+1} = \mu_A + \phi_A(h_{A,t} - \mu_A) + \phi_{AB}(h_{B,t} - \mu_B) + \eta_{A,t}$$

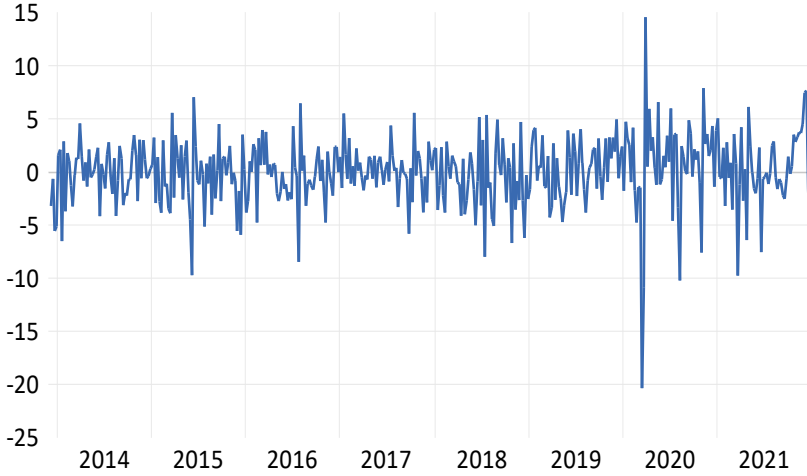
$$(12) \quad h_{B,t+1} = \mu_B + \phi_B(h_{B,t} - \mu_B) + \phi_{BA}(h_{A,t} - \mu_A) + \eta_{B,t}$$

The terms  $\mu_A$  ve  $\mu_B$  in Equations (11) and (12) represent constant coefficients. The term  $\rho_t$  in Equation (9) represents the time-varying dynamic correlation. The term  $h_{A,t}$  in Equation (11) represents the volatility of the first financial asset, while the volatility of the second financial asset is explained by the term  $h_{B,t}$  in Equation (12). The term  $\phi_A$  in Equation (11) describes the persistence of volatility to the first financial asset. In order to be able to say that the volatility of the first financial asset is permanent, the term  $\phi_A$  must have a value close to 1, in addition to being significant at the 5% significance level. The volatility persistence of the second financial asset is explained by the term  $\phi_B$  in Equation (7). When the term  $\phi_{AB}$  in Equation (11) is significant at the 5% significance level, it will explain the effect of the volatility of the second financial asset on the volatility of the first financial asset. The term  $\phi_{BA}$  in Equation (12) explains whether the volatility of the first financial asset has an effect on the volatility of the second financial asset. It is possible to say that the volatilities of the first and second financial assets are predictable if the terms  $\eta_{A,t}$  and  $\eta_{B,t}$  in Equations (11) and (12) are statistically significant and their squares are close to 0.

### 3.2 FINDINGS AND COMMENTS

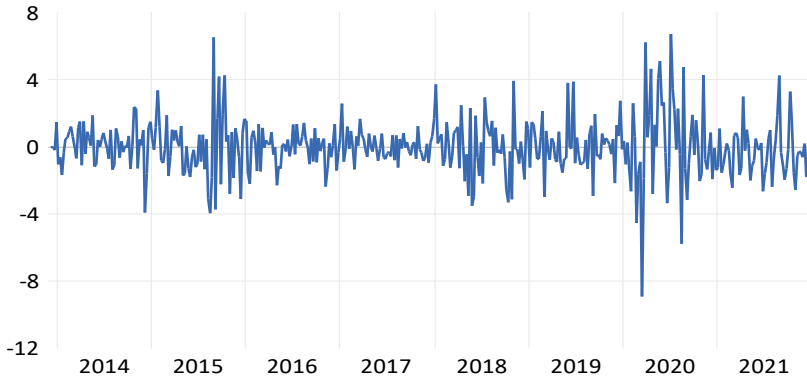
In the study, firstly, the graphs of the variables were examined. The resulting graphs are as follows.

FIGURE 1  
Turkey Participation Index



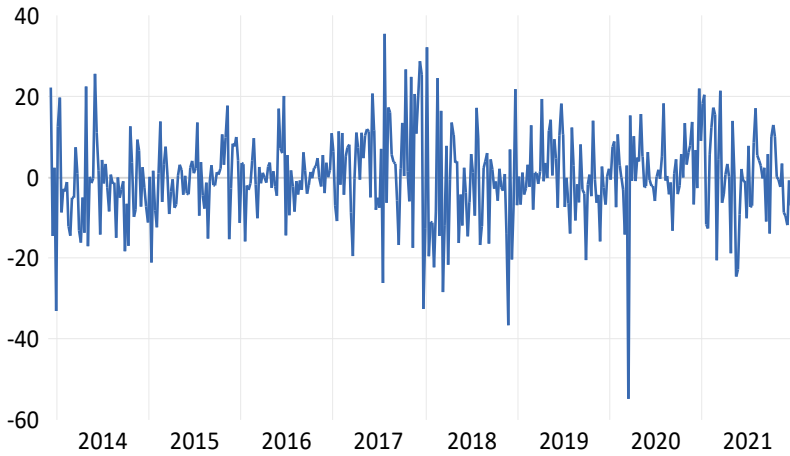
In Figure 1, the return series of the Turkey Participation Index is presented. Volatility clustering has occurred in Turkey's Participation Index. Sharp movements are observed at the beginning of 2020.

FIGURE 2  
Malaysia *Hijrah Sharī'ah* Index



When examining the return series figure of the Malaysia *Hijrah Sharī'ah* Index in Figure 2, it is evident that volatility clustering has occurred in Malaysia *Hijrah Sharī'ah* Index. It is possible to state that sharp movements were present at the beginning of 2020.

FIGURE 3  
Bitcoin



When examining the return series figure of the Bitcoin variable in Figure 3, it is evident that there is volatility clustering. It can be stated that sharp declines occurred at the beginning of 2020.

TABLE 1  
Descriptive Statistics of the Variables

	Türkiye <i>Islāmīc</i> Index	Malaysia <i>Hijrah</i> <i>Sharī'ah</i> Index	Bitcoin
Average	0.3335	-0.0206	1.0970
Median	0.3399	-0.0056	0.7113
maximum	13.9246	6.6371	53.3432
Minimum	-20.3450	-8.8949	-53.6040
SD	3.2061	1.6802	11.0675
Skewness	-0.8879	0.1742	-0.0095
Kurtosis	8.1917	6.3939	5.6758
Jarque-Bera	530.6485	205.1578	126.2037
Probability	0.0000	0.0000	0.0000

Türkiye *Islāmīc* Index, Malaysia *Hijrah Sharī'ah* Index and Bitcoin variables are given in Table 1. While Bitcoin is the investment instrument with the highest volatility, the volatility of the *Islāmīc* index in Türkiye is higher than the volatility of the *Hijrah Sharī'ah* Index in Malaysia. According to the Jarque-Bera test, the variables do not show normal distribution.

TABLE 2  
ARCH LM Testi

Lags	LM-Stat	Prob
1	13.66732	0.1347
2	11.13921	0.2663

In Table 2, the lag lengths of the series were determined as 1 according to the information criteria of AIC, SC and HQ. According to the ARCH LM test performed later, it was determined that there was no ARCH effect in the series.

TABLE 3  
DDC-GARCH Model Results of Türkiye *İslāmīc* Index and Bitcoin Returns

	Coefficients	SD	t - Statistics	Probability Values
$\gamma$ Türkiye Islamic Index	4.5511	2.3423	1.9430	0.0520
$\gamma$ Bitcoin	20.2544*	9.9906	2.0274	0.0426
$\emptyset$ Türkiye Islamic Index, Bitcoin	-0.0012	0.0030	-0.3992	0.6898
$\emptyset$ Türkiye Islamic Index, Türkiye Islamic Index	0.0317	0.0436	0.7288	0.4661
$\emptyset$ Bitcoin, Bitcoin	0.1545*	0.0719	2.1489	0.0316
$\emptyset$ Bitcoin, Türkiye Islamic Index	-0.5150*	0.2458	-2.0958	0.0361
$\delta$ Türkiye Islamic Index, Bitcoin	-0.0030	0.0066	-0.4578	0.6471
$\delta$ Türkiye Islamic Index, Türkiye Islamic Index	0.4665*	0.2305	2.0242	0.0429
$\delta$ Bitcoin, Bitcoin	0.6894*	0.0977	7.0530	0.0000
$\delta$ Bitcoin, Türkiye Islamic Index	0.2780	0.7755	0.3586	0.7199
$\Theta$ Türkiye Islamic Index	0.1928	0.1088	1.7721	0.0764
$\Theta$ Bitcoin	-0.0006	0.0736	-0.0079	0.9937
DCC(A)	0.0000	0.0206	0.0000	1.0000
DCC(B)	0.7282*	0.0000	0.0000	0.0000

Note: \* represents 5%.

The Türkiye *İslāmīc* Index and the DCC-GARCH model results of Bitcoin returns are given in Table 3. In ARCH and GARCH  $\emptyset$  Türkiye Islamic Index, Türkiye Islamic Index and  $\delta$  Türkiye Islamic Index, Türkiye

Islamic Index parameters, only GARCH parameter is significant at 5% significance level. In this case, it is possible to say that the volatility in the Turkish *Islāmic* index is permanent.  $\emptyset_{\text{Bitcoin, Bitcoin}}$  and  $\delta_{\text{Bitcoin, Bitcoin}}$  are both statistically significant and positive according to the 5% significance level. The sum of these parameters has been determined as 0.8439, in this case it has been determined that the volatility of Bitcoin is permanent. Of the ARCH and GARCH parameters that explain whether the Türkiye *Islāmic* Index has an effect on Bitcoin returns, only ARCH  $\emptyset_{\text{Bitcoin, Türkiye Islamic Index}}$  parameter is statistically significant. The 1% shock from the Türkiye *Islāmic* Index reduces Bitcoin returns by 0.5150. It has been determined that both of the ARCH and GARCH parameters, which explain the effect of Bitcoin on Türkiye *Islāmic* Index returns, are not statistically significant.

TABLE 4  
DDC-GARCH Model Results of Malaysia *Hijrah Shari'ah* Index and Bitcoin Returns

	Coefficients	SD	t - Statistics	Probability Values
$\gamma$ Malaysia Hijrah Sharia Index	0.0190	0.0783	0.2433	0.8078
$\gamma$ Bitcoin	22.1112*	10.0680	2.1962	0.0281
$\emptyset$ Malaysia Hijrah Sharia Index, Bitcoin	-0.0006*	0.0003	-1.9636	0.0496
$\emptyset$ Malaysia Hijrah Sharia Index, Malaysia Hijrah Sharia Index	0.0656*	0.0323	2.0328	0.0421
$\emptyset$ Bitcoin, Bitcoin	0.2261*	0.0915	2.4710	0.0135
$\emptyset$ Bitcoin, Malaysia Hijrah Sharia Index	-2.2201*	0.5199	-4.2703	0.0000
$\delta$ Malaysia Hijrah Sharia Index, Bitcoin	0.0015	0.0008	1.8743	0.0609
$\delta$ Malaysia Hijrah Sharia Index, Malaysia Hijrah Sharia Index	0.7957*	0.0423	18,8146	0.0000
$\delta$ Bitcoin, Bitcoin	0.5566*	0.1040	5.3505	0.0000
$\delta$ Bitcoin, Malaysia Hijrah Sharia Index	3.7931*	1.5617	2.4288	0.0151
$\Theta$ Malaysia Hijrah Sharia Index	0.1946*	0.0503	3.8667	0.0001
$\Theta$ Bitcoin	-0.0050	0.0975	-0.0511	0.9593
DCC(A)	0.0082	0.0161	0.5087	0.6110
DCC(B)	0.9846*	0.0396	24.8837	0.0000

Note: \* represents 5%.

Malaysia *Hijrah Sharī'ah* Index and the DCC-GARCH model for Bitcoin are reported in Table 4. Among ARCH and GARCH parameters explaining the persistence of Malaysian *Hijrah Sharī'ah* Index volatility,  $\varnothing$  Malaysia Hijrah Sharia Index, Malaysia Hijrah Sharia Index and  $\delta$  Malaysia Hijrah Sharia Index, Malaysia Hijrah Sharia Index both were statistically significant, their coefficients were positive, and their total was 0.8613. According to these results, it is possible to say that the volatility of the Malaysian *Hijrah Sharī'ah* Index is permanent. It has been determined that  $\varnothing_{\text{Bitcoin, Bitcoin}}$  and  $\delta_{\text{Bitcoin, Bitcoin}}$  parameters are both statistically significant, their coefficients are positive, and their sum is 0.7827. In this case, the volatility of Bitcoin is permanent. ARCH and GARCH parameters, which provide information on the impact of the Malaysian *Hijrah Sharī'ah* Index on Bitcoin returns,  $\varnothing_{\text{Bitcoin, Malaysia Hijrah Sharia Index}}$  and  $\delta_{\text{Bitcoin}}$  and the Malaysian Hijrah Sharia Index, are both statistically significant at the 5% significance level. The 1% shock in the Malaysian *Islāmic* index increases Bitcoin returns by 1.5730. Of the ARCH and GARCH parameters that explain the effect of Bitcoin on the returns of the Malaysian *Hijrah Sharī'ah* Index, only the ARCH parameter  $\varnothing_{\text{Malaysia Hijrah Sharia Index, Bitcoin}}$  is significant at the 5% significance level. In this case, the 1% shock in Bitcoin reduces the Malaysian *Hijrah Sharī'ah* Index returns by -0.0006.

The return interaction between Bitcoin and *Islāmic* indices was analyzed with the DCC-GARCH model. The volatility interaction between Bitcoin and *Islāmic* indices was investigated using the dynamic stochastic volatility model.

TABLE 5  
DC-MSV Model Results of Türkiye *Islāmic* Index and Bitcoin

	Average	SD	MC Error	Confidence Interval (95%)	
$\mu$ Türkiye Islamic Index	2.0810*	0.1916	0.0061	(1.7090	2.4730)
$\mu$ Bitcoin	4.5540*	0.2551	0.0091	(4.1300	5.1570)
$\varnothing$ Türkiye Islamic Index	0.9125*	0.0487	0.0026	(0.7911	0.9816)
$\varnothing$ Türkiye Islamic Index, Bitcoin	0.0139	0.0295	0.0013	(-0.0453	0.0746)
$\varnothing$ Bitcoin	0.9098*	0.0469	0.0025	(0.7971	0.9802)
$\varnothing$ Bitcoin , Türkiye Islamic Index	-0.0505	0.0481	0.0020	(-0.1512	0.0394)
$\sigma$ Türkiye Islamic Index	0.2538*	0.0697	0.0043	(0.1397	0.4179)
$\sigma$ Bitcoin	0.3227*	0.1028	0.0065	(0.1514	0.5546)

Note: \* represents 5%.

In Table 5, the volatility transfer between Türkiye *Islāmīc* Index and Bitcoin was analyzed with DC-MSV model. According to the results obtained  $\hat{\theta}_{\text{Bitcoin}}$  and  $\hat{\theta}_{\text{Since}}$  the parameters of the Türkiye *Islāmīc* Index are statistically significant at the 5% significance level and the shocks in the Bitcoin and Türkiye *Islāmīc* Index are permanent since they have a value close to 1.  $\hat{\theta}_{\text{Bitcoin}}$ , Türkiye Islamic Index and  $\hat{\theta}_{\text{Türkiye Islamic Index, Bitcoin}}$  parameters are not statistically significant. In this case, Bitcoin and *Islāmīc* index investment instruments do not affect each other's volatility. The predictability of their volatility is determined by the square of the parameters  $\sigma_{\text{Bitcoin}}$  and  $\sigma_{\text{Türkiye Islamic Index}}$ . The square of these parameters was calculated as 0.1041 and 0.0625, and since these values are close to zero, we can say that the volatility of Bitcoin and Türkiye *Islāmīc* Index is predictable.

TABLE 6  
DC-MSV Model Results of Malaysia *Hijrah Sharī'ah* Index and Bitcoin

	Average	SD	MC Error	Confidence Interval (95%)	
$\mu$ Malaysia Hijrah Sharia Index	0.2895	0.4222	0.0183	(-0.7539	0.9373)
$\mu$ Bitcoin	4.6590*	0.3268	0.0130	(4.1590	5.4900)
$\hat{\theta}$ Malaysia Hijrah Sharia Index	0.9610*	0.0223	0.0010	(0.9086	0.9937)
$\hat{\theta}$ Malaysia Hijrah Sharia Index, Bitcoin	0.0031	0.0263	0.0011	(-0.0477	0.0572)
$\hat{\theta}$ Bitcoin	0.9044*	0.0494	0.0026	(0.7897)	0.9780)
$\hat{\theta}$ Bitcoin, Malaysia Hijrah Sharia Index	-0.0337	0.0293	0.0011	(-0.0999	0.0188)
$\sigma$ Malaysia Hijrah Sharia Index	0.2460*	0.0543	0.0032	(0.1582	0.3685)
$\sigma$ Bitcoin	0.3309*	0.1065	0.0068	(0.1355	0.5538)

Note: \* represents 5%.

The DC-MSV model results for the Malaysia *Hijrah Sharī'ah* Index and Bitcoin are presented in Table 6.  $\hat{\theta}_{\text{Bitcoin}}$  and  $\hat{\theta}_{\text{Malaysia Hijrah Sharia Index}}$  parameters are statistically significant and have a value close to 1. In this case, it has been determined that the shocks in Bitcoin and Malaysia *Hijrah Sharī'ah* Index are permanent. Because the parameters  $\hat{\theta}_{\text{Bitcoin, Malaysian Hijrah Sharia Index}}$  and  $\hat{\theta}_{\text{Malaysia Hijrah Sharia Index, Bitcoin}}$  are not statistically significant, there is no volatility transfer between Bitcoin and the Malaysian *Hijrah Sharī'ah* Index.



Squares of parameters  $\sigma_{\text{Bitcoin}}$  and  $\sigma_{\text{Malaysia Hijrah Sharia Index}}$  are 0.1095 and 0.0605. Since these values are close to zero, it has been determined that Bitcoin and Malaysia *Hijrah Sharī'ah* Index volatility are predictable.

#### 4. CONCLUSION

Coins, which were first used as a means of exchange by the Lydians in the 7th century BC, are now considered as an investment tool in the virtual environment. Coins with its own and nominal value have led to the formation of different fatwas in the historical process. It is stated by many organizations that the virtual currencies, which have been moved to a different dimension with the effect of technological developments, are not permissible at the moment. However, virtual currencies, which have been the favorite of many investors in recent years, are also closely followed by the religious sector. Companies included in *Islāmic* indices are the primary preference of the religious people who want to invest according to *Islāmic* methods. Nonetheless, it is certain that there are investors who plan to invest in such virtual currencies, if approved by the fatwa institutions.

For this reason, in this study, considering the historical process we are in, the interaction of return and volatility between *Islāmic* indices in Türkiye and Malaysia and Bitcoin, one of the most valuable virtual currencies, is investigated. In the study, which used weekly data for the period 24 November 2013 – 2 January 2022, multivariate DCC-GARCH model and multivariate dynamic stochastic volatility model were used to analyze the return and volatility interaction between variables. According to the DCC-GARCH model results, it has been determined that the volatility of Türkiye *Islāmic* Index, Malaysia *Hijrah Sharī'ah* Index and Bitcoin variables are permanent. Another result obtained with the DCC-GARCH model is that there is no return interaction between *Islāmic* indices and Bitcoin. According to the results of the DC-MSV model, it has been determined that the volatility in Bitcoin has no effect on the volatility of Türkiye and Malaysia *Islāmic* indices. Likewise, the volatility in Türkiye and Malaysia *Islāmic* indices has no effect on the volatility of Bitcoin. In addition, Türkiye *Islāmic* Index, Malaysia *Hijrah Sharī'ah* Index and the volatility of Bitcoin variables have been determined predictable by the DC-MSV model. According to the findings obtained from the results of the analysis, it is possible to say that the *Islāmic* index investor and the Bitcoin investor are different from each other.

*Islāmic* indices are preferred by investors with *Islāmic* sensitivity, as they are businesses that meet certain form requirements in terms of fiqh rules. Bitcoin, on the other hand, is not considered to be preferred by devout investors since it is not considered permissible at the moment. Therefore, the opinion that there should be no return and volatility interaction between virtual currencies and *Islāmic* indices is dominant. It is seen that the results obtained in the study also support this idea.

According to the results of the analysis, it is not possible to say that Bitcoin is a risk-free investment preference for portfolio diversification for investors, since there is no relationship between Bitcoin and *Islāmic* indices. For this reason, it cannot be mentioned that Bitcoin can be an alternative product to *Islāmic* indices. Bitcoin investors need to evaluate their *Islāmic* index investments and Bitcoin investments independently. In future studies, cointegration tests between Bitcoin and other digital currencies can be conducted to guide the creation of digital currency portfolios. In terms of international investors, examining the relationship between different indices and Bitcoin will be useful in terms of commenting on portfolio diversification.

*Islāmic* indices are investment instruments that investors with *Islāmic* sensitivities prefer intensely. Since Bitcoin is an investment tool that does not have *Islāmic* sensitivity, it is thought that *Islāmic* indices are not preferred by investors.

## ENDNOTES

1. This study is a product of the project titled ‘Research and Development of Islamic Financial Instrument and Revealing New Models’, conducted by Yavuz Turkan under the supervision of Assoc. Prof. Dr. Dzuljastri bin Abdulrazak and Assoc. Prof. Dr. Mustafa Omar Mohammed, within the scope of the 2219-International Postdoctoral Research Fellowship Program of the Scientific and Technological Research Council of Türkiye (TUBITAK). Therefore, we express our gratitude to TUBITAK for supporting the project.

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## **SELECTING THE BEST THEORY TO EXPLAIN THE FORMATION OF DIFFERENT UNIVERSITIES BASED ON SADRA'S PHILOSOPHY**

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### **ABSTRACT**

In recent years, the role of universities in the development of societies has increased. In Iran, as in other countries, universities have made changes to their programs, but it still seems they need some new policies to strengthen the impact of universities on the development of society. While explaining the reasons for the formation of existing universities at the international level, this article attempts to use the framework of Sadra's philosophy to present a new type of university called "wisdom-oriented" university. This university activates the four functions as follows: Graduate education, Development of technology and technical knowledge, Problem-solving and communicating with society (such as industry, government institutions, etc.), and Producing and disseminating of knowledge content. If the wisdom-based university is formed and institutionalized, the following characteristics could be expected: "Avoidance of particularity", "attention to comprehensiveness and gradual shift to specialization", "scientific moderation and attention to wisdom", "fostering creativity, production and accumulation of knowledge content", "duty-oriented interaction with society", "unbounded activity", "continuous effort to come closer to God" and "optimal use of science and technology."

JEL Classification: M0, M1

Keywords: University, Inference to the best explanation, Sadra's philosophy, Mulla Sadra, *Islām*

Accepted: 29/08/2022    Published: 23/01/2023    Submitted: 28/06/2024

## 1. INTRODUCTION

Since its formation in the twelfth century, the university institution has undergone various developments throughout history. Researchers believe that various philosophical and civilizational factors have led the university to pursue specific goals and missions in each era (Allen, 1988). Despite Europe taking the lead in establishing universities, Latin America and the rest of the world gradually took role models, and university establishment more and more popular internationally. At the same time, the impact of the university on various areas of society and its role in creating economic, social, and other developments became undeniable. Different philosophical and theoretical understandings and explanations of the university goals and missions such as the philosophical schools of scholasticism and humanism (Scott, 2006) have caused the university to play different roles in different areas of society throughout history. Besides the explanations made by other scholars so far, the present article intends to explain the reasons for university formation in Europe and Latin America from another perspective called Sadra's philosophy, which is one type of *Islāmic* philosophy (Kamal, 2016).

Three schools of *Islāmic* philosophy arose in a historical combination. Masha's philosophy centered on *Ibn Sina*, *Ishraqi's* philosophy centered on Sohrawardi, and Sadra's philosophy centered on Sadr al-Muta'allihin. *Ibn Sina* had a complete understanding of "intellect" and "theory of knowledge." Although the philosophy of Masha and Ishraq are common in many ways, such as accepting God as the head of the chain of beings and arranging all beings in a rank system, they also have many differences including methodology (not being satisfied with commonsense reasoning in Masha) and philosophical foundations (the validity of philosophical concepts and essentialism, etc.). Sadrai' philosophy, with an appropriate methodology, includes the characteristics of both previous philosophical schools. Central to this was the interpretation of existence with core principles of existentialism and essentialism, based on which the plurality of the universe is not reality. Reality is a single existence. Also, this reality is hierarchical like light and also variable. Man, as a part of the universe has two aspects, material and abstract. In man, the main reason of being hierarchical is knowledge, and with knowledge, he changes and undergoes the stages of perfection, and his whole identity is made by knowledge (Mirhadi, 2019). Man has an individual entity and a social entity, and since the reality of man is knowledge, all individual and social developments

are the result of knowledge (Nasr, 2006). On the other hand, the university as a social institution, like any other social institution, is hierarchical and the reason is knowledge, and we resort to this idea to elaborate on the reality of the university.

According to Sadra'i philosophy, despite the unity of existence, the reality of universities is hierarchical, and we want to explain this with a logical basis. While in other previous studies, the differences in all kinds of universities have been attributed to economic and political reasons, the intellectual system of the present study says that these differences arise from the very nature of knowledge (Alderson, 2020).

Therefore, the present study, having asked the question "What is the best theory to explain the formation of universities from the twelfth century until now?" attempts, first, to briefly review the history of missions for university formation since the twelfth century onwards, and then provides a fresh explanation of the reasons for university formation, using Sadra's philosophy. As a result of this explanation, a new type of university has been introduced under the name of wisdom-oriented university.

## 2. LITERATURE REVIEW: TYPES OF UNIVERSITIES AND THEIR MISSIONS

Various missions have been defined for universities under the influence of philosophical schools in different periods of history as well as the theories derived from them. In a historical division, the mission of forming universities in Europe and the United States can be analyzed from the 12th century until now in three periods: pre-nation-state, nation-state, and globalization (Scott, 2006). In each course, there are missions for universities that are described below. These missions explain the reasons for the formation of their respective universities.

- Pre-nation-state period

During this period, a major mission was on the agenda of universities: the mission of education. Education services were first provided in the late Middle Ages at the universities of Bologna and Paris. Although education during this period was devoted to the dissemination of science related to Christianity and research did not play much role in the education system, people such as Roger Bacon tried to do experimental research and transfer the results to the students in classrooms (Wimmer and Feinstein, 2010).



- Nation-state period

During this period, four main missions were pursued by universities: the mission of nationalism, research, democratization and public service (Scott, 2006).

- a. The mission of nationalism

One of the most important events in the transition of the history of Western civilization from Christianity to nationalism is the “Treaty of Westphalia”. The pact ended a series of bloody wars that had engulfed Europe for 30 years, reducing the continent's population by 10 to 15 percent. It also ended the war among various Christian denominations and was known as the first modern congress based on nation-state interests (Krasner, 2007). After the Treaty of Westphalia, the ruler of each land determined the religion of that land, and instead of political power being dependent on religious authority, religion was in the hands of political authority. Following this treaty, Halle University was formed with the idea that higher education should be both scientific and of immediate benefit to the nation-state (Granquist, 2019). It was in naked contrast to the idea of the University of Paris and paved the way to university secularization as influenced by humanism philosophy (Ford, 2002).

- b. The mission of research

A century after the founding of Halle University, the University of Berlin was founded in the Enlightenment with the aim of gaining independence from religion and politics. Founded by Humboldt's anthropological philosophical thinking, the university placed research next to education on the agenda, guaranteeing the ultimate freedom of researchers, with the aim of discovering facts and not necessarily economic benefits to society (Ridder-Symoens and Rüegg, 1996). The idea of Humboldtian University was welcomed by other countries, although it was accompanied by changes in the implementation phase. For example, after World War II, the US government began to shape the “basic research university model” by making changes to the Humboldtian University to ensure national security, health, and economic growth (Guston and Keniston, 1994). Having accepted the assumption that academic research will eventually become a product and application through a linear model, the university focused on conducting basic research and, despite reducing of researchers' freedom compared to the Humboldtian model, still left scientists free to choose their research projects (Karran, 2009).

### c. The mission of democratization

In the following years, the governmental economic challenges made it impossible to finance university projects and increased society and government demand for university outputs. Thus, new roles were defined for universities such as solving industrial and entrepreneurial problems of academics (Gibbons et al., 1994). Therefore, the university's conventional boundaries with other social institutions have been blurred and cooperation with other institutions and interdisciplinary teams for knowledge production has increased (Shinn, 2002). In the new university role, one of the tasks defined during this period was its prominent role in leading society to a “knowledge society” (Brennan, 2008). A knowledge society is one where knowledge in its general sense, such as the application of science, information, and the learning capacity seeks to shape the foundation of social, economic, political, and cultural actions. This society corresponds to and converges with the components of post-industrial, information and postmodern society (Delanty, 2001). Apart from forming a knowledge society, researchers believe that the university in the new era plays a significant role in increasing social justice by raising the level of awareness of society and the formation of critical thinking and social movements to improve society living standards (Brennan, 2008).

### d. The mission of public services

In this mission, the university, like public schools, considers providing services to the public as one of its missions. Today, the “urban university mission” is a reading of the public service mission (Scott, 2006).

- Globalization period

With the beginning of the 21st century and the need to pay attention to the international dimension in responding to the missions defined for universities in previous periods, a new mission called internationalization was considered. In this mission, the scope of university services is not limited to the country's geographical borders, and the provision of various education, research, and public services is pursued on a large international scale (Bartell, 2003).

In another classification, universities are classified into five types based on purpose and function, as shown in Table 1:

TABLE 1  
Types of Universities by Purpose and Function (Aviram, 1992)

The first continuum: The goal of university		The second continuum: The nature of university		The third continuum: The relevance of knowledge claims to the decisions of individuals and society		Types of universities	Purpose and function of the university
University as service station	A1	The objectivist-essentialist view	B1	Essentialistic-objectivism	C1	Traditional (or Medieval) 'A1' and 'B1' and 'C1'	Universities operated with the aim of providing service to society, with an essentialist view, and with the aim of recognizing the reality of phenomena and making them known (Rudy, 1984). As a result, disciplines such as theology, medicine, and law came first, and disciplines of philosophy and free arts came second (Aviram, 1992).
University as an ivory tower	A2	The objectivist-positivist view	B2	Positivism	C2	Liberal (or Oxbridge or English) 'A2' and 'B1' and 'C1'	Influenced by humanistic philosophy and with the aim of helping the personal growth of faculty members and other researchers, besides leading the cultural influence in society, independent of the limitations of society and government, this type of university undertakes serious research and the government is obliged to provide the required funding. University of Berlin is an example (Aviram, 1992).
University as a cultural frontier-post	A3	The relativist view	B3	Relativism	C3	Positivist (or French) 'A1' and 'B2' and 'C2' Relativist (or Utilitarian) 'A1' and 'B3' and 'C3'  Humanist (or German) 'A3' and 'B3' and 'C3'	The university conducts educational and research activities with an essentialist view and with the aim of "learning for the learning sake", regardless of the needs of society; like the courses of arts that became popular in UK universities (Rudy, 1984; Sanderson, 2016). The university pays serious attention to the experimental sciences and makes a distinction between phenomena and values. The university seeks to respond to the technological needs of the government by addressing the technical, administrative, and other disciplines needed to build a modern state, and by establishing research centers (Rudy, 1984). The university aims at providing services to society, in addition to technology development, to develop technology-based businesses and play an economic role in society (Aviram, 1992).

In Table 1, each of the five types of universities provides an explanation of the type of a university in a historical context. In the next section, a new philosophical framework called Sadra's philosophy is introduced to provide a new explanation of the missions and reasons for the formation of universities.

### 3. THEORETICAL FRAMEWORK: COGNITION OF MAN FROM THE PERSPECTIVE OF SADRA'S PHILOSOPHY

#### 3.1 MAN AND THE SUCCESSION OF GOD

In this theoretical framework, man and his creation have a special place; such that according to the *Qur'ānic* teachings and also specified by Mulla Sadra, man has been created to be successor of God on earth. This position, as will be explained later, is based on existence of intellect and the production of knowledge in human beings, which does not exist in any other creatures. The succession of God means that man has the capacity and existential characteristics to fulfill the mission as God's successor on earth. Therefore, it is necessary for man to reach the level of transcendence and existential value to indulge in divine works beyond material causes and effects (Mesbah-Yazdi, 2012). The tendencies and abilities necessary to walk on the path of perfection are also placed in the "soul" of all human beings so that they can make best use of them as much as possible and bring themselves closer to absolute perfection, i.e. God. This way, they shall more deserve the title of God's successor on earth.

#### 3.2 HUMAN INNATE TENDENCIES AND POWERS

According to Muslim philosophers, all human beings have a special kind of primitive creation by God and there are features in the essence of human creation (Mutahhari, 2015, Mutahhari, 1994). God places these characteristics in the "soul" of man in the first moment of creation of every human being, which is called "*Fitrah*" in Arabic meaning creation. In general, the mentioned characteristics can be divided into two groups of "tendencies" and "abilities" and since they are non-acquired (Mutahhari, 2015) and placed in the first moment of creation- potentially (Mutahhari, 2013), in the human soul, they are referred to as "innate tendencies" and "innate abilities" based on the word "*Fitrah*". In a comprehensive category, innate tendencies in humans are as follows (Rafiei Atani, 2018):

- a. Truth-seeking (Mutahhari, 2013; Shah Abadi, 1981): All human beings have a tendency for continuous learning, gaining new knowledge, and responding to innate curiosities, and also strive to understand the wisdom behind all phenomena. The highest level of truth-seeking is the tendency to know God and His creatures.
- b. Profit-seeking (Mutahhari, 2011): All human beings intend to maximize their interests in economic, commercial, humanitarian, etc. activities. According to this tendency, human beings avoid losses and try to minimize any factor that endangers their benefit. According to *Islāmic* teachings, the greatest benefit is obtained when man deals with God and pleases God.
- c. Power-seeking (Shah Abadi, 1981): It refers to the tendency of exerting influence and will on others. According to this tendency, people are interested in behaviors such as gaining the respect of others, obtaining social status, fame and leadership, and striving for success. According to the verses of the Holy *Qur'ān*, the main source of power is God, and gaining divine pleasure will increase man's invincibility.
- d. Well-being and pleasure-seeking (Shah Abadi, 1981): All human beings work to achieve happiness, peace and enjoyment. According to *Islāmic* principles, the highest level of pleasure is achieved when it has a higher spiritual aspect and is in line with responding to God's wishes.
- e. Tendency for freedom (Mutahhari, 2011; Musavi Khomeini, 2007): It means the effort of man to prevent the influence of the power and will of others on him. All human beings have a tendency for freedom and like to decide and act independently. According to *Islāmic* teachings, gaining freedom is not possible without paying attention to God, and the sign of that is piety. Because the pious man is not only independent of other human beings, he is even independent of the temptations of his own ego.
- f. Tendency for beauty (Mutahhari, 1994): All human beings are interested in order, cleanliness, fitness, art, poetry and music, and the more spiritual the beauty, the higher the desirability.
- g. Tendency for worshipping (Musavi Khomeini, 1992): Humans show a tendency for honor and respect all those who have superior qualifications, like scientists, the rich, those in power, and so on. God is at the highest level of perfection, and human beings will show a tendency towards worshipping God and appreciating divine goals if they pay attention to God.

- h. Tendency for survival and immortality (Mutahhari, 1998): Although death is a definite phenomenon for all human beings, they try to prolong their life so as to leave behind more reputation and positive effects of themselves.
- i. Loving (Mutahhari, 2015): The tendency to express love to family and others and even animals; to be compassionate and helping to people as well as patient and tolerant with them, is observed in all human beings. The value of love increases when it is done with the aim of gaining God's approval and in line with divine goals.
- j. Tendency for moral virtues (Mutahhari, 1994): All human beings tend to positive moral qualities such as honesty and justice, and at the highest level, to self-sacrifice.

The abovementioned tendencies exist in all individuals as an indivisible and endless whole. The strength and weakness of each, however, is different in different people.

According to *Islāmic* teachings and especially Mulla Sadra's views, the human soul, soon after its first creation, begins to move toward perfection and constantly undergoes internal and intrinsic changes through substantial motion (Dakake, 2004). At the starting point, the human soul is in a state of “matter” that evolves into a “vegetable” state during the substantial motion. At this stage, the powers commensurate with the level of “vegetable” perfection, such as “nutrition” and “growth”, come into being. Following the substantial motion, the human soul is raised to the level of perfection of “animal” and the corresponding powers such as “lust”, “anger”, “illusion”, “imagination”, “physical movement” and “five senses” come to action. In the next stage, the human soul is promoted to the “rational” stage and acquires the possibility of actualizing the corresponding powers such as “intellect” and “social life”. At the highest level of evolution, after death and liberation from the limitations of body and flesh, the human soul has the ability to reach the level of “spirit” (Eshkevari, 2013). The stages of “matter” to “animal” occur in the mother's womb and human beings at the moment of birth have actual animal and potential intellectual powers (Koosha, 2017).

The mentioned forces in each of the above evolutionary levels are called “innate powers”; for although the possibility of their complete actualization depends on reaching the relevant evolutionary level, all those powers are potentially placed in the human soul at the first moment of creation. In all these stages of evolution, humans strive as much as they can to use their “innate powers” to satisfy their utmost

“innate tendencies.” To better understand the above substantial motion, it must be noted that from the perspective of Sadra's philosophy, the human soul has a hierarchy. In the first place, all powers are potentially present in the human soul, and the algebraic magnitude of none of the “innate tendencies” and “innate powers” is zero. The higher a person goes through the stages of perfection, while maintaining the lower levels of abilities, the more they also acquire new abilities and try with all their might to meet their “innate tendencies.” Also, being in every stage of perfection does not mean not enjoying the powers of the higher stage; rather, like the “material” stage, they have the capabilities of higher stages, albeit in a very small size. Also, all human beings, regardless of religion, geography, genes, and so forth, have innate tendencies and abilities, although the level of existence may differ in every individual.

### 3.3 THE RELATIONSHIP BETWEEN MAN AND THE ENVIRONMENT

Human action and experience through the stages of perfection is not done in a vacuum and man is interacts with his environment. The environment can set opportunities and, at the same time, laws for the path of human perfection. In general, according to Muslim philosophers, man is associated with three environments: “God”, “world” and “society” (Javadi Amoli, 2006). The details and how humans interact with these three environments will be discussed.

#### 3.3.1 MAN'S RELATIONSHIP WITH GOD

According to *Islāmic* teachings, God, as the Absolute Being Who surrounds the whole universe, is constantly creating new things, and every action in the world, such as the continuous growth of man and the substantiation motion, the parted ration of all creatures, etc., at every moment is done by God. All the actions of the world are performed continuously and according to the system of causality, originating from the will of God (Rizvi, 2005). Accordingly, the more complete human knowledge is in relation to the existing order in the world and the causal system, the better they can take advantage of the opportunities available on the path to perfection. Because of the limitations of human intellect in knowing all the divine laws, God has provided some of His rules in the form of sending prophets to human beings so that their observance will bring human beings in the position of “nearness to God” (Rafiei Atani, 2018).

### 3.3.2 MAN'S RELATIONSHIP WITH THE WORLD

The universe means all creatures from the lowest level of perfection, i.e., material and tangible nature, to the highest one, that is abstract beings and the metaphysical world. As explained earlier, the starting point of the human soul is the material world, and then man tries to go through the stages of perfection and also through realization of the innate abilities man discovers the laws of the world, such as the laws of physics, chemistry, mathematics, and so forth, and dominates the world. Building upon the *Islāmic* teachings, man in pursuance of the evolutionary path, not only does not consider the world around him to be inanimate, but also considers all the particles of the universe to have consciousness commensurate with their level of perfection and tries to take advantage of opportunities existing in nature and the world (such as the production of various technologies) thus acting in a way that does not disturb the order of the world and, as the “successor of God on earth”, man helps the creatures of the world achieve their goals of creation (Rafiei Atani, 2018).

### 3.3.3 MAN'S RELATIONSHIP WITH SOCIETY

In their lives, human beings can only live in interaction and cooperation with others, and basically, lonely life is not possible for man. In interaction with society and other human beings, men can go through the following six stages in a hierarchical way through an evolutionary movement:

- Stage one: Employment of the society by the individual  
Mulla Sadra states that a sense of selfishness and profit-seeking forces man to take over others; even if this leads to the destruction of others (Sadr Al-motealehin, 1981b). Having carefully analyzed this characteristic in human beings, Allame Tabatabai introduces human beings as inherently employment-oriented, who intend to maximize their interest through the formation of family and society, and satisfy their need for power by exerting their influence and will on others. He writes in *Tafsir al-Mizan*: “The first nature of man is to use whatever he can benefit from; even to forcibly snatch their fellowmen's gaining, and if in power, to violate the rights of others and enslave and exploit others; that is, to use their services without paying them in return” (Tabatabai, 1996). Although due to the benefit of all human beings from the three innate tendencies of profit-seeking, power-seeking and pleasure-seeking, the nature of employment ultimately leads to justice



in society. But a society with this type of interpersonal interactions would be at the lowest level of perfection.

- Stage two: Collaboration with society to develop talents

At a higher level, the profit-minded and employment-oriented human being better identifies the capacities of society and finds that in order to increase his interests, he can engage in a two-way interaction with other members of society. In other words, some opportunities for the benefit of human beings are only possible through social cooperation. For example, such economic behaviors as sharing production facilities, farming, sharing work space, setting-off, civic participation, clothing exchange, house swaps, shared homes, car sharing, and so forth, all fall under this layer of human and social evolution (Rafiei Atani, 2018).

- Stage three: An opportunity to realize moral virtues

Contrary to economic theories in the West, which are mainly focused on the previous two stages, Muslim philosophers have called an innate need the human inclination to moral virtues such as charity, honesty, patience, generosity, and so forth and recognized the economic action of some people in this stage. At this level, people have a more transcendental view of self-interest and also see the growth of moral virtues as self-interest (Musavi Khomeini, 2008).

- Stage four: Altruism

In addition to virtuous behaviors in the third stage, all human beings have an innate tendency to reduce their own interests to the benefit of other members of society due to their innate tendency to altruism. It should be noted that this innate tendency, due to various educational reasons, and so forth, may be weak in some people (Mutahhari, 2010).

- Stage five: Employment of the individual by society

Continuing the evolutionary path of “self-sacrifice for the benefit of society”, the individual in the fifth stage devotes himself to solving social problems and prioritizes the growth of society. Establishing charities, creating jobs for others, forming collective and jihadist movements, and other such activities, sometimes known as social entrepreneurship, are examples of fifth-stage behaviors (Rafiei Atani, 2018).

- Stage six: Self-sacrifice for society

The highest level of one's view of society occurs when one sacrifices oneself to society in order to achieve one's “individual” perfection (Mutahhari, 1997).

### 3.4 THE NATURE AND PROGRESS OF SOCIETY

In the previous sections, we described the know-hows of human action from the perspective of Sadra's philosophy. The first step for human beings to communicate with their surroundings is to “pay attention” and “think” about the environment. After attracting human attention, the required inputs of thinking enter the mind through the senses and are processed by the imagination, so that in the next stage, the intellect can process them and abstract the general rules and govern them (Tabatabai and Mutahhari, 1985). The output of this process is “knowledge.”

To explain more: according to Sadra's philosophy, every entity exists in two types: 1- Existence outside the mind and 2- Existence inside the mind. After using his senses, man gradually brings the existence outside the mind into the mind and acquires knowledge about it. In other words, the mind as its “container” and knowledge as its “object”. On the other hand, since the mind has the same human soul and abstract existence (not matter), then the knowledge that is inside it cannot be matter, and therefore, the truth of knowledge will be the same reality of the human mind and soul. Therefore, the more a person can use his intellect, the more he can control the other powers of the soul, such as lust and anger, and as a result, the more knowledge he acquires, the more he develops his soul, and the higher his perfection will be (Kamal, 2016).

In proportion to the development of human perfection, his needs and priorities also change and man tries to meet his new needs by using the innate power of “social life”, and through interaction with society. In such circumstances, social capacities and institutions try to meet new needs; otherwise, they will give way to new institutions. This change, called “vertical progress” means changing existing structures and institutions to meet new needs. After the transfer to new institutions, “horizontal progress” will occur given the continuous growth of human beings. This means that new institutions are trying to respond to newer needs. Horizontal progress will last until existing institutions are again unable to respond to newer needs, and as a result, newer vertical progress will be possible. In such a process of social change, it is necessary to pay attention to two points (Rafiei Atani, 2018):

- If the new needs of man, which are rooted in “innate inclinations” are the result of the domination of the intellect over the other powers of the soul, we can see progress in society; otherwise, and in a situation where animal forces dominate the intellect and need

production, society will suffer a setback. For example, if the power of lust dominates the intellect, some innate inclinations such as the “tendency for moral virtues” will be ignored and, on the contrary, “Well-being and pleasure-seeking” will gain more weight, whereas with the domination of reason over other powers, one can witness the response to all innate inclinations in a controlled and just manner.

- Man's relationship with society is not one-way; but social institutions also have a significant impact on how new needs are formed in humans. Therefore, the type of understanding and definition of “policymakers” of man and his innate inclinations will be effective in societal behavior. For example, in a society where the basic human needs are defined as the need for hedonism and profit-mindedness, the institutions corresponding to these needs would also grow more, and this co-evolutionary relationship between the need and the institution would progress and one would strengthen the other.

Considering the role of reason and knowledge production in individual development and its impact on progress at the level of society, the role of one of the most effective social institutions in knowledge production, namely the university is analyzed and the formation of different types of universities from the perspective of Sadra's philosophy is explained.

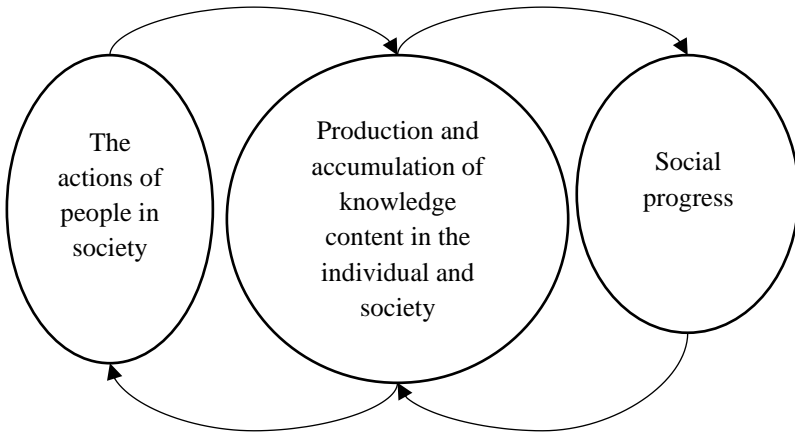
#### 4. EXPLAINING THE REASONS FOR THE FORMATION AND CLASSIFICATION OF DIFFERENT UNIVERSITIES

According to Sadra's philosophy, the truth of the human soul is equal to knowledge and knowledge is the product of human interaction with the environment (Acar, 2013; Kahn, 2000). This knowledge not only develops the human soul but is also stored and accumulated in the institutions of society, and this reciprocal and evolutionary relationship between man and the institutions of society continues (Sheykh and Hashemi, 2009). Therefore, knowledge transforms into a desirable amalgamation of social and cultural traditions as well as the processes of human actions aimed at establishing consensus in society and highlighting the social significance of science work. This type of consensus and knowledge accumulation can form the foundation of a culturally valued knowledge, which causes progress in society (Khademzadeh and Kanaani, 2022; Sardar, 1989). People's common action in society, which means focalizing their various ideas in

practice gradually grows congruent and finally forms super structures ruling the society (Fuller, 2003).

One of the most important social institutions playing an important role in human development, production and accumulation of knowledge content and social development is the institution of “education” (DiMaggio, 2019). This institution, which itself consists of smaller institutions such as schools, seminaries, universities, educational institutions, media and other cultural institutions, can contribute to societal development by promoting the level of reason in society. In addition, the achieved social progress leads to the growth of the educational institution and the growth in level of action among people. Figure 3 shows the relationship between “the actions of individuals in society”, “production and accumulation of knowledge content in the individual and society” and “social progress”:

FIGURE 3  
The Relationship between “The Actions of Individuals in Society”, “Production and Accumulation of Knowledge Content in the Individual and Society” and “Social Progress” (Rafiei Atani, 2018)



The present study, according to its purpose, focuses on the middle circle in Figure 3 and tries to present a typology of universities as one of the key actors of education in society, based on Sadra's philosophy. In this typology, the formation of the university as a social institution is influenced by the collective spirit in society. In proportion to the degree of dominance of each of the powers of the soul in the collective spirit mentioned in the previous sections, we can see the emergence of three general types of university:

- a. Economy-oriented university: This type of university is formed as a result of the dominance of the power of “lust” over other powers of the soul in society and has other examples that are formed by the multiplication of the power of “lust” by different innate tendencies.
  - i. If the economy-oriented university is formed with the aim of responding to the two innate tendencies of “truth-seeking” and “profit-seeking”, it will become an “industrial and technology-oriented university” (Marozau et al., 2021) in which one tries to focus on the scientific and research capabilities of professors and researchers to ultimately help improve the economic conditions of the university and society.
  - ii. If an economy-oriented university is formed with the aim of responding to at least two innate inclinations of “power-seeking” and “profit-seeking”, it will become a “Halle” university that seeks to bring economic benefits to society while striving for being counted in the circle of “political” institution dominance. As mentioned in the historical course of the establishment of Halle University, the response to other innate needs such as the tendency for “freedom” has also been considered by the policy makers of this university.
  - iii. If the economy-oriented university pays much attention to the innate inclination to “profit-seeking”, it will turn into the “entrepreneurial university” and, in the most extreme case, the university will be considered as an “economic enterprise”.
- b. Authoritarian university: This type of university is formed by dominance of the power of “anger” over other powers of the soul in society and has other examples formed by the multiplication of the power of “anger” by different innate tendencies.
  - i. If the authoritarian university aims at responding to the innate tendency for “power-seeking” and to create the conditions for the security of the country (the “Well-being and pleasure-seeking”) and to protect the lives of the people (the innate tendency for “survival and immortality”, in fact, a “military and security university” has been established.
  - ii. Where the authoritarian university were established in response to the concerns of government leaders through the use of academic research (innate tendency for “truth-seeking”) to ensure national interests (innate tendency for “profit-seeking”) and also to expand the country's domination on and influence in other parts of the world (the two innate tendencies of “power-seeking” and “tendency for survival and

immortality”), we can expect the realization of the “basic research university model.”

- iii. If the authoritarian university tries to defend the interests of a religious institution such as the church through overshadowing the common sciences by religious beliefs (innate tendency for “profit-seeking”) and at the same time expand and deepen religious beliefs in society (innate tendency for “worshipping”) to exercise power over governing institutions (innate tendency for “power-seeking”), it will lead to formation of a university such as Paris University (Thijssen, 2011).
- c. Particularist university: This type of university is formed following dominance of the soul power of “illusion and imagination” over other powers of the soul in society and has other examples formed by the multiplication of the power of “illusion and imagination” by different innate tendencies. Imagination is the place of storage of particular forms and Mulla Sadra considers imagination as one of the basic principles of action, the link between the world of senses and the world of mental phenomena and as an angel in the preservation of Trumpet. Illusion is also one of the abilities of the soul and is specific to understanding particular meanings (Rezaei, Sadeghi Hassanabadi and Rostampour, 2013). Accordingly, in a particular university, which is influenced by the dominance of the power of illusion over other powers of the soul, the view of science is often one-dimensional, and specialization is a priority. The different versions of this type of university are as follows:
  - i. University of Art: Art is the product of the use of the power of “imagination” by the artist and the formation of the University of Art is the result of action by a group responding to their innate tendencies by ruling the power of “imagination” over other innate powers. For example, composing mystical poems and literature is the result of responding to the innate need for “truth-seeking”; creating romantic works is the result of responding to the innate need for “loving”, and producing a variety of attractive objects, designs and paintings is in response to the innate need of “aestheticism.”
  - ii. University of Political Science: The power of illusion seeks to deceive, duplicate and hide the truth and is the necessary cause for political activities. This type of university is the result of responding to the innate need for “power-seeking” and “truth-seeking” in order to describe the power-seeking actions of individuals and provide the necessary prescriptions by using

academic research and preparing appropriate fuel for the illusion.

- iii. Research-oriented university (Humboldtian): Specialism and lack of a unified view of the branches of science is due to a particularist view and the dominance of “illusion” over other soul powers. At this university, people, having a particularist view, seek to meet the innate need for “truth-seeking”.

Table 2 shows how the university can be categorized as economy-oriented, authoritarian-oriented and particularist-oriented. The examples mentioned in the table have evidence from the twelfth century until now.

TABLE 2  
Classification of Different Universities Based on the Framework of Sadra’s Philosophy

Types of universities	Dominant power of soul	Dominant tendencies of innate	Examples
Economy-oriented university	Lust overcoming other powers of the soul in the university	“truth-seeking” and “profit-seeking”	Industrial and technology-oriented university
		“power-seeking” and “profit-seeking” and “tendency for freedom” “profit-seeking”	Halle University (nation-state)  Entrepreneurial university University as an “economic enterprise”
Authoritarian university	dominance of the power of “anger” over other powers of the soul in society	“power-seeking” and “Well-being and pleasure-seeking” and “survival and immortality”	Military and security university
		“truth-seeking” and “profit-seeking” and “power-seeking” and “tendency for	Basic research university model

TABLE 2 (continued)

Types of universities	Dominant power of soul	Dominant tendencies of innate	Examples
		survival and immortality”, “profit-seeking” and “tendency for worshipping” and “power-seeking”	Paris University
Particularist university	“Illusion and imagination” overcoming other powers of the soul in the university	1- “truth-seeking” 2- “loving” 3- “tendency for beauty”  “power-seeking” and “truth-seeking” “truth-seeking”	University of art: 1- Field of “mystical poems and literature” 2- Field of “creating romantic works” 3- Field of “producing a variety of attractive objects, designs and paintings” University of Political science Humboldtian (research-oriented university)

5. DISCUSSION AND CONCLUSION

The accuracy of the theory and its use of narrative analysis: Since the twelfth century, universities have always been one of the most influential institutions in the development of societies. A review of the history of the university shows that the role of this institution in social and economic development has always been increasing (Brubacher, 2017). Different philosophical and theoretical understandings and explanations of the goals and missions of the university have caused the university to play different roles in different areas of society throughout history. Therefore, achieving a better understanding and explanation of the goals and missions of the university can help higher education policymakers (Bayuo et al., 2020; Kempton, 2021). Therefore, the present study tried to achieve a better explanation of the formation of universities by asking the



question: “What is the best theory to explain the formation of universities from the twelfth century until now?”

In response to the research question on the selection of the best theory to explain the formation of universities from the twelfth century to the present, the article discusses the effects of the two philosophical schools, namely “Scholasticism” and “Humanism” in defining different missions and the formation of the university. Then, from a new perspective and with the view of Sadra's philosophy, the reasons for the formation of universities and their missions were reviewed and a new type of university was presented; the one that is appropriate to the philosophical view of the present study. In this section, using the method of inference of the best explanation (Bradford et al., 2021), the reasons for the superiority of Sadra's philosophy in explaining the reasons for university formation are clarified.

According to the best explanation inference method, various explanations can be provided for each specific set of evidence and information, but the best explanation is probably the most correct (Lipton, 2004). To select the best theory to explain a phenomenon, researchers have introduced various features, the most important of which are: the explanation power of the theory from the mechanisms of occurrence of a phenomenon, the degree of accuracy and correctness of the theory and its use of narrative analysis, learning and the power of covering a wider scope of phenomena, simplicity and minimal use of claims and theorems, the fertility of the theory and the possibility of discovering new dimensions of the phenomenon that had been neglected in the past, and the degree of fit with background.

Each of the explanations provided for the missions and types of universities introduces the mechanism of university formation influenced by 1) the philosophical view of policy makers (mainly the two schools of scholasticism and humanism), and 2) social conditions and needs.

The framework of Sadra's philosophy, while confirming the effect of these two important factors, believes that a simpler explanation can prevent the existence of divergence in different explanations. According to this philosophical framework, different explanations of the university can all be grouped under the conceptual umbrella of the wisdom-oriented university in a hierarchical manner. These universities, like the perfection of human beings, are possible to be ranked depending on which of the four soul faculties of human society they go under. Thus, if the framework of Sadra's philosophy is used, not only can we see the pervasiveness and power of covering

a wider range of phenomena, but also other types of universities can be predicted. The explanatory theories in the research literature, however, both lack a comprehensive anthropological perspective and, mainly retrospectively and exploratorily, analyze the university phenomenon and are unable to predict and create theories. A prominent feature of the framework of Sadra's philosophy is its adaptation to the kind of fundamental view of other thinkers on the phenomenon of the university. In other words, just as the West has attempted to shape the university institution by adopting the view of "humanism" and the type of perception of man, so in the context of Sadra's philosophy, the starting point of analysis has been based on "anthropology" from the perspective of *Islām*. And it can be claimed that there is a correspondence between this philosophical view and other previous theories in how to choose the starting point of explanations. Considering the weakness of most theories explaining university formation in providing analysis based on quantitative/qualitative data, the following attempt has been made to explain and narratively analyze the various dimensions of the concept of a wisdom-oriented university and to some extent overcome this weakness.

The nature of progress is based on change in individual and social life. The change in an individual's life manifests itself in perfection in the form of the development of human existence, a human being tries to satisfy their innate tendencies to the maximum with the help of their innate abilities (Geravand and Joudi, 2020). This human phenomenon manifests itself in human products in the realm of scientific, moral, cultural, artistic and economic life. Human outputs are naturally stored throughout history in social institutions. These human resources, in the form of science and wealth, and so forth, serve the realization of the innate tendencies of future human beings. The gradual accumulation of the products of human nature in social institutions causes the constant capacity of these institutions to face the need for change to increase capacity and capability. Changing the capacity of social institutions will mean social evolution (vertical progress) when it is created by the accumulation of innate perfectionist products. This is if the animal powers (such as: lust, anger, delusion and fantasy) are managed by intellectual power and serve the maximum realization of human innate tendencies. But if the intellectual power is under the management of animal abilities and in the service of the realization of human innate tendencies, the accumulation of its products throughout life will transform social institutions toward backwardness. In this case, the exploitation of

future humans from the accumulation of reserves in social institutions will lead humans to more animal life. Planning for progress, then, means planning for the transcendence of intellectual power as well as its mastery of animal and vegetable powers (Nurdin, Nasution and Nasution, 2019).

It is clear from the definition and process provided for progress that the “education system” will be the central nucleus, the leader of other systems of life. The present article, while focusing on the institution of “university” as one of the key elements of the education system, has placed universities in four general types. These four types are appropriate to the general conditions of society and are as follows:

- Economy-oriented university: If the power of lust overrides other powers of the soul in society,
- Authoritarian university: If the power of anger overrides other powers of the soul at the society level,
- Particularist university: If the powers of illusion overrides other powers of the soul at the society level, and
- Wisdom-based university: If the power of reason overrides other powers of the soul in society.

The four types of universities offered are hierarchical, and their highest level is the “wisdom-based university”. As explained in the article, according to Sadra's philosophy, higher levels of perfection also include lower levels of perfection. In other words, the wisdom-based university, while enjoying the advantages of the other three types of universities, has transcendental characteristics that make it superior. In this university, all the scientific fields required by society are covered, and after the introductory, general, and joint courses, people pursue their interests and talents in a more specialized way in the next level. In general, the four functions of a wisdom-based university are: 1- graduate education, 2- developing technology and technical knowledge, 3- problem-solving and communication with society (such as industry, government institutions, etc.), and 4- production and dissemination of knowledge content. The four functions must meet 10 goals derived from innate inclinations. Table 3 shows the functions and goals of the wisdom-based university. In this table, the characteristics of the graduates trained in the wisdom-based university are expressed in the form of 10 innate tendencies. It also explains how the university works to perform the other three functions. The duties of the wisdom-based university and its graduates in the three academic disciplines of Art, Military and Security Sciences, and Political Science are shown in Table 4.

TABLE 3  
The Functions and Goals of the Wisdom-Based University

Objectives Functions	Truth-seeking	Profit-seeking	Power-seeking	Well-being and pleasure-seeking	Tendency for freedom	Loving	Tendency for beauty	Tendency for worshipping	Tendency for survival and immortality	Tendency for moral virtues
Graduate education	-Loving science -Curiosity -Truth-seeking	-National view of profit-seeking - No prioritization of individual interests over collective and social interests	Avoiding presidency and domination - Training efficient managers	Having ethical frameworks to reasonably enjoy pleasures. -Avoidance from wealth sickness, being in harmony with the poor	Freedom from sensual attachments - Opposing illegitimate powers	Having a spirit of service and sacrifice for society - Special attention to the poor and lower classes of society	Dealing with art and strengthening artistic talents	Honoring people of grace like scientists - Training united people	Strengthening work conscience - Doing things with maximum quality	Strengthen moral virtues such as honesty, patience, courage, perseverance and so on
Development of technology and technical knowledge	-Centrality of research and innovation - Comprehensiveness and attention to the relationship between technology and other sciences - Not being content with your knowledge and use the knowledge and experiences of other knowledge sources	- Prioritizing the attainment of social interests over individual interests	-Focusing on areas and issues that increase national power	- Promoting the comfort and well-being of the people - Maximizing reduction of negative social effects	- Taking into account the privacy of individuals - Striving for national independence from aliens	-	- Designing attractive products compatible with consumer interest	- Attributing knowledge and abilities to God and not oneself	- Full observance of safety principles and quality management	- Using technology to increase justice, transparency, etc .

TABLE 3 (continued)

Objectives	Truth-seeking	Profit-seeking	Power-seeking	Well-being and pleasure-seeking	Tendency for freedom	Loving	Tendency for beauty	Tendency for worshipping	Tendency for survival and immortality	Tendency for moral virtues
Functions										
Problem solving and communication with society (industry, government institutions, etc.)	- Using knowledge in solving social problems, like knowledge-based entrepreneurship	- Prioritizing the acquisition of social interests over individual interests - Academic social entrepreneurship	- Strengthening the national economy	- Enjoying risk-taking and hard work	- Using participatory models instead of hiring people	- Priority in solving the problems of poor and needy families	- Knowing the value of problem solving, entrepreneurship and effort	- Sincerity and doing things to please God	- Observance of legal principles - Risk management - Sustainable and stable entrepreneurship	- Observance of moral principles such as justice and fairness, forgiveness, kindness and tolerance, cooperation, honesty, patience, etc .
Production and dissemination of knowledge content (In different fields of knowledge)	- Research based approach - Comprehensiveness and avoidance of partiality - Trying to discover the facts of the universe	- Targeting the basic needs of the country in selecting research topics - Lack of preference of personal interests over national interests	- Efforts to increase the country's authority	- Enjoying discovery and understanding of new knowledge concepts	- Conducting research regardless of pressures from those in power and wealth	- A relentless and tireless effort to scientifically solve society's problems - Risk-taking in the process of scientific research	- Paying attention to the beauties of the world	- Increasing knowledge of God as a result of understanding the laws of the universe	- Prioritizing and addressing important and fundamental issues - Carefulness and commitment in observing the quality of scientific research	- Observing ethical principles in research

TABLE 4  
Examples of the Duties of the Wisdom-Based University and its Graduates

Objectives Knowledge discipline	Truth-seeking	Profit-seeking	Power-seeking	Well-being and pleasure-seeking	Tendency for freedom	Loving	Tendency for beauty	Tendency for worshipping	Tendency for survival and immortality	Tendency for moral virtues
Art field	- Dealing with magnificent art such as mystical poems	- Not giving priority to economic incentives in artistic activities	- Avoiding fame - Dealing with epic works of art - Using art to strengthen the country	- Enjoying prestigious art instead of laziness and promiscuity - Injecting the spirit of happiness and vitality into society	- Spirituality and freedom from material belongings - Independence of those in power and wealth	- Dealing with romantic and altruistic themes - Reflecting social pains and people's issues in the form of art	- Dealing with legitimate and luxurious beauties	- Strengthening the monotheistic view of university officials, professors and graduates	- Addressing fundamental human and social issues	- Fighting against illegitimate and oppressive powers through works of art
Military and security sciences	- A scientific and comprehensive view of military and security issues - Using local and international experiences	- Exerting efforts to secure national interests	- Continuous efforts to improve the level of readiness and military power of the country	- Participating in maintaining national security and other neighboring countries - Exerting efforts to provide spiritual and psychological security of society	- Preserving the independence and freedom of the country	- Readiness for self-sacrifice for society	- Paying attention to the beauties of self-sacrifice and devotion	- Continuous strengthening of communication with God - Attribution of successes and victories to God	- Continuous strengthening of defensive deterrent power	- Fighting against oppression and injustice - Strengthening the spirit of self-sacrifice, courage, breaking attachments

TABLE 4 (continued)

Objectives Knowledge discipline	Truth-seeking	Profit-seeking	Power-seeking	Well-being and pleasure-seeking	Tendency for freedom	Loving	Tendency for beauty	Tendency for worshipping	Tendency for survival and immortality	Tendency for moral virtues
Political science	<ul style="list-style-type: none"> <li>- A comprehensive and scientific view</li> <li>- Using local and international experiences</li> <li>- Trying to lead the society towards the Truth and truth-seeking</li> </ul>	<ul style="list-style-type: none"> <li>- Providing national interests</li> </ul>	<ul style="list-style-type: none"> <li>- Contributing to the formation of society and religious government</li> <li>- Strengthening the role of the people in government, such as democracy</li> </ul>	<ul style="list-style-type: none"> <li>- Providing pleasure and well-being for the community</li> </ul>	<ul style="list-style-type: none"> <li>- Ensuring legitimate freedoms in society</li> <li>- Political independence from superpowers</li> </ul>	<ul style="list-style-type: none"> <li>- Behaving people with kindness and tolerance</li> </ul>	<ul style="list-style-type: none"> <li>- Creating order and law in society</li> </ul>	<ul style="list-style-type: none"> <li>- Creating an atmosphere for the implementation of divine commandments in society</li> </ul>	<ul style="list-style-type: none"> <li>- Continuous training of managers with adequacy for society</li> </ul>	<ul style="list-style-type: none"> <li>- Fighting against corruption, deceit, injustice, etc. in society</li> </ul>

As can be seen from Tables 3 and 4, the wisdom-oriented university :

- Is responsible for educating human beings and leading them to the path of perfection .
- Strengthens scientific and cultural self-confidence and self-reliance and plays a key role in maintaining the country's independence .
- Is committed to solving the problems of society, and causes the growth of community members and ultimately creates progress in society.

If the wisdom-based university is formed and institutionalized, the following characteristics could be expected:

- a. Avoidance of particularity: In *Islāmic* teachings, reason is considered as a source for issuing general rules. The meaning of general rules is a comprehensive view of scientific issues, to examine the relationship of each scientific finding with other related issues in a systematic way and to avoid particularity. To reform and improve the university, the logic of analyzing scientific issues, in addition to a particularist and specialized view, should be analyzed in an interdisciplinary approach as well as by multidisciplinary teams at the macro level to allow the inference of general rules.
- b. Attention to comprehensiveness and gradual shift to specialization: Building upon the explanations given before, the truth of knowledge is the reality of the human soul, and in accordance with the important philosophical rule of Mulla Sadra, based on “/Annafso fi vahdateha kolle qovaa/” meaning all the soul powers of man (Which was explained above) are united and cannot be separated from each other (Akhlaghi and Shariatmadari, 2006). It is therefore concluded that different human sciences are not separated, and professionalism should not be excessively considered even though it deepens human findings. In other words, the foundation of different knowledge should be taught to the learners, and after passing the introductory course, specialization begins.
- c. Scientific moderation and attention to wisdom: According to *Islāmic* teachings, wisdom results from correct knowledge of scientific need, and a comprehensive, accurate and focused attention to that scientific issue (Akhlaghi and Shariatmadari, 2006). In other words, after identifying the scientific problem, it should be analyzed from different and required dimensions and all the required knowledge should be obtained. Any excess in the



acquisition of unrelated knowledge or extravagance and laziness in the acquisition and domination of knowledge prevents the attainment of wisdom.

- d. Fostering creativity and producing knowledge contents: As mentioned before, according to *Islāmic* teachings, man is considered God's successor on earth and the necessary condition for such a position is the use of all his soul powers, especially intellect, creativity and knowledge production in continuity (Shirazi, 1989). Master Mutahhari, considered creativity as innate in human beings (Hashemi, 1999), describing its cultivation as one of the prerequisites for the stages of perfection. Academics' creative productions should also lead to problem solving in practice. Appropriate methods for applying these knowledge products are described below:
  - i. Networking activities: According to the obtained results, the ability of networking to communicate with the industry is considered a key factor in academic entrepreneurship. Despite having technological knowledge and appropriate scientific level, academics do not have enough skills to use them in solving real problems and entrepreneurship. Also, they do not easily communicate with those who can provide appropriate resources for the commercialization of knowledge and technology, and as a result, they fail to supply their skills due to a weak communication network with the industry. (Rasmussen et al., 2014). Therefore, universities that can establish effective communication with industrialists, while improving their networking capabilities, provide the field of academic entrepreneurship more than other universities (Heiter, 2016).
  - ii. Creating physical infrastructure: Encouraging academics to entrepreneurship and meet industry technological needs requires providing the physical infrastructure such as technology transfer offices, incubator centers for technological units, accelerators, science and technology parks, and entrepreneurship centers. (Marzucci et al., 2019). The creation of such infrastructure helps academic entrepreneurs to have free and cheap access to equipment. They can also practice interaction with industry and accelerate their entrepreneurial activities by receiving various knowledge and technology commercialization services (Guerrero and Urbano, 2012).

- iii. Creating a favorable environment for entrepreneurship: in a situation where the criteria for evaluating and encouraging academic researchers are based on educational records and published articles, regardless of their ability to solve real problems, it cannot be expected to engage in entrepreneurial activities. Financial support for communication with industry, improving interdisciplinary fields, eliminating boundaries between faculties and improving interaction between scientific groups, training entrepreneurship skills, and so forth, are among the necessary actions to create a favorable environment for Entrepreneurship. Moving towards academic entrepreneurship does not occur by itself and the design of incentive policies is necessary (Wright, 2007).
- e. Duty-oriented interaction with society: In explaining the relationship between the individual and society, it was stated that during the six-stage evolutionary model, this action can be explained. University should try to draw audience attention to the high stages of one's interaction with society and encourage the innate tendency to love and sacrifice for society, to use conscientiousness as a criterion for choosing future paths to play a role in society. Paying attention to cultivating all innate tendencies according to the characteristic of “comprehensiveness” and teaching different sciences causes a person to better understand their talents, direct them under the guidance of reason and to solve important problems of society. In such a view, even the entrepreneurial and economic activities of the graduates will occur under the control of reason over other soul powers and with high human goals. For example, if the response to the innate tendencies of “truth-seeking” and “loving” is targeted, one can also see the emergence of socio-academic entrepreneurship.
- f. Unbounded activities: Although the university has physical boundaries in the common sense, but due to the irreplaceable role of the education system in promoting rationality in society and the need for the university to be alongside other institutions of society to help their growth and development, despite having the boundaries and the usual physical location, the university should not confine itself to such boundaries and keeps conforming its interaction with other social institutions through establishing think tanks, research centers, counseling centers, and so forth.
- g. Continuous effort to come closer to God: In strengthening people's relationship with God, the university tries to provide the ground

for its beneficiaries to come closer to God. Creating the grounds for spiritual growth, increasing people's knowledge of the world order and the causal system, along with the proper explanation of revelatory teachings, are the distinguishing features of a desirable university.

- h. Optimal use of science and technology: Advances in science and technology are the result of human interaction with the world of creation (nature). The university, while paying attention to the innate tendency for “truth-seeking” and the constant discovery of the laws of the phenomena of the world of creation, regulates the way man interacts with the world and the environment in a rational and friendly way. Also, in applying science and technology, it never disrupts the order of the world, but exploits them in the direction of the world goodness.

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## **RELATIONSHIP BETWEEN FOOD PRICES AND NON-RAW MATERIALS INPUT: VAR ANALYSIS**

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### **ABSTRACT**

Inflation is defined as the general increase in prices in the most general sense and is an important macroeconomic indicator. The increase in food prices is affected by the general inflation rate and it is an important indicator in determining the monetary policies implemented. In recent years, factors such as global crises, climate changes, foreign dependency in energy have sharpened the rises in national indicators. In this study, in Turkey, the effects of electricity-natural gas, Brent oil, dollar exchange rate and labor cost (minimum wage), which are the most important cost items in forming food prices, in the quarterly periods between 2003Q1-2022Q4 were analyzed. Vector Autoregression (VAR) model was used as the analysis method, the cointegration relationship between the variables can be accepted with a lagged value in the model and the error correction model is assumed to consist of an autoregressive distributed lag model. Literature review showed that external factors will affect food prices more as a hypothesis. According to the variance decomposition analysis results in the VAR model, the most important factors affecting food prices are exchange rate in the short run and Brent oil price in the long run. It has been observed that the minimum wage has the lowest effect. In the research, one limitation is that only factors such as electricity-natural gas, Brent oil, dollar exchange rate and labor cost were taken into account in evaluating impact on food prices, and other economic, social and climatic factors affecting agricultural production were not taken into account. In previous studies, the effects of factors such as electricity-natural gas, Brent oil price, dollar rate and labor cost on food prices were examined separately; this study contributes to determining which factor is more effective over the long and short term.



JEL classification: E31, L11, L66, Q11

Keywords: Brent oil, Dollar exchange rate, Electricity-natural gas, Food prices, Minimum wage

Submitted: 04/11/2022

Accepted: 12/04/2023

Published: 28/06/2024

## 1. INTRODUCTION

Inflation, which is defined as the general increase in prices, is an indicator affecting all segments economically (Barbaros, Kalaycı and Bakır, 2019). Food prices are an important factor in the formation of ideas about the economic policies and welfare levels of countries. Fluctuations in food prices impact on producers, consumers and market makers and create significant price risk and uncertainty (Chavas, Hummels, and Wright, 2014).

Although the share of labor costs in the total production cost in the food sector is small compared to other sectors, the rate of labor force working with minimum wage is higher than in other sectors because of the high number of jobs that do not require qualifications (Lee, Schluter, and O’Roark, 2000). The increase in consumption of processed and ready-made food and the substitution of the sector with labor, however, can lead to an increase in the need for labor and subsequent increased cost to the consumer (Bhattacharya and Jain, 2020; Norazman, Khalid, and Ghani, 2018).

Energy costs are one of the most important expense items in the food industry. As well as supply shocks and the financial crisis volatility in food prices, it is also explained by the energy market (Von Braun and Tadesse, 2012). It is observed that the increase in oil prices has a greater effect on food prices, especially in developing countries (Dillon and Barrett, 2016). Petroleum is an important input used in stages such as processing and transportation of agricultural and food products from production to consumption. Oil price volatility affects the agricultural food prices and food security negatively due to the increase in costs (Taghizadeh-Hesary, Rasoulinezhad, and Yoshino, 2019).

With globalization, international goods, services and capital mobility have increased and the exchange rate based on the pricing of these products has begun to take an important place in the economies of the countries (Petek and Çelik, 2017). The increase in exchange rate after the Covid-19 crisis caused a break in the exchange rate-inflation relationship and shows that the exchange rate is closely related to

inflation (Bozdağlıoğlu and Yılmaz, 2017). In addition, it is observed that when a country is financially weak, it affects the exchange rate negatively and causes volatility in commodity prices (Boubakri, Guillaumin, and Silanine, 2019).

Many studies on inflation exist in the international literature. In the national literature within a narrow scope studies have been done on the inflation of agricultural and food products, the effect of international macroeconomic variables on agricultural production and food industry prices (Bayramoğlu and Yurtkur, 2015), the asymmetric effect of real income and oil prices on food prices (Altıntaş, 2016), the effects of price increases in agricultural and food products on inflation (Eştürk and Albayrak, 2018), the effect of price increases in food products on general inflation (Ulusoy and Şahingöz, 2020), as well as the effect of oil prices and exchange rates on food prices (Gökçe, 2021).

In the international literature, studies have covered the political unrest caused by increase in food prices and volatility (Bellemare, 2011), the impact of shocks in global food prices on the Turkish economy (Kapusuzoğlu, Liang, and Ceylan, 2018), the effect of financial and energy markets on food prices (Śmiech et al., 2019) the relationship between agricultural commodity prices and oil prices in the global market (Su et al., 2019), and the effect of monetary policies on food prices (Iddrisu and Alagidede, 2020).

Review of the national and international literature showed no study has been found on the effect of energy prices, exchange rates and labor costs on food prices. Hence, this study investigates to what extent the effects of energy (electricity-natural gas, Brent oil), dollar exchange rate and minimum wage in Turkey, which constitute the biggest cost items other than raw material prices, are on food prices.

With the analysis made, it is aimed to present solutions by revealing the factors having the greatest impact on food prices. In this way, measures can be taken to prevent an increase in food prices.

## 2. MATERIAL AND METHODOLOGY

In the 2003-2021 period, Turkey's food inflation data regarding the food price index, electricity-natural gas price index and international Brent oil price (\$) as energy variables, minimum wage and dollar exchange rates as monetary values constitute quarterly data. Secondary data used in the research were obtained from Turkish Statistical Institute (Türkiye İstatistik Kurumu) (TURKSAT), Central

Bank of the Republic of Turkey (Türkiye Cumhuriyet Merkez Bankası) (CBRT) Electronic Data Distribution System (EVDS).

Descriptive statistics regarding the variables used in the study are given in Table 1. The mean value of the food CPI index in the examined period was 259.03, and it was the variable with the highest variability with 154.25 standard deviations, while there were 7.32 multiple differences in the periods with the maximum and minimum values.

TABLE 1  
Descriptive Statistics of the Belong to Variables Used in the Research

Variables	Symbol	n	Min.	Max.	Mean	Std. Deviation
Food CPI (index)	FI	76	96.99	709.78	259.03	154.25
Electricity-Natural Gas (index)	EN	76	99.89	627.49	257.39	134.70
Brent oil (\$)	BO	76	28.15	112.16	68.80	25.05
Minimum wage (TL)	MW	76	226.00	2825.90	987.95	0.85
Dollar exchange rate (TL)	DE	76	1.19	11.16	2.87	2.18

Source: CBRT, 2022; TURKSAT, 2022

The relationship between food inflation and the dollar exchange rate, which affects the price of energy, labor costs and raw material inputs, apart from raw material inputs, has been examined by Vector Autoregressive Model (VAR) analysis. The Vector Autoregression (VAR) model was developed by Sims (1980) and revealed that all variables (dependent-independent) used in the model should be considered as internal (values determined in the model). In this model, if there is a cointegration relationship between the variables, the lagged value of the variables can be accepted and the error correction model can create a VAR model from the

autoregressive distributed lag model (Erarslan, Pehlivanoglu, and Narman, 2021).

Variables must be stationary in the VAR model, which is one of the time series analysis models. In this study, Augmented Dickey-Fuller (ADF) and Phillips Perron (PP) unit root tests, which are the most used methods to determine the stationarity of the series, were applied. With these stationarization tests, the possibility of spurious regression in time series is eliminated and the accuracy of analysis is ensured (Akıncı, Akıncı, and Yılmaz, 2014). The equation related to the unit root test is as follows:

$$(1) \quad \Delta Y_t = \alpha_0 + \alpha_1 t + \gamma Y_{t-1} + \sum_{i=1}^k B_i \Delta Y_{t-1} + \varepsilon_t$$

In the equation,  $\Delta Y_t$  stationarity is the coefficient that determines the analyzed time series,  $\alpha_0$  and  $\alpha_1 t$  are the coefficients that determine whether there is a systematic trend in the analyzed time series, and  $\varepsilon_t$  represents the random error term. While the ADF test, one of the stagnation tests, considers whether there is a unit root and the appropriate lag length, the PP unit root test does not take into account the structural break (Gültekin and Hayat, 2016).

The Vector Autoregression (VAR) model establishes a simultaneous equation system in case the effects of variables on each other are difficult to understand their influence and multifaceted (Gültekin and Hayat, 2016). The presence of a lagged model in the model is preferred because it allows strong predictions for the future and can reveal dynamic relationships in time series without any restrictions (Petek and Çelik, 2017). The equation related to the time series with one dependent variable in the model is as follows:

$$(2) \quad Y_t = A_1 Y_{t-1} + \dots + A_p Y_{t-p} + B x_t + \varepsilon_t$$

While  $Y_t$ , which is the dependent variable in the equation, represents the variable vector,  $x_t$  refers to the determinist variable,  $t$  time,  $p$  the delay number,  $A$  and  $B$  stationarity coefficients, and  $\varepsilon_t$  the error term vector (Gültekin and Hayat, 2016).

### 3. FINDINGS

#### 3.1 CHANGES IN FOOD PRICES AND INFLATION IN TURKEY

As a macroeconomic concept, inflation has been one of the most

important economic problems in Turkey for years. The fact that Turkey is an open economy causes an increase in sales costs and prices in domestic markets in parallel with increasing international food prices (Altıntaş, 2016). In developing countries such as Turkey, high food inflation causes high general inflation and this situation can lead to monetary policies implemented (Bhattacharya and Jain, 2020).

Because the rate of increase in food prices causes general inflation to a large extent it reduces the general consumption demand and leads to socio-economic consequences (Eştürk and Albayrak, 2018). Especially in the last five years, 30% of the increase in inflation is attributed to food prices, and factors such as global crises, climate changes and foreign dependency in energy have paved the way for the increase (Ulusoy and Şahingöz, 2020).

### 3.2 EFFECTS OF NON-AGRICULTURAL RAW MATERIAL INPUTS ON FOOD PRICES

In order to perform VAR analysis, it is first necessary to determine whether the series related to the variables used in the research are stationary to the same degree. The stationarity of the variables means that the means and variance are not variable (Kalkavan, Eti, and Yüksel, 2020). The results of Augmented Dickey Fuller (ADF) and Phillips Perron (PP) unit root tests applied to the natural logarithms of the data of the variables are shown in Table 2. It was observed that the variables became stationary at the 5% significance level by taking their primary differences, and the stationarity of all variables at the same level indicates that it is appropriate to apply the VAR analysis.

At the stage of creating the VAR model, the appropriate lag length should be determined so that the results of impulse-response analyses and variance decomposition are consistent. In determining the lag length, LR (LR test statistics), FPE (Final estimation error), AIC (Akaike information criterion), SC (Schwarz information criterion) and HQ (Hannan-Quinn information criterion) tests are applied (Kalkavan, Eti, and Yüksel, 2020). As seen in Table 3, the lag length of the VAR model was calculated as 3 according to the LR, FPE and AIC criteria. According to this result, the appropriate VAR model was determined as VAR(3).

In Table 4, the coefficient values of the estimation results of the variables in the VAR(3) model created according to the lag length are given. In the model, the differences of the series are taken according to the lag length and the trend variable (c) is shown in the

model depending on the previous data. Based on the dependent variable food consumer index, the overall explanatory level of the model was observed to be 99%, and it was observed that there was a positive correlation between the electricity and natural gas index of the three lag periods and the food inflation in the 2 lag periods in the dollar exchange rate.

TABLE 2  
Unit Root Test Results of Variables

Variable	ADF		Trend & Intercept		PP		Intercept ve Trend	
	Intercept		ADF	P	Intercept		t	p
Level	ADF Test	P Value	ADF Test	P Value	t Test	p Value	t Test	p Value
lnFI	3.73	1.000	4.20	1.000	4.27	1.000	3.02	1.000
lnEN	0.79	0.993	-1.55	0.801	1.09	0.997	-1.69	0.746
lnBO	-2.83	0.059	-2.76	0.216	-2.35	0.158	-2.20	0.484
lnMW	1.12	0.998	-1.59	0.789	0.25	0.974	-3.18	0.097
lnDE	2.86	1.000	-1.03	0.934	4.44	1.000	-0.47	0.983
1 <sup>st</sup> Difference								
lnFI	-1.79	0.380	-10.79	0.000*	-7.86	0.000*	-11.95	0.001*
lnEN	-3.77	0.005*	-3.89	0.017*	-2.97	0.043*	-3.11	0.013*
lnBO	-3.35	0.016*	-3.50	0.047*	-4.32	0.001*	-4.34	0.005*
lnMW	-3.79	0.005*	-3.91	0.017*	-17.07	0.000*	-19.14	0.000*
lnDE	-7.27	0.000*	-8.47	0.000*	-7.27	0.000*	-10.75	0.000*

TABLE 3  
Lag Length Table of VAR Model According to Relevant Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	159.439	NA	1.00e-08	-4.231	-4.074	-4.1687
1	663.469	925.206	2.00e-14	-17.355	-16.414	-16.980
2	723.648	102.223	7.70e-15	-18.319	-16.593*	-17.631*
3	755.938	50.426*	6.47e-15*	-18.519*	16.009	-17.519

\* Appropriate lag length

**TABLE 4**  
The Coefficient Values of The Estimation Results of The VAR(3)  
Model

	lnMW	lnBO	lnDE	lnEN	lnFI
lnMW(-1)	0.338	-0.103	0.188	-0.001	-0.095
lnMW(-2)	0.341	0.215	-0.268	0.005	-0.081
lnMW(-3)	-0.103	0.069	0.076	-0.026	0.130
lnBO(-1)	-0.017	1.363	0.088	-0.059	0.107
lnBO(-2)	-0.118	-0.293	-0.085	-0.032	-0.080
lnBO(-3)	0.076	-0.163	-0.052	-0.012	-0.010
lnDE(-1)	-0.167	-0.330	0.911	0.030	0.078
lnDE(-2)	0.166	0.086	-0.084	-0.039	0.022
lnDE(-3)	-0.090	0.218	0.048	0.007	-0.029
lnEN(-1)	0.202	-0.931	1.396	1.633	0.039
lnEN(-2)	-0.391	1.375	-2.048	-0.734	0.009
lnEN(-3)	0.007	-0.324	0.680	0.012	-0.025
lnFI(-1)	1.025	0.119	-0.227	0.019	0.871
lnFI(-2)	-1.155	0.338	0.419	0.022	-0.383
lnFI(-3)	0.918	-0.071	-0.031	0.078	0.505
C	-0.122	0.166	-0.681	-0.064	0.152
R <sup>2</sup>	0.996	0.961	0.990	1.000	0.998

Lagrange Multipliers (LM) test statistics are used to determine whether the error terms of the VAR model used in the research are related to each other (autocorrelation) (Petek and Çelik, 2017). According to the LM test results of the model in Table 5, autocorrelation was tested up to 6 lags, it was determined that the probability values were greater than 0.05 in all lag lengths and there was no variance problem with autocorrelation.

**TABLE 5**  
Autocorrelation Test Results

Autocorrelation-LM Tests Results		
Lag	LM Statistics	Probability Value
1	25.60553	0.4334
2	19.78210	0.7611
3	28.76230	0.2782
4	27.72777	0.3250
5	28.51291	0.2891
6	30.64525	0.2049

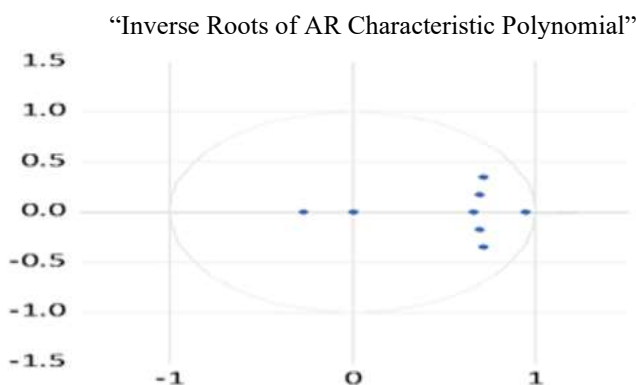
In the VAR model, whether the variance of error terms is different in the whole sample is analyzed with the White Variance Test (Petek and Çelik, 2017). Since the probability value of the model used in the research in Table 6 is higher than the 0.05 significance level as a result of the White Variance Test, it is accepted that the variance of the error term is constant and there is no problem of varying variance.

TABLE 6  
White Variance Test Result

Chi-square Test	df	Prob
934.2101	900	0.2084

AR-Root test is applied to test the stationarity of the VAR model. The fact that the inverse roots of the AR characteristic polynomial are not outside the unit circle shows that the established model is stationary and dynamically stable (Sarıtaş, 2018). In Figure 1, it has been shown that the inverse roots of the AR characteristic polynomial are distributed inside the circle with radius 1 and the stationarity of the model is not a problem.

FIGURE 1  
Stationary Plot of The AR Characteristic Polynomial



Variance decomposition analysis determines the prediction error variance of a variable for future periods and shows how much of the change is due to itself and how much is due to other variables (Petek and Çelik, 2017). The variance decomposition results of the food and beverage CPI, which is the dependent variable in the



research, are given in the following Table 7, and the biggest independent variable affecting food price inflation was exchange rates with 11.29% in the 1st period, while in the 10th period, Brent oil price with a rate of 37.64% has been the most significant. The fact that the Brent oil price is dependent on the dollar exchange rate and the dollar exchange rate is the second independent variable affecting food price inflation at the end of the 10th period led to an increase of more than 30 times during the period.

TABLE 7  
Variance Decomposition Results for Food and Beverage CPI Index

Food CPI Variance Decomposition						
Period	St. Error	FI	MW	BO	DE	EN
1	0.026	85.967	0.568	0.845	11.288	1.332
2	0.037	73.196	1.009	7.334	17.190	1.272
3	0.042	58.078	5.720	14.326	20.760	1.115
4	0.046	51.557	5.078	20.346	21.868	1.156
5	0.052	49.548	4.036	24.644	20.446	1.327
6	0.057	45.701	3.396	28.666	20.847	1.390
Food CPI Variance Decomposition						
Period	St. Error	FI	MW	BO	DE	EN
7	0.060	42.065	3.154	31.222	22.034	1.525
8	0.062	40.020	2.977	31.932	23.181	1.890
9	0.066	39.103	2.825	31.332	24.329	2.412
10	0.069	37.650	2.585	30.668	26.194	2.902

In previous national studies on the subject, Bayramoğlu and Yurtkur (2015) revealed that the most important variable affecting food product price in Turkey in the short and long term is the dollar exchange rate, while Altıntaş (2016) determined that the increase in food prices is more affected by real income increases than oil prices, Gökçe (2021) argued that food prices are fragile against shocks in Brent oil prices and exchange rate. In the international literature; Lee et al. (2000) determined that the effect of a 10% increase in the minimum wage on food prices in the USA remained at the 1% level.

#### 4. CONCLUSION

As a result of the research, in Turkey, the most influential factors on food and beverage inflation periodically were Brent oil price and

exchange rate. The main reason for this is that the inputs used in agriculture and food production depend on imports and that economic indicators are affected by international developments. While the effect of exchange rate among these two variables occurred in the short term, it was observed that the effect of Brent oil price was greater in the long term.

In the international literature, it has been observed that energy prices, especially of Brent oil, lead to an increase in food prices, especially in developing countries. In Turkey, although the same result is obtained in the long run, it has been observed that the periodic fluctuations in the exchange rate, which is one of the macroeconomic indicators, cause the increase in food inflation at the same level. On the other hand, increase in the minimum wage has a very limited effect on food inflation compared to other variables, and it is observed that the consumer purchasing power is limited due to the increase in inflation. In a narrow scope, macroeconomic policies should be determined to minimize the effect of exchange rate on food prices and measures should be taken to reduce vulnerability to shocks that may occur due to its impact on other variables. On the whole, in order to ensure food security, production planning should be developed by taking into account world food prices and policies, productivity should be increased by using agricultural technology, projects that will ensure preservation of products should be encouraged, and energy sources should be diversified to reduce dependence on foreign energy sources.

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## **PRACTITIONERS' VIEW ON CHALLENGES OF INSURTECH ADOPTION IN PAKISTAN: A QUALITATIVE CONTENT ANALYSIS**

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### **ABSTRACT**

Pakistan is an agrarian economy with a booming Islamic financial system, but unlike other developing economies, it has a low share of insurance penetration. Literature has explored multiple dimensions of challenges along with their solutions within the insurance sector. This study proposes that it is the sluggish adoption of InsurTech that led to low insurance penetration. Hence this study is designed to identify different InsurTech adoption-related challenges in the Pakistan insurance industry. Past studies have explored the supply-side merits of InsurTech but overlooked the issues faced by the insurance industry in demanding and absorbing the available new technology. Many youth-led firms are offering the latest technologies for the industrial revolution in Pakistan. This links towards higher technology acceptability among the masses in the future and a possibility to transform the other lagging industries such as banking and insurance. Content analysis is applied to the previously recorded interviews of experts from the insurance industry to derive the themes validated using an independent rater using the interclass correlation coefficient. This study has identified the major InsurTech adoption issues faced by Pakistan's insurance sector practitioners. Academia and regulatory authorities can play a role in generating the industrial revolution output in this sector. The findings of the study are instrumental in developing a regulatory policy to foster InsurTech adoption and increase insurance penetration, which previous studies overlooked in the case of Pakistan.

JEL Classification: G1, G22, G28

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Keywords: Smart technology, Takaful sector, Technology adoption, Thematic analysis, Industry issues

Submitted: 03/01/2023    Accepted: 14/04/2023    Published: 28/06/2024

## 1. INTRODUCTION

Asia will arise as the main center of the technology-driven revolution. Around the world, the middle class is anticipated to rise by 180% between 2010 and 2040 (PricewaterhouseCoopers, 2016). Pakistan is located in Southern Asia (Geology, 2018). Pakistan's insurance markets are set to benefit from the country's increasing population and the emergence of a growing middle class. Pakistan's insurance industry is still relatively small, as insurance penetration is 0.7%. It ranks the third-lowest in Asia (Peak, 2020). The Insurance Association of Pakistan reported the total premium to GDP (Gross Domestic Product) is 0.03%. *Takaful* contribution to GDP is 0.006%, and the premium to GDP is 0.22% (IAP, 2019). Overall insurance penetration of Pakistan is less than 1%, which is very low by international standards (the US insurance penetration is about 30%, and regions such as India and Bangladesh have an insurance penetration of around 5-6%) (Global Village, 2020).

Several tech and financial services giants have indicated that InsurTech is the future of the insurance sector. About 79% of people preferred insurance companies with dynamic digital capabilities (Accenture, 2018). McKinsey (2019) quoted that it can help reduce insurance operating costs by 30%. KPMG (2019) highlights the trends in InsurTech for the coming years, with \$6 billion invested in 2018.

The enormous populace, growing internet and smartphone diffusion and relaxed regulatory environment makes a good case for InsurTech in Pakistan. Insurance, especially Micro-insurance penetration, can flourish by using insurance technology as this market is still lagging in Pakistan because of its availability challenge for conventional financial service providers (Recorder, 2018). InsurTech is a set of novel financial technologies that permits insurers to expand their product ranges and create alternative sales channels for targeting existing and potential clients. For example, micro-insurance targets poor health and crop insurance marketing mobile phone technology (Myanmar Financial Services, 2019).

Challenges to IT adoption, however, exist in Pakistan, including inconsistent IT policy, a negative and non-cooperative

attitude by administrative machinery, weak implementation, lack of IT knowledge on the bureaucratic side, lack of legal infrastructure, and lack of good quality IT professionals (Kundi, Shah, and Nawaz, 2008). This shows the overall adoption challenges of IT adoption, but this study explores InsurTech relating adoption challenges in the context of the Pakistan Insurance industry, which should be resolved. Otherwise, the insurance market will be captured by foreign FinTech companies (MicroEnsure, BIMA), which are still few in Pakistan, and other Pakistani FinTech companies (such as Karlocompare and Mawazna), which can directly compete in the future by providing insurance from upstream and downstream in the insurance value chain business model. At that time, the survival of the existing insurance business would be difficult unless they adopt InsurTech.

According to PwC Global FinTech, a quarter or more insurance enterprises will lose market share due to high competition with FinTech companies in the next five years (PricewaterhouseCoopers, 2020). InsurTech is one of the branches of Fintech, which has the potential to seize opportunities to resolve challenges faced by the current insurance sector system. According to PWC's survey, 74% of insurers perceived a threat from Fintech disruption. 68% of insurers took positively to FinTech for tackling challenges or opportunities with a collaboration strategy (PricewaterhouseCoopers, 2016).

This study fills the gap by exploring the challenges and solutions in the adoption level of InsurTech as perceived by the experts in the Pakistan insurance industry. It will also help enhance the insurance penetration level, which is presently less than one percent, by targeting more unserved and existing market segments with innovative technologies.

After the introduction in section 1, this study provides the literature review of past studies related to InsurTech issues in section 2. The discussion of the qualitative methodology of the study is provided in section 3. The results and discussions are tendered in section 4, leading to the conclusion of the study in section 5.

## 2. LITERATURE REVIEW

Insurance companies are not adopting innovation for the following reasons: mindset, experience in the current traditional system, fear of failure of the innovative system, difficulty in changing culture, requirement of a diverse set of skills, and difficulty in changing work



processes (Polyblank, 2018). In technologically underdeveloped countries, telematics may propagate in admiration due to devices and applications, but the cost is not feasible to set up black boxes in cars. Moreover, the lack of regulation over data usage and private data security also hinders the broader diffusion of such devices (Soloshchuk and Kartashov, 2018). Insurance companies are focusing on InsurTech adoption while neglecting the InsurTech culture. Innovation should be a part of the company's culture. There are also many implementations related issues of innovation such as resource capacity, lack of specialization and infrastructure, and weak inter-departmental communication (Anagnostopoulos, 2018).

InsurTech is encountering the following challenges in Pakistan: lack of knowledge relating to insurance market functioning, lack of consumer rights protection, and incapability to appeal to administrators for collaboration (Svetlana, 2016). The main challenge is to educate the lower middle-income demographics on the value of disbursing for assurance (Waqar, 2019).

Senior executives can sponsor innovation efforts. They can give support and authority to employees for bringing innovation, creating a diverse team, and celebrating employees' success in bringing innovative and open culture (Polyblank, 2018). Training and symposiums will illuminate the benefits of cooperating and engaging with InsurTech startups (Belli, 2018). Insurance companies can collaborate with InsurTech using three strategies: buy, partner, and invest. In buying strategy, an insurer can buy the services of InsurTech. For instance, Friendsurance or PolicyGenius provides a digital distribution channel to the insurer. Cognotekt is an artificial intelligence company that provides insurer software that automatically processes claims. In partnership strategy, an insurer, with the collaboration of InsurTech, offers new products or businesses based on revenue sharing or co-branding. In investment strategy, insurers invest in startups through merging and acquisition strategies (Zimnoch, 2018).

A Pakistan based FinTech company, Mawazna offers FinTech services to clients in comparing insurance products and reviewing the premiums online (Waqar, 2019). Japan Communications Corporation, which provides wireless data communication services through in-house software solutions, has amalgamated with Pakistan's Saffran Group, a multinational technology development corporation. Both plan to fund financial technology projects in Pakistan through the FinTech platform. Another FinTech company, SadaPay provides a

digital wallet facility in Pakistan, where 87% of over 200 million customers are unbanked. In 2020, UAE's FinTech Rise amalgamated with Pakistan's HomeShopping.pk, an e-commerce company, to offer "Buy Now, Pay Later" services to foreign Pakistanis (Omar, 2020).

A study by Cappiello (2020) highlighted that InsurTech is part of the fourth industrial revolution, redefining the workspace but the insurance sector is the slowest to adopt this digital technology. Sosa and Montes (2022) highlighted that the disruption induced by InsurTech would lead to new insurance products and services innovation. The authors highlighted that the insurance sector needs to adapt to this new norm to remain competitive in the insurance industry.

A study by Saeed and Arshed (2022) highlighted the challenges and solutions faced by the insurance sector of India in adopting InsurTech. According to the study, industry and government should align their resources to ease technology adoption by the industry (Suryavanshi, 2022). The government needs to improve the insurance sector efficiency as it contributes to economic growth, especially in low insurance penetration economies (Njegomir and Demko-Rihter, 2023).

### 3. METHODOLOGY

This study intends to gather information from the practitioner's side. To assess the viewpoint of Insurance industry experts, an existing interview is accessed using online platforms such as YouTube and Google. The qualitative data of five videos are related to InsurTech adoption challenges as per Pakistan's insurance/takaful and associated technology provider industry experts in Table 1 as a sample. This study used qualitative content analysis to generate the themes based on InsurTech adoption challenges and its solutions in the Pakistan Insurance industry. Using the content analysis test or analysis (codes), the available data may be visual, verbal, or written form and generate themes and then the themes are tested (Lakshmi and Corbett, 2020, Faghiri et al., 2019). This method explores and gauges the topic, proves the new dimensions, and extends the knowledge regarding the topic for better understanding. It uses summarizing the topic, identifying the research gap, and concluding the results better, for example, identifying what issues are discussed most and what are discussed less.

**TABLE 1**  
Reference of Selected Video

No.	Video Reference	Expert Name	Video Topic
1	CxO Global TV. (2021a). InsurTech Summit-2021. Session with Mohammad Ali Ahmed. ( <a href="https://www.youtube.com/watch?v=L7531RI4kEc">https://www.youtube.com/watch?v=L7531RI4kEc</a> )	Deputy Managing Director at EFU Life Assurance	InsurTech Summit-2021. Session with Mohammad Ali Ahmed
2	CxO Global TV. (2021b). InsurTech Summit-2021. SECP Draft Registration Regime for Digital only Insurer. ( <a href="https://www.youtube.com/watch?v=qox-djn3Inw">https://www.youtube.com/watch?v=qox-djn3Inw</a> )	Director Insurance Division Securities and Exchange Commission of Pakistan (SECP)	InsurTech Summit-2021. SECP Draft Registration Regime for Digital only Insurer
3	Techshek Pakistan. (2021). S2 Episode 10: Waada. ( <a href="https://www.youtube.com/watch?v=93HpMIXdEkQ">https://www.youtube.com/watch?v=93HpMIXdEkQ</a> )	CEO, Waada InsurTech Pakistan	S2 Episode 10: Waada
4	CxO Global TV. (2021). InsurTech Summit-2021   Universal Health Insurance in Pakistan. ( <a href="https://www.youtube.com/watch?v=FryFGvDLhpU">https://www.youtube.com/watch?v=FryFGvDLhpU</a> )	Executive Director Strategy and Planning, Salaam Takaful	InsurTech Summit-2021   Universal Health Insurance in Pakistan
5	TPL Life. (2021). Innovation and Insurance in Pakistan   Faisal Abbasi CEO TPL Life. ( <a href="https://www.youtube.com/watch?v=7C4DDHIgnik">https://www.youtube.com/watch?v=7C4DDHIgnik</a> )	CEO of TPL Life Assurance	Innovation & Insurance in Pakistan   Faisal Abbasi CEO TPL Life

Source: Authors Self Construction

#### 4. RESULTS

The selected videos in Table 1 fulfilled this study's criteria and were assessed to identify the themes discussing challenges and solutions for InsurTech adoption. The authors viewed the videos and extracted the

English transcript from YouTube. Themes were identified in the videos and mentioned in Table 2. These themes are major types of issues according to the insurance and InsurTech experts' opinions regarding the issues they face in the insurance/takaful sector. The author defines the themes to form their relevance with the issue being discussed in the study. The statements are provided from the English video transcript against each theme which the author considers an example. Each statement is provided with a video citation. This study uses thematic analysis in which the thematic codes provided in Table 2 are evaluated for repetition frequency in each video. In this process, the sub-themes/modifiers are identified, which explain the detail in which each theme is discussed.

Data were recorded for each video for each minute, forming quantified data of thematic incidence. Table 3 summarizes the frequencies of the themes and their sub-themes for the five videos mentioned in Table 1. This process helps extract the incidence of each issue (theme) identified by this study from the discussions/interviews of insurance/takaful industry experts in Pakistan. First, the most quoted issue based on the frequency of its code is the shortage of InsurTech experts in implementing InsurTech-based solutions in the Pakistan insurance sector. Now, video no. 5 (refer Table 1) encompasses all themes, of which the most prominent one is human resources as the most discussed issue faced by insurance organizations. In this video no. 5, titled "InsurTech Summit-2021 | SECP Draft Registration Regime for Digital only Insurer, Waseem Khan - Director of Insurance Division (SECP)" discussed his vision regarding the Pakistan environment for InsurTech adoption in the insurance industry (CxO Global TV, 2021).

TABLE 2  
List of All Expected Themes, Definitions, and Examples

Themes	Definition	Example
Partnerships between startups and broader insurance	Insurer-startup partnerships enables insurers to adapt to and facilitate an InsurTech way	Partnerships are there. Technology partners should be taken in private insurance with health experience. This hospital environment on all areas they are experienced. They should involve them digital health platforms (CxO Global, 2021a)
Lack human capital development	Shortage of skilled technical staff	We lack human capital so there is no human capital development program here in Bangladesh (Insurance Alertness Broadcast, 2022).
Sandbox regulatory setup	A framework set up by a regulator that allows FinTech startups and other innovators to conduct live experiments in a controlled environment under a regulator's supervision.	Sandbox in first part we accepted the two applications regarding insurance sector and now in April 2021 SECP announced the second quarter in the second part we have also accepted one application regarding the insurance sector now after this experiment experimental phase of sandbox we are moving toward the for licensing of digital only insurers and this framework was known June 2021 (CxO Global, 2021b).
Pilot Project	Small scale project before full scale launch	Ssp may give approval for full-scale launch based on performance pilot operations. Ssp may levy condition for conduct of pilot operations such as limit on number of transection number net of customer
New licensing approaches to the InsurTech	Authorizing and licensing approaches to financial innovation	Insurance sector now after this experiment phase of sandbox we are moving toward the licensing of digital only insurers and this framework was known June 2021 (CxO Global, 2021b).
Data Theft	Information security is at risk due to cybercrime.	Data theft become a common phenomenon as any manipulation of critical information or data could affect the credibility of the system.
Digital financial Illiteracy	Lack of ability and skills to create, evaluate, learn, and find information on online media and digital platforms through the usage of technology.	Insurance provides that element of protection not just of your own life but also of your assets. Unfortunately, what is happening is because of the element of illiteracy or lack of knowledge (KTN News Kenya, 2021b).
Low Awareness	Lowest level of awareness	Lack of awareness even amongst the people who are educated. they may not really be aware of aware of the insurance products that are (KTN News Kenya, 2021a)
New licensing approaches to the InsurTech	Authorizing and licensing approaches to financial innovation	Insurance sector now after this experiment phase of sandbox we are moving toward the licensing of digital only insurers and this framework was known June 2021 (CxO Global TV, 2021).
Awareness programs	Community-wide initiatives to increase audience knowledge and share information	Education is key to actually bring up the awareness of what blockchain is all about (Feological, 2019).
Consultation with stakeholders for draft laws	Given sufficient time to formulate and submit their views	Government and the stakeholders as us have to really work together you know in ensuring that 5g becomes successful in Bangladesh (CxO Global TV, 2021).

TABLE 2 (continued)

Themes	Definition	Example
Unclear regulatory policy	Existing insurance laws and regulations does not accommodate or are unclear about emerging technologies like Usage based insurance based on telematics	Technology comes in first and then regulations follow later so they don't have the frameworks. There is also issue of knowledge and expertise among the legislators in terms of regulations (KTN News Kenya, 2021b).
Consumer willingness	Top insurance industry management do not show a willingness to adopt novel technology.	Support system come from the enterprise top management
Resist to Change	There is uncertainty about the impact of change or technology disruption on job security in insurance industry.	The less the team members know about the change and its impact on them the more fearful they will become (Crash Course MBA, 2020).
Slow Migration/ switching cost	A risk of a vendor lock-in makes it slow to migration from one to other one	Lock-in is a situation in which a company becomes constrained to a single cloud vendor technically the company can leave the cloud service but the cost of switching to the other cloud provider is so high that they get stuck with the original service provider vendor lock-in can be a huge concern in cloud computing (Ace Cloud Hosting, 2020)
Ownership of data	Act of having legal rights and complete control over a single piece or set of data elements	Ownership is suddenly changed, the locations of the data centers also change now compliance as per the IT rules 2011 cloud computing service (Prashant Mali, 2012).
Privacy issue	Disclosure of personal information of insured in case of digital health insurance or vehicle or property insurance	Digital technology has further led to a general lack of privacy and confidentially still it is a problem in blockchain (Inspiring Bangladesh, 2021).
Trust Deficit	Lack of confidence in the technology (IoT, blockchain, cloud computing, bigdata analytics) and processes to create a secure digital world	I would not trust upon that much more, but these issues are very my prime most importance when you look at Indian legal scenario (Prashant Mali, 2012).
Poor physical infrastructure	Includes hardware (mainly physical servers), software, networks, data centres, facilities, and related equipment, which is used to develop, test, operate, monitor, manage, and support ICT services.	We need kind of a data infrastructure and the computational infrastructure if we want to do these use cases sometimes you need huge amounts of data that you need to collect to be able to have meaningful models that solve the problem (MoroccoAI, 2022).
Collaborate with telecommunication companies	Cooperation needed with telecom operators provides Communication required with a phone or the Internet, through airwaves or cables, through wires or wirelessly.	Various players the various sectors the various insurance players our banking partners our telecommunication partners our service providers to actually reach this milestone of the next 10 million customers (CxO Global TV, 2021).

Source: Authors Self Construction

The overall minute-by-minute data of each video's thematic frequencies is then prepared for validation. One video is selected, constituting at least 20% of the total minutes in the five videos and forwarded to the independent rater with all the details of themes, definitions and examples (from Table 2). The selected independent rater uses the data in Table 2 to understand the meanings of the themes identified by the authors and prepares thematic frequency from the provided video. Theme validity is ensured if the thematic frequency generated by the independent rater is similar to the author's. The interclass correlation (ICC) test was applied to compare the original themes and their frequencies by author with the outcome of the independent rater and provides a quantitative statistic representing the correlation between thematic frequencies. Table 4 only shows those themes found in the video used by the independent rater. Since all ICC values are higher than 0.60 and their test values are significant in Table 4, it can be confirmed that the themes were adequately identified.

TABLE 3  
Frequency of Themes in Selected Video (Challenges)

Challenges in adopting InsurTech in Pakistan							
Themes	Sub Themes	V1	V2	V3	V4	V5	Total
Infra-structure	Poor physical infrastructure			1		3	4
Trust	Trust Deficit	2				6	8
Human Resource	Shortage of InsurTech Experts	4	3			8	15
Data Privacy and Security	Privacy issue					7	7
	Cyber Security				2	6	8
Data Ownership	Ownership of data				1	5	6
Inter-operability	Switching cost	1	1	2	1	4	9
Organization cultures	Resistant to Change		1	1	2		4
	Lack of Willingness			2	1		3

TABLE 3 (continued)

Challenges in adopting InsurTech in Pakistan							
Themes	Sub Themes	V1	V2	V3	V4	V5	Total
Regulatory Framework	Lack of proper regulations for InsurTech					5	5
	New licensing approaches to the InsurTech					6	6
Digital Illiteracy	Financial and digital Illiteracy	1					1
	Low Awareness			1	1	2	4

TABLE 4  
Frequency of Themes in Selected Video (Solutions)

Solutions to adopting InsurTech in Pakistan							
Themes	Sub Themes	V1	V2	V3	V4	V5	Total
Awareness	Awareness programs	1	1	1	1	6	10
Human Resource Recruitment	Data scientists				1	5	6
Consultation	Direct consultation with relevant stakeholders for draft laws	1	1	3	4	3	12
	Collaboration with telecommunication companies	1			2	5	8
Collaboration Model	Partnerships with technology companies				3	4	7

Source: Authors Self Construction

Literature has pointed out that the low penetration and low customer satisfaction in insurance/takaful in Pakistan is because of low technology intensiveness in this sector. Further, it is also noted



that InsurTech has led to improvements in customer satisfaction in many countries. This study identified video recordings of the insurance sector experts discussing how the insurance/takaful sector can adopt the technology and compete with the new technology companies developing online tools to provide local insurance services (PricewaterhouseCoopers, 2016).

This study has identified significant issues of Insurtech adoption in the case of Pakistan, according to the insurance and Insurtech technology experts. Experts believe that emerging issues include infrastructure, trust, human resources, data security and ownership, interoperability, organization cultures, regulations and digital literacy. The interviews highlighted that the insurance sector needs help from technology providers, government and insurance users to join hands in reforming the insurance sector and address these issues. Insurance and technology experts also pointed out some solutions which could increase Insurtech adoption, leading to enhanced insurance penetration in Pakistan. Hence, according to them, if the sector increases awareness regarding new technologies, recruits new human capital, acquires consultation from the technology experts and collaborates with them, it can help increase the technology intensity in the insurance/takaful sector, leading to higher insurance penetration.

TABLE 5  
Inter Class Correlation Test

Theme	ICC	Lower Bound	Upper Bound	Value	Significance
Partnerships between startups and broader insurance	0.778	0.487	0.913	8.000	0.000
Lack of human capital development	0.819	0.569	0.930	10.059	0.000
Sandbox regulatory setup	0.691	0.330	0.876	5.480	0.001
Pilot Project	0.803	0.536	0.924	9.133	0.000
New licensing approaches to the InsurTech	0.652	0.265	0.858	4.750	0.002
Data Theft	0.652	0.265	0.858	4.750	0.002

Source: Authors Self Construction

## 5. CONCLUSION AND POLICY IMPLICATION

On the eve of the industrial revolution, businesses are redefining their operation space. The major shift is seen in the services industry, which had experienced the description the hardest. Several reasons motivated this study. First is that empirical studies have highlighted that technology utilization has led to increased customer satisfaction (Dickinson, 2015). Second, Pakistan has very low insurance penetration compared to its neighbors (Karandaaz Pakistan and FinSurgents, 2017). Third new technology firms are now competing with the insurance sector in providing technology based insurance solutions (PwC, 2020). Lastly, Pakistan has a majority technology friendly youth population. All these points indicate a need for an accumulated effort to boost InsurTech adoption in Pakistan (Rizvi, Naqvi, & Tanveer, 2018).

This study adopted a qualitative approach to analyze the secondary video data on interviews of insurance/takaful experts of Pakistan who are discussing the issues, challenges, and solutions of InsurTech adoption. The data were assessed for common issues and solutions by using content analysis. Based on the selection criteria, the study sample constitutes five video interviews in Pakistan (Table 1). After analyzing the videos and their transcriptions, the study has uncovered several themes and sub-themes with their proposed definitions. The examples for each theme are backed with a citation from the relevant video. The themes are coded with their incidental frequency in Table 3. To validate the outcomes, this study has provided 20% of the sample data to an independent rater who evaluated the theme frequency for their frequency. ICC results are also found by taking correlation analysis between the author derived and independent reviewer derived themes; generated themes appear to have a high association and validity. This study is helpful for the Pakistan insurance industry to enhance the insurance penetration level, which is below 0.01.

Policymakers can understand the current challenges in adopting InsurTech in Pakistan and find an appropriate policy for the insurance sector. A better functioning and cost-effective insurance sector will contribute to economic growth. Accordingly, policymakers can apply industry experts' suggested solutions to enhance the insurance penetration level in Pakistan, which is significantly below that of other neighboring countries such as India and Bangladesh. This study highlights the untapped market such as micro-takaful or micro-

insurance, pay-as-you-go models and agriculture insurance, which can be targeted and handled efficiently by adopting InsurTech. The insurance industry encounters challenges such as a shortage of InsurTech experts, data scientists, and blockchain experts. Government needs to put effort into many dimensions. They need to ensure provision of advanced IT-related products, improve the poor communication infrastructure, fill the absence of cyber security leading to privacy breach issues, help in reducing resistance to change by staff due to job loss fear, overcome digital illiteracy, and lack of trust in novel technology. All of these efforts will remove the bottlenecks in adopting novel technologies in Pakistan, which has a high uncertainty avoidance culture.

This study suggests solutions to these challenges, which can be overcome by collaborating with new startups with expertise in IT. Relevant parties can also arrange awareness sessions collectively to expand knowledge regarding new products, features of the target market, or solutions to get insurance at their fingertips. The insurance sector and telecommunication sector can form partnerships and provide low-cost digital services to the poor via mobile SMS or call or payment-based services. This study also suggests that policymakers such as the Securities and Exchange Commission of Pakistan (SECP) arrange a sandbox regulatory framework to promote digital insurance or new InsurTech startups by relaxing license issuance or tax-related matters. Pakistan is fortunate to have a growing IT sector. Appropriate integration of the IT and insurance sectors can help Pakistan achieve a competitive advantage in this industry and expand its penetration.

The outcome of this study is limited to the available sample at the time of data collection. Indeed, more issues and solutions evolve over time. Future studies could develop a framework for mapping all technologies in the insurance contract so that insurance businesses can assess what aspect they specialize in for product marketing.

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## **BOOK REVIEW**

### **ETHICAL TEACHINGS OF ABU HAMID AL-GHAZALI: ECONOMICS OF HAPPINESS**

*by Sami Al-Daghistani, Anthem Press, 2021, xii+161 pp., ISBN: 978-1-78527-530-2*

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This book is a great effort to illuminate Al-Ghazali's economic thought and formulate it into economic concepts within the modern economic framework. Despite Al-Ghazali devoting his writings to social justice and ethical economic behavior, scholarship has generally ignored his economic contribution compared to the attention given to his contributions in theology, philosophy and mysticism. This may be because of his outstanding influence in those fields surpasses his economic ideas. Therefore, this book assists in exposing Al-Ghazali as an economic thinker and adds this capability to the list of his intellectual mastery. The book also disproves the assertion made by a number of Western academics, including Schumpeter (1997), that classical Islamic scholarship did not contribute significantly to the development of economic philosophy during the Middle Ages.

The book is well referenced where four primary sources used by the author to analyze the economic thought of Al-Ghazali are *Ihyā' 'Ulūm Al-Dīn*, *Al-Munqidh min Al-Dalāl*, *Mizān Al-'Amal*, and *Naṣīḥāt Al-Mulūk*. In addition, various secondary literature on Al-Ghazali's economic thought are referred by the author, especially Ghazanfar and Islahi (2014). The book has five chapters excluding introduction and conclusion; which are the biography of Al-Ghazali, history of Islamic economic thought, Al-Ghazali's economic teachings, classical economics, and the position of Al-Ghazali's ethical economics in modern economics.

In the introduction, the author highlighted how ethical values played a fundamental role in the original development of modern economic discipline. Al-Ghazali linked individual economic behavior with moral laws aimed at attaining eternal happiness in the Hereafter.



Unfortunately, the ethical dimension has somehow been missing from the modern Islamic economics narratives which have been predominantly concerned with lawful and unlawful conduct and transactions. Therefore, the author managed to motivate the research on the ethical teachings of Al-Ghazali to revive the importance of ethics in Islamic economics.

The main theme of the book on connecting ethics and economics is timely since it reassesses the relationship between the two, where modern economics as evolved from the West are void of values although originally the economic discipline permeates from moral philosophy as claimed by the author. Additionally, the author criticizes modern Islamic economics and finance, which only considers the legal-technical aspects of transactions rather than the larger ethical dimension under Islamic law. This echoes the view that Islamic jurisprudence does not truly justify the rationale for Islamic finance beyond the ban on interest (Al-Jarhi, 2017).

Main objective of the book is to examine Al-Ghazali's economic thought, which is heavily influenced by his ethical propositions. The author believes that Al-Ghazali successfully integrated Islamic legal tradition with philosophical reasoning and mysticism into a nexus that forms economic theories and engagements in relation to ethics of happiness (*sa'ādah*) and knowledge path to the Hereafter (*'ilm ṭarīq al-ākhirah*). The author pointed out that Al-Ghazali's economic theories are based on human agency and moral behavior, which are the cornerstones of the ethical theory of happiness. According to the author, Al-Ghazali envisaged an economic system based on ethical growth, in which socioeconomic progress coexisted with philosophical reasoning and mystic teachings. As economic agents, humans are thought to be affected by intrinsic spiritual and psychological characteristics that go beyond the purely technical and legal aspects of economic interactions.

In Chapter 1, the author narrated Al-Ghazali's biography with a special focus on his intellectual and political involvements as well as his spiritual voyage that heavily influenced his ethical-economic worldview. The author then reviewed the major arguments and propositions in two books written by Al-Ghazali that describe the basis of his perspectives on economic thought and analysis; which are *Al-Munqid min Al-Ḍalāl* and *Iḥyā' 'Ulūm Al-Dīn*. According to Al-Ghazali, both purification of soul and righteous participation in economic life are essentials to achieve salvation.

In Chapter 2, the author explored the history of Islamic economic thought and explained its key concepts as an ethical human

endeavor. Several economic ideas in European scholasticism are found to share similarities with Al-Ghazali's economic philosophy, especially the reconciliation between faith and reason to regulate economic activities. Classical Muslim scholars, however, did not separate ethics from economic thought, unlike their Western counterparts. The author then criticizes modern Islamic economics as a discipline where its epistemology was developed from the Islamization of knowledge (IOK) project, and not from classical Islamic scholarship. This claim is somehow absurd since the IOK epistemology recognizes divine revelation as the origin of knowledge (Malkawi, 2014) while the works of previous scholars are regarded as a type of true narrative that must be considered in developing Islamic economics (Haneef, 1997). In this view, applications of modern economic tools and data to support economic reasoning should be considered as a form of *ijtihād* that should be encouraged as long as they do not violate Islamic law.

Al-Ghazali's economic thought and philosophy are presented in Chapter 3, where the author systematized Al-Ghazali's economic teachings based on his ethical philosophy. An economic agent strives to optimize *maṣlahah* instead of maximizing utility in his economic behavior. Such action is parallel with *maqāṣid al-Sharī'ah* as elaborated by Al-Ghazali himself. According to Al-Ghazali, performing virtuous economic conduct leads to eternal happiness and divine truth. The author then examined major economic concepts based on Al-Ghazali's writings on the science of the Hereafter, which are economic justice, labor specialization and market development, poverty and wealth, and the role of government.

Economic justice requires all individuals to apply their moral compass to be moderate between miserliness and extravagance in their economic behavior. Their economic actions should be done for the sake of achieving higher spiritual goals and not simply to gain immense wealth. Labor inputs in the production process are treated as *ibadah*. The division of labor is minimal in order to adequately support production of diverse goods and services needed by society which leads to the natural development of markets to coordinate their mutual exchange governed by trade ethics.

Al-Ghazali emphasized the importance of ethical principles to guide the interaction between buyers and sellers in the market. He advocated moderate profit as a form of *ihsān* that is necessary to maintain a reasonable price level where sellers should not charge excessive prices or take advantage of buyers, where the profit rate should be around 5-10 percent of the price under normal market

circumstances. Furthermore, extra profit should not be extracted from basic needs such as foodstuff to ensure everyone can afford it. The author, however, listed medicine under basic needs on page 86 where excess profit is disallowed but stated that it is not part of basic needs on page 87 where hoarding of it is allowed. In the analysis of voluntary trade in the market, there is a clear application of Al-Ghazali's classification of *maqāṣid* based on human priorities of *darūrīyāt*, *ḥājīyāt*, and *taḥsīnīyāt* where extra profit and hoarding are allowed for goods and services that belong to the latter two categories only.

The author shows how Al-Ghazali's complex view on poverty and wealth reflects his understanding of their multifaceted nature. Material poverty is correlated with spiritual poverty depending on the individual's intention on wealth accumulation. Several statements in this section, however, require detailed elaborations to avoid misunderstanding. For instance, on page 89, the author claimed "despair is viewed as wealth" while "not having that which is necessary is not considered poverty" according to Al-Ghazali. Furthermore, on pages 89-90, *faqr* is credited with "an ethical merit" and "practicing *faqr* is essential in forming one's moral order." If such a view is accepted, then poverty may be regarded as praiseworthy and encouraged in Islamic economics, and consequently lead to policies hindering economic growth. The author should note that although Al-Ghazali prefers voluntary poverty over wealth acquisition, he does not regard it as the norm nor encourage it in society, and later took a more balanced position where wealth is required in one's quest to achieve the highest rank in life and the Hereafter (Ghazanfar and Islahi, 2014). Additionally, as opposed to material poverty, it will be challenging to measure spiritual poverty and study its policy impacts because proper instruments are unavailable.

Al-Ghazali believed that money played an important role in the economy, but that it should be used in a way consistent with ethical and moral principles. Hence, money is seen as a means to an end that should be used to benefit society. He believed that money has no intrinsic value but serves as a medium of exchange. While this view emanates from both classical Islamic jurisprudence and modern Islamic economics especially in the discussion of *ribā* prohibition and just measure of goods, the author somehow ascribed this to the *ṣūfī* and ethical views on money in the Islamic tradition.

Government authority is fundamental in managing economic affairs in society where peace and justice must be safeguarded as they are prerequisites for sustainable economic growth. Through the *ḥisbah* institution, the authority is responsible for monitoring economic

conduct and regulating the market by preventing harmful practices. It is unclear, however, why Al-Ghazali affirms that public finances in his time are mostly based on illicit sources as claimed by the author since they are derived from the customs of the Saljuq dynasty and not exclusively on Shariah law. This statement is inconsistent with the general principles of Islamic jurisprudence which recognize customs as a source of law (Kamali, 2002). Al-Ghazali promotes 'pay as you can' as the basis for a just taxation.

In Chapter 4, the author presented the main postulates of classical economics and compared the latter with Al-Ghazali's ethical economic thought. According to Al-Ghazali, economic endeavors are fundamentally about good manners, which is accomplished by both knowledge and action, and performed in order to reach the higher goals of happiness in the Hereafter. At the same time, market development is guided by spiritual goals that transcend both individual self-interest and class relations.

In Chapter 5, the author explicated neoclassical economic theories and tried to position Al-Ghazali's economic philosophy in the modern debates on ethics and economics. The author successfully argued on the desideratum of ethical economics as the alternative for neoclassical economics, where Al-Ghazali applied ethical philosophy to analyze economic activities which combines individual utility with social relationality to achieve righteous living. The intricate relations between moral action and economic development should guide market interactions while purely individual endeavors should be removed from it in order to change the current economic operations toward a more humane and effective system where legal and technical factors are viewed as subsidiary to higher aspirations.

Appendix 1 is a good attempt by the author to classify classical Muslim scholars based on two major trends in classical Islamic economic thought: conceptual economic ethics, and technical-legal aspects of economics. In Appendix 2, the author quoted selected paragraphs from Al-Ghazali's writings that constitute his economic teachings in English, which is useful for readers to follow the track of original ideas discussed in the book. Given the enormous number of Arabic terms and phrases used throughout the book, however, a glossary of these words will help readers unfamiliar with Arabic language.

The book is proof that there is a growing recognition in economics that ethical considerations cannot be easily separated from economic reasoning. At the same time, it adds to the growing interest in incorporating ethical considerations into theoretical economic

analysis. The author has managed to bring forth ethics as a fundamental element in Al-Ghazali's teachings of economics.

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