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International Journal of Business Economics & Management Research

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Contents

The impact of macroeconomic variables on stock market returns: Evidence from a sample of Arabic countries facing political and economic instability

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A B S T R A C T

The main purpose of this study is to determine the presence and timing of the structural breaks in the stock market returns and investigate their impact on the relationship between the macroeconomic variables (namely the inflation rate, the exchange rate, the oil prices) and the stock market returns of a sample of Arab countries facing political and economic instability, namely (Syria, Egypt, Tunisia and Bahrain), during the period (2010-2020). CUSUM test is performed in order to test the presence of structural breaks in stock market indexes. In case there is evidence of structural breaks, Bai and Perron Multiple Breakpoints test is used to identify points in time where significant changes may have occurred. The timing of structural breaks is used as a control variable to examine the impact of the macroeconomic variables on the stock market returns through applying Johansen cointegration test. The results provide evidence of the presence and timing of the structural breaks in the Arab stock markets under study and their role in impacting the relationship between the macroeconomic variables and stock market returns. The study concluded that the dynamics of how the macroeconomic variables affecting the stock market returns depends on the nature and timing of the structural break.

Keywords:*Arab countriesFinancial marketsStructural breaksMacroeconomicsPolitical and economic instabilityStock market return.*

Contribution/Originality: This study investigates the occurrence of structural breaks in a sample of Arab countries characterised by unstable political, social, and economic conditions. The study also utilizes the dates of these structural breaks as control variables to estimate the influence of macroeconomic variables on stock market returns.

1. INTRODUCTION

Political, social and economic instability is one of the major challenges affecting economies and financial markets around the world. In the context of Arab countries that have been exposed to political, social and economic instability since 2010, understanding the impact of such structural breaks or changes on the relationship between macroeconomic variables and stock market returns considers an important topic for research. The financial markets of some Arab countries are characterized by extreme fluctuations in their returns, which represents a source of concern for them. They are also characterized by the concentration of trading in limited shares, reliance in financing on issuing more shares, the weakness of the supervisory and regulatory framework for some Arab markets, and the weak role played by the institutional investor in Arab stock markets (Arab Planning Institute, 2009 and 2010). Also, some Arab financial markets are relatively new (such as the Damascus Stock Exchange and the Libyan Stock Market).

Despite the developments that many Arab countries' financial markets have witnessed in terms of their legal and regulatory frameworks, they still suffer from instability in their market returns. What has increased this degree of instability is the political, economic and social instability that these countries have experienced during the past decade. This had a negative impact on the economies of these countries and thus on financial market indicators, as most Arab financial markets witnessed a noticeable decline in their performance in 2011 as a result of the instable environment. In its turn, the instable environment generated fears among investors (Arab Monetary Fund, 2011) and their confidence in the markets decreased, causing capital outflows, a decline in credit ratings and a decline in financial market indicators according to the International Monetary Fund (2013). Changes in stock returns during the period of instability and uncertainty were also accompanied by fluctuations in exchange rates and local inflation rates in many countries.

Therefore, the current study aims to determine the presence and timing of the structural breaks in the stock market returns of a sample of Arab countries using CUSUUM test and Bai and Perron (2003) Multiple Breakpoints test. In addition, this study contributes to the literatures by examining the impact of macroeconomic variables (exchange rate, inflation rate, and oil prices) on the stock market returns of Arab stock markets that have been subjected to political and economic turmoil since 2010, namely (Syria, Egypt, Tunisia, Libya, Bahrain) with taking into account the identified structural breaks dates as control variables in studying the relationship between the macroeconomic variables and stock market returns.

2. LITERATURE REVIEW

Until recently, there has been a significant number of empirical studies that modeled the relationship between stock market returns and macroeconomic variables, however there has been lack of research applying on Arab stock markets during political and economic instability. This section presents a survey of the studies applied on both developing and Arab countries.

There are many researchers who investigated the relationship between macroeconomic variables and developing stock markets. For example, Naik and Padhi (2012) investigated relationship between stock market index, money supply and ERs in the case of India. Researchers used Johansen's co-integration and Vector Error Correction Model (VECM) to determine the long run equilibrium between variables. According to the results, there was a long run equilibrium relationship between the variables. The results showed a positive relationship between MS and stock market index. However, the study failed to show a significant relationship between stock market index and ER. Other study Jamaludin, Ismail, and Ab Manaf (2017) examined the effect of macroeconomic variables namely inflation, money supply (MS), and exchange rate (ER) on both conventional and Islamic stock market returns in three selectedcountries of the Association of Southeast Asian Nations (ASEAN) countries (Singapore, Malaysia, Indonesia) by utilizing monthly data over the period of January 2005 to December 2015. Applying the panel least square regression techniques, the results showed that both stock market returns are significantly affected by the ER and inflation rate. MS is found to be insignificant. The findings of this paper also conclude that inflation has a greater effect and inversely related to the stock market returns. In this case, there is a need for amendment in monetary policy to ensure that inflation rate is set at a low level, since the results would be able to bring an impact to boost the capital market in the selected ASEAN countries. Ndlovu, Faisa, Resatoglu, and Türsoy (2018) assessed the association of macroeconomic variables: inflation (INF), Money supply growth (M3), Interest rates (IR) and exchange rate (EX) using quarterly data from the

year 1981Q1 to 2016 Q4 on stock price for the Johannesburg Stock Exchange South Africa. The study employed co-integration tests, vector error correction model, a variance decomposition and an impulse response function to understand the relationship of the variables. In the long run, interest rates, money supply and inflation have a positive relationship with the share price while the exchange rate have a negative effect to the stock prices. Unidirectional causality was found running from exchange rates and interest rates to the share price and also the interest rates and the exchange rates have a causality to the money supply. The variance decompositions established that shocks to the share price account for majority of the changes in itself for all periods during the short run and long-run while also cementing results of the causality shocks in the stock price and exchange rate shocks have an impact on changes in themselves, also the impulse response function further confirmed causal relationships between the variables and the stock price.

A number of studies have also tested the relationship between macroeconomic variables and stock market returns for a sample of Arab countries, including the Arab countries under study. The study of Ismaiel and Al-Ahmad (2014)aimed to test the relationship between stock prices and exchange rates in a sample of Arab countries facing political crises, namely (Syria, Tunisia, Egypt, Bahrain). The study used monthly time series data for nominal and real effective exchange rates and stock price indices during the period from January 2003 to July 2013. The study applied Johansen cointegration test, VECM error correction model, and Granger causality test. The results showed that there was no relationship between stock prices and exchange rates in Tunisia, while for the rest of the countries the results varied depending on the period studied and the exchange rate measure used. Overall, the study showed a difference in results in the post-crisis period compared to the pre-crisis period, and that using the effective real exchange rate generated different results than using the effective nominal exchange rate. Hasseeb (2015) study also aimed to test the impact of macroeconomic variables on stock market performance in 15 Arab countries using Panel data during the period 1995-2014. Financial market performance was measured by market capitalization, while the macroeconomic variables that were addressed ae: economic freedom, remittances, gross domestic product, investments, inflation rate, credit, and trading volume. In order to test the relationship between variables, the study estimated the relationship using a fixed effects model and a random effects model. The study finds that domestic credit, Gross Domestic Product (GDP), economic freedom, and remittances have a negative impact on market capitalization. In contrast, the volume of investments, trading volume, and inflation rate had a positive impact on market capitalization. Khalil (2015) study aimed to test the impact of monetary variables on stock returns for three emerging financial markets (Turkey, Egypt, and Syria) using time series data. The study period varied according to the market studied, Syria (2010-2013), Egypt (2005-2012), Turkey (2002-2014). The study used four monetary variables: (inflation rate, exchange rate, money supply, and short-term interest rate). The study applied a set of descriptive statistics and the unit root test, and a multiple regression model was estimated using the least squares method to test the impact of monetary variables on the returns of the studied market indices. With regard to the Egyptian Stock Exchange, the study found that there is a direct relationship between the exchange rate and money supply on the one hand with stock returns, while there is an inverse relationship between the interest rate and stock returns. On the other hand, the inflation rate did not have a significant impact on stock returns. As for the Damascus Stock Exchange, the study found that there is no significant relationship between the exchange rate and the inflation rate on the one hand, and stock returns on the other hand.Barakat, Elgazzar, and Hanafy (2016) study tested the impact of a number of macroeconomic variables (interest rate, inflation rate, exchange rate, and money supply) on stock market returns by applying it to two emerging economies (Tunisia and Egypt). The study used monthly data over the period from January 1998 to January 2014. With regard to Egypt, the study found

that the inflation rate, exchange rate, and money supply have a positive and significant impact on the Egyptian stock index, while the interest rate has a negative and significant impact on the market index. . For Tunisia, the study found that the inflation rate has a negative and significant impact on the Tunisian Stock Exchange index, while the exchange rate has a positive and significant impact on the Tunisian Stock Exchange index. On the other hand, the interest rate and money supply did not have a significant impact on the Tunisian Stock Exchange index. The study by Kelikume and Muritala (2019) tested the impact of changes in the price of oil on stock market returns by applying to five African countries (Nigeria, South Africa, Tunisia, Ghana and Egypt). The study used quarterly data from the first quarter of 2010 until the fourth quarter of 2018. The study employed a regression model using cross-sectional panel time series data. The study also used a number of macroeconomic variables as control variables (real output growth rate, exchange rate). The study found that the growth rate in real output has a positive and significant impact on stock market returns for the countries studied. While the oil price and exchange rate did not have a significant impact on stock market returns for the countries studied.

Besides the above studies, a number of studies used timeseries data to examine the relationship between macroeconomic variables and stock market returns by applying it to one of the countries under study (Syria, Egypt, Libya, Tunisia, and Bahrain).

As for the applied studies that focused on the case of Syria, the study of Al-Ammar and Asaad (2016) aimed to test the relationship between a set of macroeconomic variables (inflation rate, rate of export coverage of imports, effective nominal exchange rate, and money supply) and the Damascus Stock Exchange index. The study used time series data with monthly frequencies covering the period from January 2010 to December 2011. The study applied a set of tests, such as the unit root test, Johansen cointegration test, error correction model, Granger causality test, response functions, and analysis of variance components. The study found that there is a long-term equilibrium relationship between the macroeconomic variables studied and the Damascus Stock Exchange index. All variables have a positive and significant impact on the Damascus market index in the long term. The results also showed that there is a one-way causal relationship between the effective nominal exchange rate index and the Damascus Stock Exchange index, and the direction of this relationship suggests that the effective nominal exchange rate is considered a cause of fluctuations in the Damascus Stock Exchange index. It was also found that there is a two-way causal relationship between the Damascus Stock Exchange index and the money supply. Hamdouche (2017) study also tested the impact of inflation on the return of the Damascus Stock Exchange index using monthly data during the period 2010-2013. The study used descriptive statistics and a binary correlation matrix and estimated a simple linear regression model to test the effect of inflation on the Damascus market index. The study found that there is a weak, positive but statistically insignificant correlation between the inflation rate and the market index return during the period studied.

As for the applied studies that focused on the case of Egypt, the study by Omran and Pointon (2001) aimed to test the effect of the inflation rate on the performance of the Egyptian stock market. The study period included the years from 1980 to 1998. The performance of the Egyptian Stock Exchange was measured through several indicators (trading value, trading volume, number of deals, number of traded companies, and value of new issues). The study applied regression models using the ordinary least squares method.The study found that the inflation rate has a negative and significant impact on all performance indicators of the Egyptian Stock Exchange in the long term. The study by Zaki, Elgammal, and Husssainey (2016) also aimed to test the impact of a number of macroeconomic variables (oil price,

interest rate, inflation rate, and real effective exchange rate) on stock returns in the Egyptian market. Monthly data were used for the period from January 1999 to June 2015. The study applied a vector autoregressive VAR model. The results showed that the oil price has a positive and significant impact on stock returns on the Egyptian Stock Exchange, while the exchange rate has a negative and significant impact on stock returns. On the other hand, the interest rate and inflation rate did not have a significant impact on stock returns. Abdel-Gawad and Radi (2020) study also tested the impact of the exchange rate and inflation rate on stock market performance in Egypt. The study used monthly data during the period (2000-2020), and the study used a distributed autoregressive model with lag periods to test the co-integration relationship between the studied variables, in addition to the generalized autoregressive model conditional on the non-stationarity of the error term variance. The results showed that both the exchange rate and inflation rate have a positive impact on the performance of the Egyptian Stock Exchange in the long term.

As for the applied studies that focused on the case of Tunisia, the study by Ben Yaala and Henchiri (2016) tested the impact of macroeconomic variables (budget deficit, money supply, interest rate, inflation rate, real exchange rate, and production index) on the stock market in Tunisia. The study used monthly data over the period from January 2008 to December 2014. The study applied the vector autoregressive with distributed lags (ARDL) methodology. The study found that the budget deficit and inflation rate have a negative and significant impact on stock prices on the Tunisian Stock Exchange, while money supply has a positive and significant impact on stock prices. On the other hand, the interest rate, the real exchange rate, and the output index did not have a significant impact on the stock market in Tunisia.

As for the applied studies that focused on the case of Bahrain, Abdelbaki (2013) study tested the relationship between macroeconomic variables (Macroeconomic stability, income level, banking system development, stock market liquidity, private capital flow, investment and saving rates) and the Stock market development in Bahrain. The study applied the vector autoregressive distributed lag periods (ARDL) methodology and found that inflation rate, investment rate, and money supply have a positive and significant impact on the performance of the Bahrain Stock Exchange.

3. DATA AND RESEARCH METHODS

3. 1. Data & Model

This study uses monthly timeseries data, for each of the countries under study, covers the period (2010-20201). The chosen period comes from the limitations of the data prior to 20102 regarding the stock market indexes for the countries under study, but also to focus on the period of instability that the Arab countries have experienced since 2010 and therefore avoiding the financial crisis of 2008. In this study the impact of the macroeconomic variables (exchange rate, inflation and oil prices) on the stock market returns will be examined with taking into account a control variable of the structural breaks dates measured as dummy variable. The study model is presented as follows:

$$SMR_t = \beta_1 + \beta_2 INF_t + \beta_3 EX_t + \beta_4 OIL_t + \beta_5 CRISIS_t + e_t \quad (1)$$

Table 1 shows a description of the variables included in the model along with the measurement and the data source.

Table 1. Data description.

Variables	Code	Measurement	Data source
Stock market returns (SMR) which can be one of the following:			
Damascus stock market return	DWX	The natural logarithm of stock market index	http://dse.gov.sy/user/?page=index_info
Egypt stock market return	EGX	The natural logarithm of stock market index	https://www.investing.com/indices/
Tunisia stock market return	TUNINDEX	The natural logarithm of stock market index	https://www.investing.com/indices/
Bahrain stock market return	BAX	The natural logarithm of stock market index	https://www.investing.com/indices/
Macroeconomic variables			
Inflation rate	INF	The consumer price index (2010=100)	Trading economics https://ar.tradingeconomics.com/libya/inflation-cpi
Exchange rate	EX	The nominal effective exchange rate against 51 trade partners (2010=100)	BRUEGEL http://bruegel.org/
Oil prices	OIL	The oil price measured as the simple average of three spot prices; Dated Brent, West Texas intermediate, and the Dubai Fateh (2010=100)	IMF https://www.imf.org/en/Research/commodity-prices
Control variable			
Structural break	CRISIS	Dummy variable takes 1 in the occurrence of the structural break and 0 for rest	

3.2. Research Methods

This section outlines the approach used to investigate the presence of structural breaks and the date points of these structural breaks in the stock market indexes of the Arab countries under study. The analysis involves utilizing unit root tests, Cumulative Sum (CUSUM) tests, and the Bai-Perron test to identify and assess the significance of structural breaks. The research method is illustrated in the Figure 1, where the start point is to test the unit root of the stock market indexes and then performing CUSUM test to test the presence of structural breaks in these indexes. In case there is an evidence of the presence of structural breaks we move to identify points in time where significant changes may have occurred using Bai & Perron test. These point of structural breaks will be included later in the regression models as dummy variables to examine the impact of the macroeconomic variables on the stock market returns.

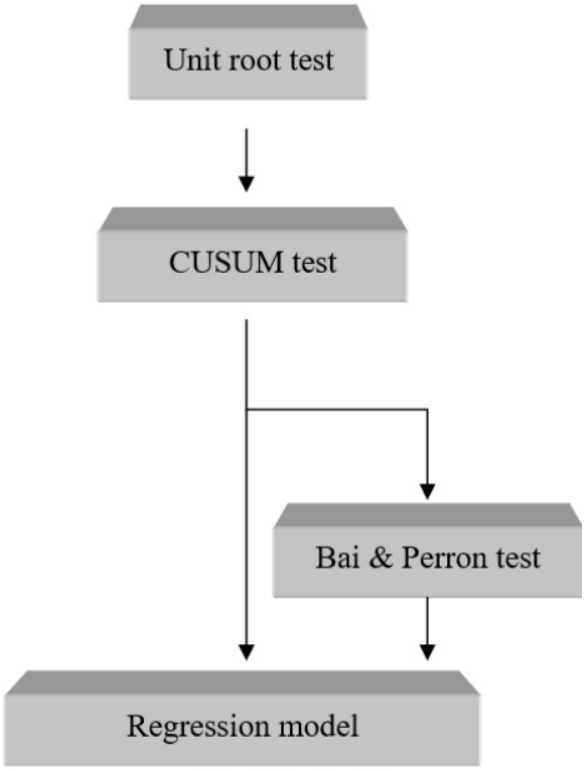

Figure 1. Research method.

The following subsections describe each step of the methodology.

3.2.1. Unit Root Test

When dealing with timeseries date, as the case in this study, it's important to test the stationarity of this data. A series is said to be stationary if the mean and autocovariances of the series do not depend on time (EViews 12, 1994). A widely used unit root test is the Augmented Dickey Fuller (ADF) test. This ADF test consists of estimating the following regression model (Gujarati & Porter, 2009):

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \sum_{i=1}^{m} \alpha_i \Delta Y_{t-i} + \varepsilon_t$$

Where: εt is a pure white noise error term and where Yt-1 = (Yt-1 - Yt-2), Yt-2 = (Yt-2 - Yt-3), etc.

The number of lagged difference terms to include is often determined empirically, the idea being to include enough terms so that the error term in the equation above is serially uncorrelated, so that we can obtain an unbiased estimate of δ, the coefficient of lagged Yt-1.

EViews 12 has an option that automatically selects the lag length based on Akaike, Schwarz, and other information criteria. In ADF we still test whether δ = 0 and the ADF test follows the same asymptotic distribution as the DF statistic, so the same critical values can be used.

3.2.2. CUSUM Test

Once we have established the stationarity status of the time series data we proceed with investigating breaks. The CUSUM test proves to be a tool in identifying shifts in other significant changes within a time series, and are commonly used in econometrics and statistics to assess whether there are structural breaks in the regression model(Dao, 2021).

The Brown, Durbin, and Evans (1975) proposed a test known as CUSUM test, which is based on the

cumulative sum of the recursive residuals. The test statistic Wt is given by El-Shagi and Giesen (2013):

$$W_t = \frac{1}{\hat{\sigma}\sqrt{T-k}} \sum_{i=k+1}^{t} \hat{\varepsilon}_i,$$

Where $\sigma\hat{}$ is defined as:

$$\hat{\sigma} = \sqrt{\frac{\sum_{t=k+1}^{T} \hat{\varepsilon}_t}{T-k}}.$$

In the traditional CUSUM test $\varepsilon\hat{}$ is given by the series of recursive errors that are adjusted for the size distortion:

$$\hat{\varepsilon}_t = \frac{y_t - x_t'\hat{\beta}_{t-1}}{\sqrt{1 + x_t'(X_{t-1}'X_{t-1})^{-1}x_t}},$$

Where $\beta\hat{}t\text{-}1$ is the estimate of β using data up to point t - 1 and $Xt\text{-}1$ is the corresponding matrix of exogenous variables.

3.2.3. Bai Perron Multiple Breakpoints Test

To determine the dates and significance of breaks identified through the CUSUM test an extensively employed technique is the Bai Perron test. This test plays a role, in analyzing and identifying these breaks.Bai and Perron (2003) test procedure for multiple unknown breakpoints is applied due to the poor power of CUSUM approach to detect the breakpoints. This test determines the number of breaks and break dates endogenously, and this approach displays substantial power in locating multiple unknown structural breaks. BP test treats the breakpoints as unknown and estimates them by using a standard linear regression model with T periods and m potential breaks.

The applied regression model is as follows (Islam, Akter, & Md, 2020):

$$y_t = X_t\beta + Z_t\delta_j + \epsilon_t,$$

$$\text{for the observations } T_j,\ T_{j-1} \ldots\ldots\ T_{j+1} - 1 \text{ in regime } j\ (j = 0, \ldots, m).$$

Here, X variables are those whose coefficients do not vary across regimes, while the parameters of Z variables are regime specific. β and denote vectors of coefficients associated with X and Z variables respectively. The break dates are denoted by (T1, …, Tm) and represents the white noise error term.

3.2.4. Cointegration Test

After defining the dates of the structural breaks, the next move is to estimate the relationship between the macroeconomic variables and stock market returns using Johansen cointegration test after checking that all variables under study are stationary after taking the first difference I(1).

The Johansen co-integration test takes the following form (Ndlovu et al., 2018):

$$X_{m,t} = \propto_m + \omega_1 Z_{1,t} + \omega_2 Z_{2,t} + \cdots + \omega_p Z_{p,t} + \epsilon_{m,t}$$

Where Johansen co-integration's Trace and Maximum Eigen value statistics are given below:

$$Maximum\ Eigen\ value: LR\ (r0;\ r0\ +\ 1)\ =\ -T\ ln\ (1\ -\ \lambda r0 + 1)$$

$$Trace\ Statistic:\ LR\ (r0;\ n)\ =\ -T\ \sum_{i=r0+1}^{n} \ln(1 - \lambda i)$$

With LR (r0; r0 + 1); LR (r0; n) being the likelihood ratio test statistic, T is the observations, λ is the estimated values of characteristic roots.

4. RESULTS AND DISCUSSION

This section shows the results of our study, where the first part deals with defining the structural breaks date points that will be included in the regression models in the second part to estimate the impact of the macroeconomics on the stock market returns.

4.1. Determining the Structural Breaks in the Stock Market Indexes

In this sub-section we start with descriptive statistics of the development of the stock market indexes, and then testing the unit root and applying CUSUM test to determine the presence of the structural breaks in the timeseries data, after that the structural breaks date points will be determined using Bai Perron Multiple Breakpoints test.

4.1.1. Descriptive Statistics

Table 2 presents the descriptive statistics of the stock market indexes of the Arab countries under study (Syria, Egypt, Tunisia and Bahrain). I can be noticed by looking at the mean and median values that these deviate in values especially for Damascus Securities Exchange Weighted Index (DWX), which implies that the distribution is asymmetric and indicates a high volatility in the stock market index which is logic due to the period under study where these four Arabic countries faced political, social and economic instability at the beginning of 2011 which can be seen in Figure 2 where all the indexes faced decline in their values. It can be noted as well that all indexes have witnessed an improvement in the period 2016-2017 due to the relative stable oil prices and the economic reforms besides the global economic recovery.

Table 2. Descriptive statistics of stock market indexes.

Statistics:	DWX_INDEX	EGX_INDEX	TUNINDEX_INDEX	BAX_INDEX
Mean	1085.165	1294.869	1095.477	919.759
Median	729.448	1146.930	1041.980	927.420
Maximum	3635.523	2561.640	1646.640	1159.340
Minimum	447.692	507.180	793.840	732.280
Std. dev.	868.152	526.009	204.596	98.915
Skewness	2.013	0.473	0.723	0.028
Kurtosis	5.748	1.943	2.466	2.252
Jarque-Bera	103.968	10.991	13.073	3.092
Probability	0.000	0.004	0.002	0.213
Sum	113942.3	169627.8	144603.0	121408.1
Sum sq. dev.	78383503	35969121	5483614	1281727
Observations	105	131	132	132

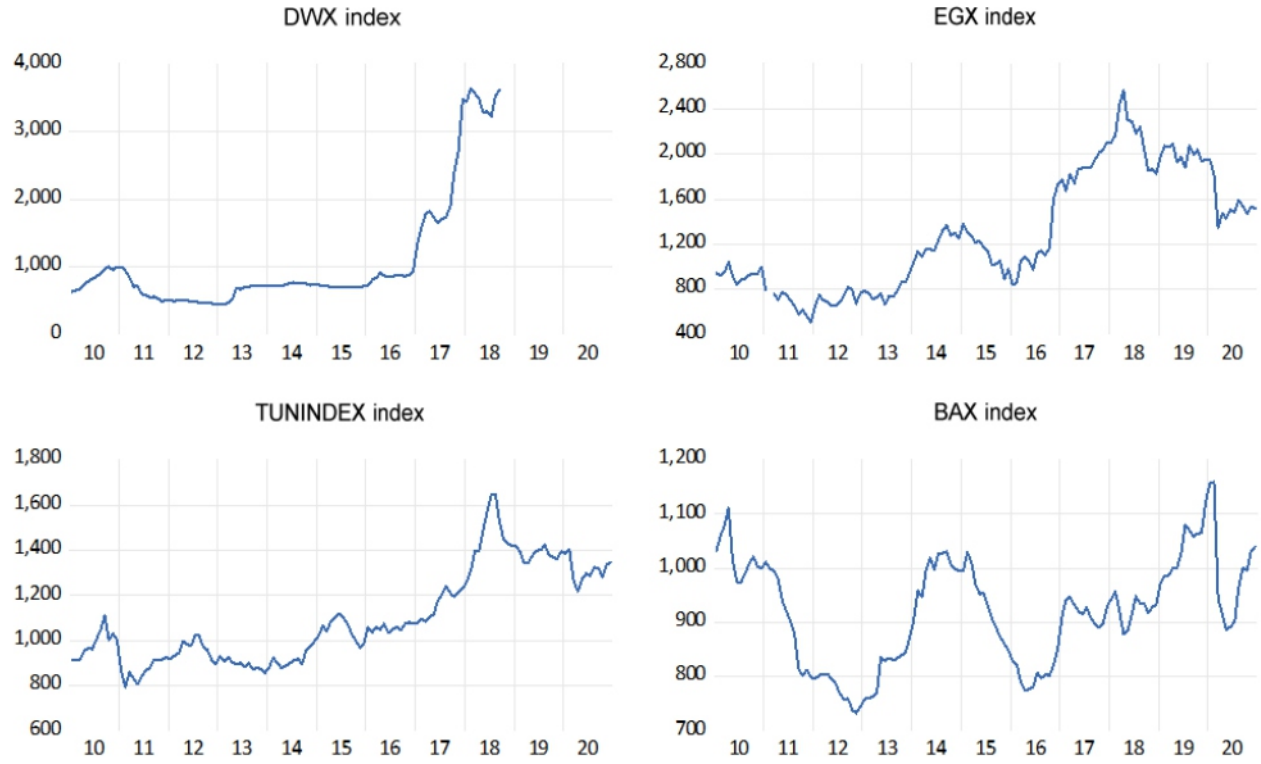

Figure 2. Charts of stock market indexes.

4.1.2. Unit Root Test

The ADF unit root test is applied on the monthly stock market indexes to test if these indexes are stationary. Table 3 shows the results of the unit root test and it can be noted that all stock market indexes are not stationary at level and have a unit root, which implies that these indexes might have a stochastic trend. However, the stock market indexes become stationary after taking the first difference.

Table 3. ADF unit root test of stock market indexes.

Stock market index	At level			At 1st difference			Decision
	Intercept	Trend & intercept	None	Intercept	Trend & intercept	None	
DWX	2.549	0.871	3.103	-1.489	-6.727***	-1.305	I(1)
BAX	-2.475	-2.818	-0.312	-8.754***	-8.816***	-8.787***	I(1)
TUNINDEX	-1.179	-2.494	0.578	-9.476***	-9.443***	-9.454***	I(1)
EGX	-1.204	-1.768	0.016	-11.367***	-11.331***	-11.381***	I(1)

Note: DWX: Stock market index of Syria, BAX: Stock market index of Bahrain, TUNINDEX: Stock market index of Tunisia, EGX: Stock market index of Egypt. Schwarz criterion (SIC) is used for the automatic selection of the lag length. *** refers to the significance level 1% respectively.

4.1.3. CUSUM Test

After testing the unit root and having the stock market indexes non-stationary, a CUSUM test is applied to investigate the nature of the changes and identify the presence of the structural breaks in the stock market indexes of the countries under study. Figure 3 shows the results of the CUSUM test for each of the stock market indexes. It can be noticed that the CUSUM lines goes beyond the critical bands of 5%, which indicates the presence of structural breaks in the stock market indexes of the Arab countries under study.

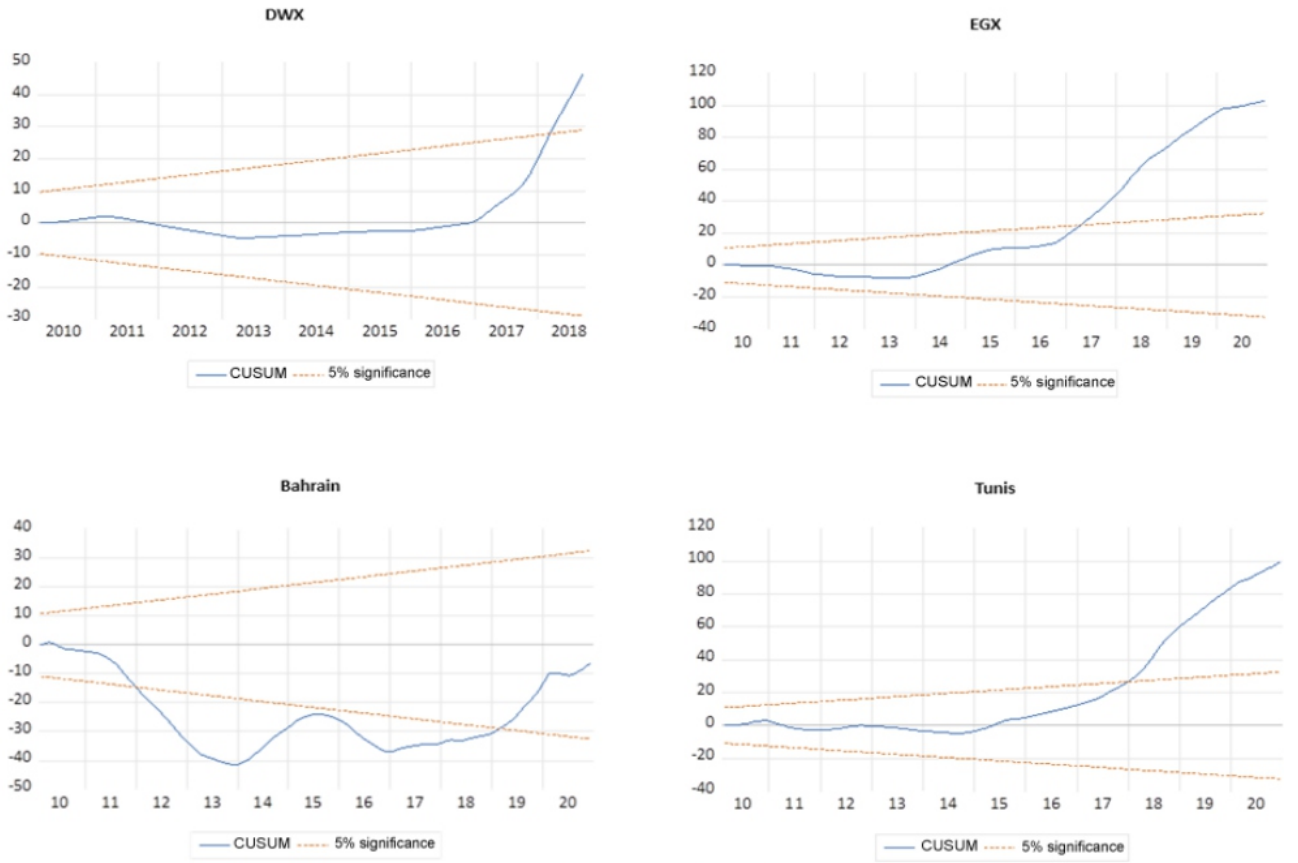

Figure 3. CUSUM test of stock market indexes.

4.1.4. Bai Perron Multiple Breakpoints Test

After having an evidence of the presence of structural breaks in the stock market indexes, we move to identify points in time where significant changes may have occurred using Bai & Perron Multiple Breakpoints test. Table 4summarizes the output of Bai Perron test for all four stock market indexes under study. It can be noted from the table that all stock markets have witnessed two or more breakpoints during the study period, where the exact breakpoints for each of the markets are defined according to Bai and Perron (2003). These dates will be included later in the regression models as dummy variables to estimate the impact of macroeconomic variables on the stock market returns.

Table 4. Bai and Perron multiple breakpoints test of stock market indexes.

Stock market index	Number of breakpoints*	Breakpoints dates
DWX	2	2016M04, 2017M07
BAX	5	2011M08, 2014M01, 2015M08, 2017M03, 2019M01
TUNINDEX	3	2014M12, 2016M07, 2018M02
EGX	3	2014M01, 2016M11, 2019M06

Notes: DWX: Stock market index of Syria, BAX: Stock market index of Bahrain, TUNINDEX: Stock market index of Tunisia, EGX: Stock market index of Egypt.
* Schwartz criterion is used for the selected breaks, and the global information criteria is selected as method for testing.

Table 5. ADF unit root test of macroeconomic variables.

Country	Variable	At level			At 1st difference			Decision
		Intercept	Trend & intercept	None	Intercept	Trend & intercept	None	
Syria	NEER 51	-2.588	-2.238	-2.862***	-10.428***	-10.612***	-10.315***	I(1)
	OIL index	-1.496	-2.005	-0.261	-7.474***	-7.437***	-7.509***	I(1)
	CPI	0.045	-3.045	2.514	-8.306***	-8.292***	-7.821***	I(1)
Bahrain	NEER 51	-1.318	-2.074	0.470	-7.874***	-7.862***	-7.879***	I(1)
	OIL index	-1.842	-2.945	-0.724	-7.841***	-7.818***	-8.080***	I(1)
	CPI	-1.307	-2.753	1.275	-14.337***	-14.330***	-14.139***	I(1)
Tunisia	NEER 51	-0.542	-2.434	-2.358	-6.807***	-6.779***	-6.306***	I(1)
	OIL index	-1.842	-2.945	-0.724	-7.841***	-7.818***	-8.080***	I(1)
	CPI	1.773	-1.576	6.508	-10.678***	-10.100***	-17.581***	I(1)
Egypt	NEER 51	-0.818	-1.706	-1.803	-9.875***	-9.840***	-9.726***	I(1)
	OIL index	-1.842	-2.945	-0.724	-7.841***	-7.818***	-8.080***	I(1)
	CPI	1.521	-1.658	6.673	-10.794***	-11.064***	-3.709***	I(1)

Note: SIC is used for the automatic selection of the lag length.
*** refers to the significance level of 1% respectively.

4.2. The Impact of Macroeconomics on the Stock Market Returns

In this sub-section we estimate the impact of macroeconomics (exchange rate, inflation, oil prices and crisis) on the stock market returns of the Arab countries under study (Syria, Egypt, Tunisia and Bahrain). The start point will be testing the stationarity of the macroeconomics timeseries data per market in order to determine which method would suit best for estimating the regression models. Then the impact of macroeconomics on the stock market returns will be estimated using the suitable method.

4.2.1. Unit Root Test

In order to test the stationarity of monthly macroeconomics timeseries data (exchange rate, inflation and oil prices), the ADF unit root test is applied. Table 5 shows the results of the unit root test and it can be noted that all macroeconomic variables for all four countries under study are not stationary at level and have a unit root, but become stationary after taking the first difference, which indicates that Johansen co-integration method is suitable to examine the relationship between these variables and the stock market returns.

4.2.2. Co-integration Test

After testing the unit root of the variables for all four countries under study, the long-term relationship is tested using Johansen cointegration test. For each of the four countries, multiple regression models will be tested depending on the number of structural break points defined based on Bai and Perron test.

4.2.2.1. Co-Integration Test – Syria

Table 6 shows the results of Johansen cointegration test applied on two regression models for Syria. In each model the dummy variable (CRISIS) is changed depending on the structural breakpoints detected by Bai and Perron test. It can be noted that there is no cointegration relationship between the macroeconomic variables and stock market returns when taking the structural break date (2016M04) into account, while there is one cointegration relationship when taking the structural break date (2017M07) into the regression model.

From the estimated model it can be noticed that the structural break in 2017 has a positive impact on the stock market returns. The year 2017 was a distinguished year in the performance of the Damascus stock market, as the Syrian economy began to adapt to the crisis, along with relative stability in economic

indicators, which reflected positively on the market's performance through the interaction of investors with the market and the significant increase in trading values and volumes (Damascus Securities Exchange, It can be observed from the regression model results that all macroeconomic variables have a positive impact on the stock market returns. This is consistent with the results of Al-Ammar and Asaad (2016). The consumer prices index inflates the stock market which shows a positive impact. Hamdouche (2017) also found a positive impact of inflation rate on the stock market of Syria. Regarding the exchange rate, the depreciation in the Syrian pound during the crisis caused a decline in the stock market returns due to investors 'reluctance to invest in instable environment.

4.2.2.2. Co-Integration Test – Egypt

Table 7 shows the results of Johansen cointegration test applied on three regression models for Egypt, where the dummy variable (CRISIS) is changed in each of the three models depending on the structural breakpoints detected by Bai and Perron test. It can be noted that there is no cointegration relationship between the macroeconomic variables and stock market returns when taking the structural break dates (2016M11 and 2019M06) into account, while there is one cointegration relationship when taking the structural break date (2014M01) into the model.

Table 6. Results of Johansen cointegration test – Syria.

Regression models - Syria	Null	Trace statistics (Critical value)	Max statistics (Critical value)
$SMR_t = \beta_1 + \beta_2\ INF_t + \beta_3\ EX_t + \beta_4\ OILt + \beta_5\ CRISIS_t + e_t$ CRISIS : 2016M04			
Conclusion: No cointegration relationship	r = 0	57.191 (69.819)	21.182 (33.877)
	r = 1	36.009 (47.856)	14.853 (27.584)
	r = 2	21.155 (29.797)	11.105 (21.132)
$SMR_t = \beta_1 + \beta_2\ INF_t + \beta_3\ EX_t + \beta_4\ OILt + \beta_5\ CRISIS_t + e_t$ CRISIS : 2017M07			
Conclusion: One cointegration relationship	r = 0	74.094** (69.819)	40.225*** (33.877)
	r = 1	33.869 (47.856)	14.782 (27.584)
	r = 2	19.086 (29.797)	13.081 (21.132)

Note: Null hypothesis is accepted, if test statistic < Critical value, Critical value considered at 5%.
, * refers to the significance level of 5% and 1% respectively.

Table 6. Continue…

CRISIS: 2017M07
$SMR_t = 3.338\ INF + 8.815\ EX + 3.684\ OIL + 2131.718\ CRISIS$ (0.472) (1.577) (1.925) (125.586)

Note: Numbers between parentheses refer to standard error.

The breakpoint starting 2014 has a positive impact on the stock market returns, where the stock market index has experienced positive developments due to the relative stable environment after the elections in 2012 and restoring the confidence in the market.

Table 7. Results of Johansen cointegration test – Egypt.

Regression models - Egypt	Null	Trace statistics (Critical value)	Max statistics (Critical value)
$SMR_t = \beta_1 + \beta_2\ INF_t + \beta_3\ EX_t + \beta_4\ OILt + \beta_5\ CRISIS_t + e_t$ CRISIS : 2014M01			
Conclusion: One cointegration relationship	r = 0	70.660** (69.819)	31.852* (33.877)
	r = 1	38.808 (47.856)	19.614 (27.584)
	r = 2	19.194 (29.797)	11.883 (21.132)
$SMR_t = \beta_1 + \beta_2\ INF_t + \beta_3\ EX_t + \beta_4\ OILt + \beta_5\ CRISIS_t + e_t$ CRISIS : 2016M11			
Conclusion: No cointegration relationship	r = 0	66.945* (69.81889)	28.357 (33.877)
	r = 1	38.587 (47.856)	15.459 (27.584)
	r = 2	23.129 (29.797)	13.502 (21.131)
$SMR_t = \beta_1 + \beta_2\ INF_t + \beta_3\ EX_t + \beta_4\ OILt + \beta_5\ CRISIS_t + e_t$ CRISIS : 2019M06			
Conclusion: No cointegration relationship	r = 0	64.956 (69.819)	28.609 (33.877)
	r = 1	36.346 (47.856)	15.780 (27.584)
	r = 2	20.567 (29.797)	11.575 (21.132)

Note: Null hypothesis is accepted, if test statistic < Critical value, Critical value considered at 5%.
*, ** refers to the significance level of 5% and 1% respectively.

The exchange rate have negative impact on the stock market returns, which is consistent with Zaki et al. (2016) study that concluded that the exchange rate has a negative and significant impact on stock returns. On November 3, 2016, the Central Bank of Egypt decided to take several measures to correct the foreign exchange trading policy by liberalizing exchange rates (Central Bank of Egypt, 2016). As a result of the decision to liberalize the exchange rate, there was a significant decline in the value of the Egyptian pound against foreign currencies at the end of 2016. This economic reform in the exchange rate policy was accompanied by a sharp rise in the Egyptian Stock Exchange index as a result of the restoration of foreign investors to the Egyptian Stock Exchange (The Egyption Exchange, 2016).

The inflation rate played also important role, where the political and economic instability leads to higher inflation and decrease in the stock market returns. Omran and Pointon (2001) also found that the inflation rate has and significant impact on all performance indicators of the Egyptian Stock Exchange. The oil price have a positive impact on the stock market returns, which is consistent with Zaki et al. (2016) study that concluded that the oil price has a positive and significant impact on stock returns on the Egyptian Stock Exchange.

Table 7. Continue….

CRISIS: 2014M01				
SMR_t = -23.525 INF - 78.984 EX + 14.536 OIL + 1708.065 CRISIS				
	(6.804)	(17.640)	(7.309)	(432.589)

Note: Numbers between parentheses refer to standard error.

4.2.2.3. Co-Integration Test – Tunisia

Table 8 shows the results of Johansen cointegration test applied on three regression models for Tunisia, where the dummy variable (CRISIS) is changed in each of the three models depending on the structural breakpoints detectedby Bai and Perron test. It can be noted that there is no cointegration relationship between the macroeconomic variables and stock market returns when taking the structural break dates (2014M12 and 2016M07) into account, while there is one cointegration relationship when taking the structural break date (2018M02) into the regression model.

The year 2018 had a negative impact on many world economies, which had a negative impact on financial markets and a decline in stock returns in many countries including Tunisia. Therefore the structural break in 2018 caused a decline in the performance of the Tunisian Stock Exchange.Both inflation and exchange rate have negative impact on the stock market returns in Tunisia. The political and economic instability is accompanied with high inflation and decrease in the exchange rate which have both negative impact on the stock market returns. Barakat et al. (2016) also concluded that the inflation rate has a negative impact on the stock market index of Tunisia. In addition, Ben Yaala and Henchiri (2016) found that the inflation rate have a negative and significant impact on stock prices on the Tunisian Stock Exchange.

4.2.2.4. Co-Integration Test – Bahrain

Table 9 shows the results of Johansen cointegration test applied on five regression models for Bahrain, where the dummy variable (CRISIS) is changed in each of the three models depending on the structural breakpoints detected by Bai and Perron (2003) test. It can be noted that there is at least one cointegration relationship between the macroeconomic variables and stock market returns in each of the estimated regression models, which means that the economy of Bahrain faced several significant structural breaks that affected the stock market returns on the longterm.

Table 8. Results of Johansen cointegration test – Tunisia.

Regression models - Tunisia	Null	Trace statistics (Critical value)	Max statistics (Critical value)
$SMR_t = \beta_1 + \beta_2\ INF_t + \beta_3\ EX_t + \beta_4\ OILt + \beta_5\ CRISIS_t + e_t$ CRISIS : 2014M12			
Conclusion: No cointegration relationship	r = 0	66.001* (69.819)	37.409 (33.877)
	r = 1	28.592 (47.856)	17.017 (27.584)
	r = 2	11.575 (29.797)	7.950 (21.132)
$SMR_t = \beta_1 + \beta_2\ INF_t + \beta_3\ EX_t + \beta_4\ OILt + \beta_5\ CRISIS_t + e_t$ CRISIS : 2016M07			
Conclusion: No cointegration relationship	r = 0	67.133* (69.819)	25.140 (33.877)
	r = 1	41.993 (47.856)	19.059 (27.584)
	r = 2	22.934 (29.797)	14.479 (21.132)
$SMR_t = \beta_1 + \beta_2\ INF_t + \beta_3\ EX_t + \beta_4\ OILt + \beta_5\ CRISIS_t + e_t$ CRISIS : 2018M02			
Conclusion: Two cointegration relationships	r = 0	177.982*** (69.819)	126.051*** (33.877)
	r = 1	51.931** (47.856)	28.957** (27.584)
	r = 2	22.974 (29.797)	12.901 (21.132)

Note: Null hypothesis is accepted, if test statistic < Critical value, critical value considered at 5%.
*, **, *** refers to the significance level of 10%, 5% and 1% respectively.

Table 8. Continue….

CRISIS: 2018M02
SMR_t = -9.341 INF - 3.386 EX - 4.208 OIL + 522.170 CRISIS
(2.393) (3.210) (0.521) (36.768)

Note: Numbers between parantheses refer to standard error.

From the regression models it can be noted that the dynamics of the macroeconomics impacting the stock market returns are different from one period to another depending on the breakpoint that has been taken into account whether these were positive or negative breakpoints. For instance, in the regression model where the controlling variable is the crisis in 2011, the results showed a negative impact of the crisis on the stock market, while the other macroeconomic variables showed a positive relationship with the market returns. On the other side, when controlling for a positive breakpoint such as that in 2014, the results are showing that the structural break has a positive impact on the stock market, while the consumer prices have a negative impact on the stock market returns. Both the exchange rate and oil prices showed a positive impact on the stock market in this model.

Therefore, the dynamics of how the macroeconomic variables affecting the stock market returns depends on the nature of the structural break.

Table 9. Results of Johansen cointegration test – Bahrain.

Regression models - Bahrain	Null	Trace statistics (Critical value)	Max statistics (Critical value)
$SMR_t = \beta_1 + \beta_2 INF_t + \beta_3 EX_t + \beta_4 OILt + \beta_5 CRISIS_t + e_t$ CRISIS : 2011M08			
Conclusion: Two cointegration relationship	r = 0	84.646*** (69.819)	34.773** (33.877)
	r = 1	49.873** (47.856)	26.943* (27.584)
	r = 2	22.930 (29.797)	12.813 (21.132)
$SMR_t = \beta_1 + \beta_2 INF_t + \beta_3 EX_t + \beta_4 OILt + \beta_5 CRISIS_t + e_t$ CRISIS : 2014M01			
Conclusion: Two cointegration relationship	r = 0	105.08*** (69.819)	50.161*** (33.877)
	r = 1	54.920** (47.856)	30.229** (27.584)
	r = 2	24.691 (29.797)	11.969 (21.132)
$SMR_t = \beta_1 + \beta_2 INF_t + \beta_3 EX_t + \beta_4 OILt + \beta_5 CRISIS_t + e_t$ CRISIS : 2015M08			
Conclusion: Two cointegration relationship	r = 0	99.689*** (69.819)	50.885*** (33.877)
	r = 1	48.804** (47.856)	21.859 (27.584)
	r = 2	26.945 (29.797)	14.405 (21.132)
$SMR_t = \beta_1 + \beta_2 INF_t + \beta_3 EX_t + \beta_4 OILt + \beta_5 CRISIS_t + e_t$ CRISIS : 2017M03			
Conclusion: One cointegration relationship	r = 0	77.613** (69.819)	33.696 (33.877)
	r = 1	43.917 (47.856)	24.690 (27.584)
	r = 2	19.227 (29.797)	13.508 (21.132)
$SMR_t = \beta_1 + \beta_2 INF_t + \beta_3 EX_t + \beta_4 OILt + \beta_5 CRISIS_t + e_t$ CRISIS : 2019M01			
Conclusion: One cointegration relationship	r = 0	730.449** (69.819)	33.118* (33.877)
	r = 1	40.331 (47.856)	19.977 (27.584)
	r = 2	20.355 (29.797)	12.540 (21.132)

Note: Null hypothesis is accepted, if test statistic < Critical value, critical value considered at 5%
*, **, *** refers to the significance level of 10%, 5% and 1% respectively.

Table 9. Continue…

CRISIS : 2011M08				
SMR_t = 88.376 INF + 15.675 EX + 7.592 OIL – 3363.163 CRISIS				
	(63.833)	(77.149)	(15.232)	(574.032)
CRISIS : 2014M01				
SMR_t = -36.134 INF + 17.124 EX + 11.445 OIL + 764.322 CRISIS				
	(14.214)	(14.028)	(2.845)	(123.492)
CRISIS : 2015M08				
SMR_t = 35.707 INF -158.901 EX -18.524 OIL + 1363.425 CRISIS				
	(28.141)	(29.979)	(5.586)	(286.703)
CRISIS : 2017M03				
SMR_t = -23.714 INF -37.621 EX -14.734 OIL + 436.006 CRISIS				
	(18.112)	(17.532)	(3.183)	(112.331)
CRISIS : 2019M01				
SMR_t = 36.405 INF -61.930 EX -12.153 OIL + 95.603 CRISIS				
	(10.534)	(12.484)	(2.382)	(71.2863)

Note: Numbers between parentheses refer to standard error.

5. CONCLUSION

The main purpose of this study is to determine the presence and timing of the structural breaks in the stock market returns and investigate their impact on the relationship between macroeconomic variables, namely the inflation rate, the exchange rate, the oil prices, and the stock market returns of a sample of Arab countries facing political and economic instability (namely Syria, Egypt, Tunisia and Bahrain) during the period (2010-2020).

CUSUM test is performed in order to test the presence of structural breaks in stock market indexes, and Bai and Perron (2003) Multiple Breakpoints test is used to identify points in time where significant changes may have occurred. These point of structural breaks have been included later in the regression models as dummy/control variables to examine the impact of the macroeconomic variables on the stock market returns using Johansencointegration test. Both inflation rate and exchange rate proved to have important effect on the stock market returns of the countriesunder study. In case of Syria, the depreciation in the Syrian pound during the crisis caused a decline in the stock market returns due to investors' reluctance to invest in instable environment, while the inflation rates have negative effect on the stock market returns of Egypt and Tunisia. In case of Bahrain, the dynamics of the macroeconomics impacting the stock market returns are proved to be different from one period to another depending on the structural break that has been taken into account whether these were positive or negative breakpoints.As a conclusion, the dynamics of how the macroeconomic variables affecting the stock market returns depends on the nature and timing of the structural break and differs from country to another.

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REFERENCES

Abdel-Gawad, & Radi, A.-S. (2020). The effect of the exchange rate and inflation rate on the performance of the stock market in Egypt. College of Politics and Economics Journal, 8, 1-40.

Abdelbaki, H. H. (2013). Causality relationship between macroeconomic variables and stock market development: Evidence from Bahrain. The International Journal of Business and Finance Research, 7(1), 69-84.

Al-Ammar, R., & Asaad, A. (2016). The relationship between macroeconomic variables and the Damascus stock exchange index. Tishreen University Journal, Economic and Legal Sciences Series, 38(3), 321-339.

Arab Monetary Fund. (2011). Annual report of 2011. Retrieved from https://www.amf.org.ae/en

Bai, J., & Perron, P. (2003). Computation and analysis of multiple structural change models. Journal of Applied Econometrics, 18(1), 1-22. https://doi.org/10.1002/jae.659

Barakat, M. R., Elgazzar, S. H., & Hanafy, K. M. (2016). Impact of macroeconomic variables on stock markets: Evidence from emerging markets. International Journal of Economics and Finance, 8(1), 195-207. https://doi.org/10.5539/ijef.v8n1p195

Ben Yaala, S., & Henchiri, J. E. (2016). Impact of macroeconomic and demographic variables on the stock market: Evidence from tunisian crisis. International Journal of Economics and Finance, 8(8), 1-11. https://doi.org/10.5539/ijef.v8n8p194

Brown, R. L., Durbin, J., & Evans, J. M. (1975). Techniques for testing the constancy of regression relationships over time. Journal of the Royal Statistical Society Series B: Statistical Methodology, 37(2), 149-163. https://doi.org/10.1111/j.2517-6161.1975.tb01532.x

Central Bank of Egypt. (2016). Annual report of 2016. Retrieved from https://www.cbe.org.eg/

Damascus Securities Exchange. (2017). Annual report of 2017. Retrieved from http://www.dse.sy/Dao, P. B. (2021). A CUSUM-based approach for condition monitoring and fault diagnosis of wind turbines. Energies, 14(11), 3236. https://doi.org/10.3390/en14113236

El-Shagi, M., & Giesen, S. (2013). Testing for structural breaks at unknown time: A steeplechase. Computational Economics, 41, 101-123. https://doi.org/10.1007/s10614-011-9271-1

EViews 12. (1994). User's guid II. California, CA: HIS Global Inc.Gujarati, D. N., & Porter, D. (2009). Basic econometrics Mc graw-hill international edition. Boston: McGraw-Hill Irwin.

Hamdouche, R. (2017). The impact of inflation on stock returns by application to the damascus financial market. Al-Baath University Journal, 39(15), 33-60.

Hasseeb, M. K. (2015). Impact of the real economy on stock market performance: Evidence from arab countries. Master Thesis, Department of Management, School of Business, The American University in Cairo. International Monetary Fund. (2013). Middle East and North Africa: Defining the road ahead. Regional economic outlook, Middle East

and Central Asia Department. REO. Retrieved from https://www.imf.org/en/publications/reo

Islam, K. Z., Akter, Y., & Md, N. A. (2020). Macroeconomic variables and stock returns in Bangladesh: an empirical analysis in the presence of structural breaks. Journal of Economic Development, 45(2), 115-141. https://doi.org/10.31039/jomeino.2020.4.1.3

Ismaiel, L., & Al-Ahmad, Z. (2014). Studying the relationship between stock prices and exchange rates in a sample of Arab countries. International Research Journal of Finance and Economics, 125(126), 26-44. Jamaludin, N., Ismail, S., & Ab Manaf, S. (2017). Macroeconomic variables and stock market returns: Panel analysis from selected ASEAN countries. International Journal of Economics and Financial Issues, 7(1), 37-45.

Kelikume, I., & Muritala, O. (2019). The impact of changes in oil price on stock market: Evidence from

Africa. International Journal of Management, Economics and Social Sciences, 8(3), 169-194. https://doi.org/10.32327/ijmess/8.3.2019.11

Khalil, F. S. (2015). The impact of monetary variables on stock returns in emerging markets. Master's Thesis, Faculty of Economics, Damascus University.

Naik, P. K., & Padhi, P. (2012). The impact of macroeconomic fundamentals on stock prices revisited: Evidence from Indian data. Eurasian Journal of Business and Economics, 5(10), 25-44.

Ndlovu, B., Faisa, F., Resatoglu, N. G., & Türsoy, T. (2018). The impact macroeconomic variables on stock returns: A case of the Johannesburg stock exchange. Romanian Statistical Review, 2, 87-104.

Omran, M., & Pointon, J. (2001). Does the inflation rate affect the performance of the stock market? The case of Egypt. Emerging Markets Review, 2(3), 263-279. https://doi.org/10.1016/s1566-0141(01)00020-6

The Egyption Exchange. (2016). Annual report of 2016. Retrieved from https://egx.com.eg/ar/Services_Reports.aspx Zaki, F., Elgammal, M., & Husssainey, K. (2016). Macro economy, stock market and oil prices relationships before and after the Egyption revolution era. Doha Institute for Graduate Studies. Retrieved from https://www.dohainstitute.edu.qa/.

Determinants of financial performance of pension funds in Tanzania: The case of national social security fund

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A B S T R A C T

This study was set to examine the determinants of financial performance of pension funds in Tanzania. According to literature millions of the people under the globe depend on the pension funds as their principal sources of income at their retirement age. This study adopted a descriptive design to examine the determinants of financial performance of pension funds in Tanzania. The study uses regression analysis approach to examine the effect of determinants on financial performance of pension funds. Data were collected from National Social Security Fund (NSSF)'s financial statements for the period from 2005 to 2022. Different tests were employed such as normality test, heteroscedasticity test multicolliniality test and autocorrelation test in multiple regression modelling. The findings from this study revealed that investments and contribution density have a positive relationship to return on assets. However, the age of the contributors has depicted a weak and insignificant relationship to the return on assets of the pension fund under investigation. Therefore, it is recommended that the pension funds have to put more efforts on its investments as well as contribution density which are key contributors to the financial performance of pension funds in Tanzania.

Keywords: *Financial performance NSSF Pension funds Tanzania.*

Contribution/Originality: Theoretically, pension funds are established to manage collect contributions from employees and make payments to the retirees on time. However, in practice the performance of the pension funds have been facing challenges to pay retirement benefits to the retirees on time. It is therefore important to investigate the determinants of financial performance of pension funds.

1. INTRODUCTION

The need for better managed pension funds in many countries has been compelled by rising populations around the world. Most countries both developed and developing are now faced with increasing longevity in life expectance and reduced fertility rates that seem to threaten the sustainability of traditional pay-as-you-go pension systems.

The contributions funded by the working population will not suffice in meeting the pensions of the elderly. In response, countries are increasingly shifting their pension systems toward partial or full funding. Pension funds need to be well managed in order to have a better balance between the available funds generated from available investment opportunities and payment to retirees. This normally depends on the performance of pension funds to deliver stable and sufficient income to cover retirement benefits. Thus, the performance of pension funds is quite crucial since they play a very significant role in the economy of any country. In the United States of America, 82% of elderly people rely heavily on pension income (Employee Benefit Research Institute, 2018). In Kenya, most of the total income of retirees is composed of 68% of the total retirement income (Raichura, 2008).

In Tanzania, pension funds have been investing in portfolios such as commercial loans, real estate, government securities, loan able funds, banks deposits and equities, all of which have contributed to social and macro-economic developments of the country (Kyando, 2014). From an investment perspective, investing in capital markets can be beneficial to Tanzanian pension funds from a long-term investment (strategic asset allocation) perspective and from a short-term investment (tactical asset allocation) perspective as well. Increased investment in capital markets securities by pension funds would likely affect the volatility of the asset class. On one hand, pension funds following strategic asset allocation guidelines would likely follow buy-and-hold strategies. Hence, pension funds could contribute to stabilize markets as their behaviour simulates the behaviour of dedicated emerging market investors. On the other hand, if emerging market investment decisions are guided mainly by short-term tactical considerations, pension funds would tend to behave like other investors, getting in and-out of positions rapidly, hence enhancing liquidity and pricing discovery function (Chan-Lau, 2004). More importantly, according to the Bank of Tanzania (2018) pension funds play a crucial role in financing the Government domestic debt by astaggering Tshs 2,218.1 trillion (22.2% share of the Government debt), in second position to commercial banks.

However, Tanzania is still lenient towards the traditional pay-as-you-go pension system and therefore, there is a need to understand the dynamics towards the performance of pension funds so as to cope with demographic pressures and unsustainable financial market positions. Pay-as-you-go pension is a system where, the current benefit payouts for retirees are paid by the contributions from the current members. It requires a balance between the benefits paid to the retirees and the contributions made by the active members. The system is much affected when the old population exceeds the working population. In view of the above discussion, this study is proposed to assess the determinants of financial performance of the pension funds in Tanzania.

The remainder of the this study is organized as follows; section two provide literature review and section three presents methodology used in this study, section four of this study presents analysis of data used and presentation of findings. Finally, section five presents conclusion and policy recommendations.

2. LITERATURE REVIEW

2.1. Theoretical Literature Review

2.1.1. Tier/Pillars System

This study uses Tier or Pillar's system to study the social security system. According to Holzmann, Hinz, and Dorfman (2008) a social security system in the country is divided into three tiers: the first tier or pillar is based on social assistance programmes approach, which intends to provide assistance to marginalized people, people with inadequate income to meet basic needs, people with special problems, suffering from long illness and the likes. The system is organized in a way that the miserable group of people should get extra support from the already established budget. The second tier is based on social insurance. This is a mandatory scheme for the class of employed persons. It comprises of social security pensions schemes like NSSF and Parastatal Public Service Social Security Fund (PSSSF). The third pillar is based on voluntary commercial social insurance which supplements the schemes such as property insurance (fire insurance, vehicle insurance and marine insurance), life insurance policies etc. This study focus on the second tier where a mandatory scheme for the class of employed people is

established for social security pension schemes.

2.2. Empirical Literature Review

2.2.1. Relationship between Density of Contributions and Performance of Pension Funds

This section reviews the empirical literature on the relationship between density of contributions and performance of pension funds on one hand and the relationship between investment and financial performance of pension fund on the other hand. The density of contributions that pension funds collect from the contributors is also very crucial in evaluating their performance. If the fund has many contributors who are consistently channeling adequate funds to the scheme, then there will be enough funds to invest and this will assist the fund to earn better revenues for the sustainable fund. The reverse is also likely to happen if the amount of contributions received from the contributors are not sufficient to enable the fund to enter into any meaningful asset investme nt (Bodie, Detemple, & Rindisbacher, 2009). Several studies have been conducted to assess the effect of density of contribution on the performance of the pension funds.

Ngetich (2012) Surveyed the determinants of the growth of individual pension schemes including the density of the contributions in Kenya. The regression analysis he applied indicated that fund governance exerts a significant relationship on the growth of the pension schemes. This means that pension fund governance led to improved growth of the individual pension schemes. Moreover, it was shown that reducing the benefits processing period, providing relevant education to the trustees, maintaining an appropriate internal control system, communicating regularly with members, defining the roles of the trustees clearly, regulating the fees charged by t he service providers, controlling default risk on the part of the sponsor and implementing investment strategies that are major factors that influence the growth of individual pension schemes in Kenya.

Munyambonera, Katunze, Munu, and Sserunjogi (2018) Surveyed the expansion of pension sector in Uganda using qualitative analysis. Findings show that the pension coverage is low at about 9.3 percent of total employed Ugandans in both the formal and informal sectors, but mainly in the formal sector. With regard to the non contributory public pension scheme, the fiscal burden has reached an unsustainable level with cumulative arrears of about UGX (Ugandan shillings) 516 billion by 2016. At the same time, governance and regulation continue to affect the effectiveness and efficiency of the national pension system and warrants further reforms.

Bukuluki and Mubiru (2014) Investigated on the status of social security systems in Uganda; challenges and opportunities. The study findings revealed that Uganda has a multi-tier pension system model encompassing contributory social insurance, non-contributory direct income support and voluntary private pension schemes. Informal social security systems were and still remain vital in Uganda, particularly in rural areas and in the informal sector. They are, however, experiencing challenges related to poverty, urbanization and, to some extent, some sections of the population becoming relatively individualistic with more focus on nuclear families.

According to Maduhu (2014) the benefits offered by social security schemes in Tanzania with response to the ILO Social Security (Minimum Standards) Convention (ILO, 1952 No.102). The study used qualitative approach to analyze the data. Findings indicated that although the social security schemes in

Tanzania have done their best to offer social security benefits however such schemes fall short of what is stipulated in the International Labour Organizations (ILO) Convention 1952. Moreover, non-fulfillment of the minimum standards is contributed by a number of factors such as poverty and low income of the individuals.

2.2.2. The Effect of Investments on the Return on Assets of Pension Funds

Bodie et al. (2009) argued that there is need to recognize that pension fund assets have important differences compared with other forms of collective investments. This difference is due to the fact that pension funds have the objective of providing income replacement in retirement, whereas the other forms of collective investments are primarily concerned with short-term wealth maximization of individuals. Typically, pension funds invest in the government securities, equities, loans, real estate and deposits with banks. More importantly, there is a need to synchronize the nature of liabilities (long-term) towards the asset base of pension scheme (Asset-Liability Matching).

The first empirical study examined the determinants of the growth of investment income of pension funds (Shola, 2013). Shola (2013) Conducted a study which studied the determinants of the growth of investment income of pensions fund schemes. Local Authorities Pensions Fund was taken as a case study. Time series data were used and ordinary least square method was used to estimate the model. Results show that the variables "members' contributions" and "investment made in fixed deposits" are positively related to the growth of investment income and are statistically significant at one percent level. However, the variable "investment in government securities," is positively related to the growth of investment income and statistically significant at five percent level.

The study further estimated parameters for investment in government securities is 1234.84 while for members contribution is 0.22 and that of investment made in fixed deposits is 0.12. All these estimated parameters refer to the magnitude of change of investment income when the respective variable changes by one unit. Lastly, it recommended that, the Local Authorities Pension Fund (LAPF) should maintain the same share of investment in government securities.

The study conducted by Sabugo (2017) on the determinants of investment income growth in the Tanzanian social security schemes using the multiple regressions to analyze the factors behind investment growth of the Tanzanian social security funds. Findings indicated that the value of Social Security Schemes, member contributions and benefits payment were statistically significant at 5% significance level and positively affected investment income growth. The coefficients of Value of Social Security Schemes, Member Contributions and Benefits Payment were 0.001, 0.022 and 0.194 respectively. This means that any change by one unit may result to change of investment income growth by the amount equal to the coefficient of respective independent variable ceteris paribus (in billion TZS (Tanzanian Shillings) and vice versa).

Mkilalu (2013) investigated on performances in relation to investments of corporate governance practices in Tanzania focusing on three selected pension funds in Tanzania, namely, the Public Service Pension Fund, National Social Security Fund and Parastatal Pension Fund. The study used qualitative approach to analyze the Findings showed that the Boards play their roles by making periodic investment performance reviews. The boa rds Participate in appointing senior manager and attending to regular scheduled Board meetings. However, the Public Service Pension Fund (PSPF) and NSSF Boards did not

play the role of appointment of the Director General since their respective acts required the appointment to be done by the president.

According to Kyando (2014) the involvement of pension funds in investments of capital market transactions in Tanzania is increasing in tandem with their growing financial power. The study employed descriptive and return on investment approaches and found that there is low participation of Pension Funds in Initial Public Offer. The Pension Funds (PFs) hold a small fraction of Dar es Salaam Stock Exchange (DSEs) market capitalization. Pfs purchases and holds securities for longer terms. The low liquidity of the DSE is partially contributed by low participation of PFs in secondary market trading. Finally, the results show that portfolio of PFs is mainly made up by Government bonds, bank deposits and loans. Inclusively, results from the research work imply that the contribution of PFs in the development of capital markets in Tanzania, particularly the DSE is not significant.

Another scholar Alda (2017) investigated the relationship between pension funds and the investments of the stock market. It was guided by the question, does the aging population of Europe affect the performance of the pension funds. The study used the Regression Analysis to analysis its data. Their finding reveals that the influ ence of pension funds varies over time and across economies, because of arbitrage opportunitie s that provoke adaptive managerial strategies.

Babalos and Stavroyiannis (2020) studied the effect of the investments of pension funds on the stock market development in Organization for Economic Cooperation and Development (OECD) countries. These scholars investigated the relationship between Pension funds and stock market development in OECD countries. They concluded that the pension fund investments in equities enhanced and strengthened the stock market development in selected economies.

All in all, although the relationship between the investments of pension funds and performance of these pension funds have been studied extensively in different countries, yielding different conclusions, there is a scarcity of this kind of study in Tanzania especially on the NSSF. Hence, this study will examine the effects of the investments of the pension funds on the returns of the NSSF performance in Tanzania.

Despite the achievements attained, there are still challenges facing Pension Funds in Tanzania. The major challenges being delay in payment of pensions after employee's retirement and complaints from public regarding pension formula. It is imperative now to investigate the determinants of financial performance of pension funds in Tanzania.

3. DATA AND METHODOLOGY

This study used descriptive research design. According to Saleem, Shabana, and Sadik (2014) a descriptive research design is the arrangement of conditions for collection and analysis of data that aim to systematically describe the phenomenon, situation or particular population. This study adopted a descriptive design to examine the determinants of financial performance of pension funds in Tanzania. More, specifically this study employed regression model to examine the effect of determinants on financial performance of pension funds. The design fitswell the study because it also involves single subjects or research units that are measured repeatedly at regular intervals overtime such as on the annual basis. The study makes use of annual financial statements of NSSF Pensions Fund from the year 2005 to 2022. Two sampling techniques that is purposive sampling and simple random sampling were used.

4. RESULTS AND FINDINGS

4.1. Results of Tests Employed

4.1.1. Normality Test

The normality tests are supplementary to the graphical assessment of normality (Elliot and Wood ward, 2007).The main tests for the assessment of normality are Kolmogorov-Smirnov (K-S) test (Öztuna, Elhan, & Tüccar, 2006) and Shapiro-Wilk test (Öztuna et al., 2006; Peat & Barton, 2005). The tests mentioned above compare the scores in the sample to a normally distributed set of scores with the same mean and standard deviation; the null hypothesis is that "sample distribution is normal." If the test is significant, the distribution is non-normal. The test statistics are shown in Table 1. Here two tests for normality are run. For dataset small than 2000 elements, we use the Shapiro-Wilktest, otherwise, the Kolmogorov-Smirnov test is used. In our case, since we have only 12 elements, the Shapiro-Wilk test is used. Findings from Table 1 show that the p-value is 0.976; the p-value is not significant therefore we can reject the null hypothesis and conclude that the data comes from a normal distribution.

Table 1. Normality test.

Dependent variable	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Return on assets	0.136	12	0.200*	0.978	12	0.976

Note: a. Lilliefors significance correction.
*. This is a lower bound of the true significance.

4.1.2. Heteroscedasticity Test

Heteroscedasticity test is part of the classical assumption test in the regression model. It is a systematic change in the spread of the residuals over the range of measured values. To detect the presence or absence of heteroscedastisities in a data, can be done in several ways, one of them is by looking at the scatterplot graph on SPSS output. Heteroscedasticity is a problem because ordinary least squares (OLS) regression assumes that all residuals are drawn from a population that has a constant variance (homoscedasticity) (Refer Figure 1).

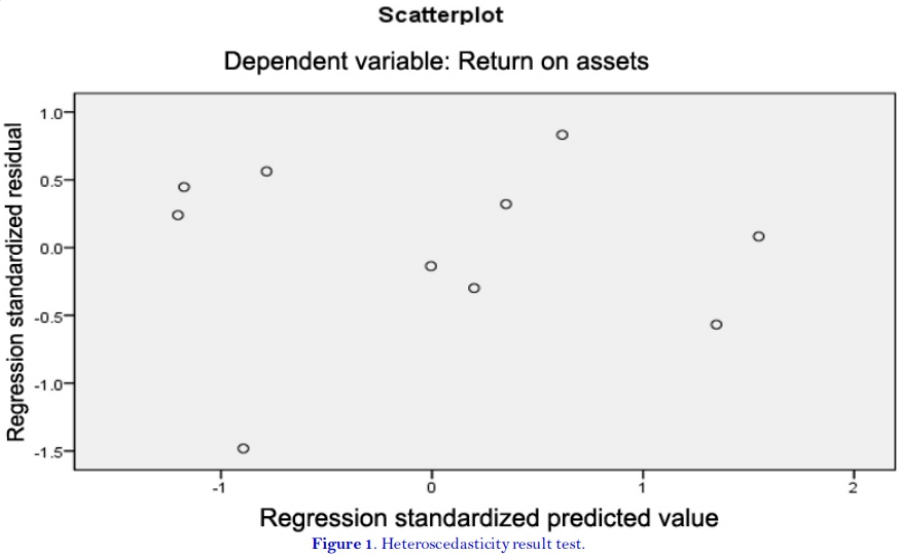

Figure 1. Heteroscedasticity result test.

4.1.3. Multicollinearity Test

Multicollinearity is an unacceptable high correlation among predictor variables in the model which bias coefficients of determinations thus makes relative assessment of each predictor variable unreliable . This problem can be fixed through combining highly correlated variables, drop highly correlated ones, introduce new variables, transformation or just do nothing (Gujarati, 2007). According to Pallant (2005) commonly used cutoff points for determining the presence of multicollinearity is the Tolerance value of less than .10. Multi-collinearity, was tested using SPSS collinearity diagnostics. The predictor variables, average age of contributions, investment income and contribution density were regressed against each other. Table 2 reports the results of Variance Inflation Factor value (VIF).The variance inflation factor for average age of contributors was 8.035, contribution density 9.584, investment income of the pension fund was 8.004, Gross Domestic Product (GDP) was 2.074 and inflation was 2.227.In light of these findings, the explanatory variables are free from serious problem of multi-collinearity.

Table 2. Multi-collinearity test using variance inflation factor.

Variable	vif	1/vif
Age	8.035	0.124
Inv	8.004	0.125
Dens	9.584	0.104
GDP	2.074	0.482
INF	2.227	0.449
Mean VIF	5.539	

Note: This table reports result of multi-collinearity test using variance inflation factor.

4.1.4. Autocorrelation Test

Regression models assume that the error terms (residuals) are not correlated. Literatures suggests that, autocorrelation exist when the residuals of two different observations are either positively or negatively correlated (Field, 2009). A random plot of residuals indicate absence of autocorrelation whereas a general straight pattern of residuals against time indicates existence of autocorrelation. On the other hand, the Durbin Watson statistic value of 2 ($d = 2$) suggest that there is no autocorrelation, value from 0 to less than 2 ($0 < d \leq 2$) indicate positive autocorrelation and from greater than 2 to 4 ($2 > d \geq 4$) indicates existence of negative autocorrelation. Since in reality absence of autocorrelation does not exist, values closer to 2 indicate absence of autocorrelation (Field, 2009).

Autocorrelation was tested through both visual examinations of the Durbin Watson statistic using SPSS. Table 3 reports the results of auto correction using Durbin Watson Test. The observed Durbin Watson statistics value (d) was 1.139, which was above the Durbin Watson critical value upper boundary (dU) in the Durbin-Watson results.

Table 3. Model Summary.

R	R square	Adjusted R square	Std. error of the estimate	Durbin-Watson
0.885[a]	0.783	0.702	0.815	1.139

Note: a. Predictors: (Constant), investments in Tshs, average age of contributors, contribution in Tshs.
Dependent variable: Return on assets.

4.2. Descriptive Analysis

4.2.1. Age Structure of Contributors

In our analysis, the variable of age structure is represented by the use of average age of the contributors of the scheme. Table 4 shows that the mean of the age of contributors for the period of 12 years (2005 - 2016) was 40.3 years with a deviation of 3.1. The maximum age was 43.6 and the minimum age was 35.8. The trend of average age of contributors as can be seen in the table has generally been on a decline over the defined time period. It can be observed that the average age of the contributors in 2005 was 44.5 which further declined to 35.9 in the year 2016. This indicates that the age profile of NSSFF is relatively young implying that most contributions are channeled towards investments rather than financing retirement benefits. Therefore, the expectation is that the return on assets will comparatively be higher than if the age profile was skewed towards the retirement age.

Table 4. Results of the multiple regression model.

Variable	Coefficient	t value	p-value
Age	0.092	0.321	0.764
Inv.	0.183	3.408	0.027
Dens	0.047	2.970	0.041
GDP	0.233	0.598	0.582
INF	0.220	0.598	0.09
Constant	-2.030	-0.168	0.875
Adj. R^2 (%)	0.702		

Source: Researcher, 2023.

4.3. Discussion of Results

Firstly, the findings show that the average age structure for contributors of NSSF within the 12 years period was 40.3, relatively a young age profile. However, the regression model's coefficient for the average age of contributors shows a positive relationship with the performance of NSSF as measured by return on assets but not significantly influencing the performance. In other words, the NSSF performance in terms of ROA is not significantly influenced by the average age of contributors, other factors being constant. These findings are similar to Oluoch (2013) who found that there was a strong positive relationship between ages of the investors measured by national life expectancy indicating that a longer life expectation positively affected returns. Secondly, the results have shown a positive relationship between the investments and return on asse ts. This implies that the investments made by NSSF had influenced positively the overall performance of the pension scheme in terms of Return on Assets (ROA). The theoretical expectation was that as contributions collection increases, so does investments which will finally influence the return on assets. These results align with the findings of Adeoti, Gunu, and Tsado (2012)who found that investments in Nigeria pension schemes are positively related to return on assets. The findings also are similar with those found by Kigen (2016) that investments made in Kenya were positive and statistically influencing the financial performance of pension funds. Lastly, we also know from literatures that if a fund has many contributors who are consistently channeling adequate funds to the scheme, then there will be enough funds to invest and this will assist the fund to earn better revenues for a sustainable fund. Moreover, the theoretical implication was that, more contributions to the pension fund leads to availability of more funds for investme nt which in turn leads to earning more investment income (Bodie et al., 2009). The results of this study have also affirmed that the density of contribution is positively related to the return on assets.

5. CONCLUSIONS

From the findings we can draw the following conclusions; the coefficient of age was not statistically significant indicating that general age of the contributors was not a contributor to the performance of NSSF in terms of returns on assets in Tanzania. This indicates that variability of the age of the contributors was independent from the variability of the returns on assets as opposed to the theoretical positions which claim a close relationship. The relationship between the investments and return on assets was strong. This concludes that the investme nts acquired are of high yields. This implies the investments made are generating income for sustainability of pension fund. Moreover, the contribution density had also a positive and significant effect on return on assets of the pension fund in Tanzania. This leads to the conclusion that the contributions made are useful in improving the financial performance.

5.1. Recommendations

Based on the findings of this study, the following recommendations are made; first, the merged pension funds PSSSF and NSSSF should focus on increasing its contributions through increased registration of new members and put more efforts on timely collection of contributions from members. Second, more emphasis should be directed on investment projects that are expected to earn some reasonable returns. In order to achieve this, the pension funds should develop an investment strategy focusing at exploiting available investment opportunities that will generate returns and at the same time matching its liabilities to its assets or investments.

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REFERENCES

Adeoti, J. O., Gunu, U., & Tsado, E. (2012). Determinants of pension fund investment in Nigeria: The critical factors. International Journal of Human Resource Studies, 2(4), 1-13. https://doi.org/10.5296/ijhrs.v2i4.2505

Alda, M. (2017). The relationship between pension funds and the stock market: Does the aging population of Europe affect it? International Review of Financial Analysis, 49, 83–97. https://doi.org/10.1016/j.irfa.2016.12.008

Babalos, V., & Stavroyiannis, S. (2020). Pension funds and stock market development in OECD countries: Novel evidence from a pa nel VAR. Finance Research Letters, 34, 101247. https://doi.org/10.1016/j.frl.2019.07.020

Bank of Tanzania. (2018). Annual report 2017/18. Bank of Tanzania, 2 Mirambo Street 11884, Dar es Salaam. Retrieved from http://www.bot.go.tz

Bodie, Z., Detemple, J., & Rindisbacher, M. (2009). Life cycle finance and the design of pension plans. Boston University School of Management Research Paper Series No. 2009-5.

Bukuluki, P., & Mubiru, J. B. (2014). Thestatus of social security systems in Uganda: Challenges and opportunities. In (pp. 144). Kampala, Uganda: Konrad-Adenauer-Stiftung.

Chan-Lau, J. A. (2004). Pension funds and emerging markets. IMF Working Paper #WP/04/181.

Elliot and Wood ward. (2007). Statistical inferences, independent variables, dependent variables. Thousand Oaks, CA: Sage Publications,Inc. https://doi.org/10.4135/9781412985949.
Employee Benefit Research Institute. (2018). Retirement confidence survey. Washington, DC: Employee Benefit Research Institute.Field, A. (2009). Discovering statistics using SPSS (3rd ed.). London: Sage Publications Ltd.Gujarati, D. N. (2007). Basic econometric (4th ed.). New Delhi, India: Tata McGraw –Hill.Holzmann, R., Hinz, R. P., & Dorfman, M. (2008). Pension systems and reform conceptual framework. The World Bank, SP Discussion Paper # 0824.
Kigen, A. K. (2016). Effect of fund size on the financial performance of pension funds in Kenya. A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Science in Finance and Investment at KCA University.
Kyando, B. W. (2014). Contribution of pension funds in the development of capital markets in Tanzania. A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Business Administration of the Open University of Tanzania.
Maduhu, H. (2014). Analysis of social security schemes in Tanzania with response to the ILO social security (Minimum standards) convention, 1952. An Award of Master's Degree of Business Administration of the Open University of Tanzania.
Mkilalu, E. (2013). Corporate governance practices and investment performance: A case study of selected pension schemes in Tanzania. A Dissertation Submitted to the Faculty of Commerce in a Partial/Fulfillment of the Requirement for Award of the Degree of Masters of Science in Accounting and Finance, of Mzumbe University.
Munyambonera, E., Katunze, M., Munu, M. L., & Sserunjogi, B. (2018). Expanding the pension sector in Uganda. Economic Policy Research Centre (EPRC) Research Series No. 143. Kampala Uganda.
Ngetich, K. C. (2012). Determinants of the growth of individual pension schemes in Kenya. An Award of the Degree of Master of Business Administration, School of Business, University of Nairobi.
Oluoch, M. A. (2013). The determinants of performance of pension funds in Kenya. A Research Project Submitted in Partial Fulfillment of the Requirements for the Award of a Degree of Master of Business Administration, University of Nairobi.
Öztuna, D., Elhan, A. H., & Tüccar, E. (2006). Investigation of four different normality tests in terms of type 1 error rate and power under different distributions. Turkish Journal of Medical Sciences, 36(3), 171-176.
Pallant, J. (2005). SPSS survival guide: A step by step guide to data analysis using SPSS for windows (3rd ed.). New York: Open University Press.
Peat, J., & Barton, B. (2005). Medical statistics: A guide to data analysis and critical appraisal (1st ed.). Malden: Blackwell Publishing Ltd.
Raichura, S. K. (2008). Analytical review of the pension system in Kenya. Retrieved from http://www.oecd.org/daf/fin/private pensions/41564693.pdf Sabugo, N. Y. (2017). Determinants of investment income growth in the Tanzanian social security schemes: A case of social security schemes industry. Award of Master Degree of Business Administration in Corporate Management (MBA-CM) at Mzumbe University.
Saleem, A., Shabana, T., & Sadik, B. (2014). Holistic approach of research work. International Journal of Scientific and Research Publications, 4(7), 1-7.
Shola, E. (2013). Determinants of the growth of investment income of pensions fund schemes: The case of LAPFin Dodoma. Unpublished Dissertation Award of Degree of Master of Science in Economics Project Planning and Management of Mzumbe University.

Inequality in the appropriation of wealth generated between the richest and poorest municipalities in Brazil between 1999 and 2020

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ABSTRACT

This research aimed to show the evolution of the Gross Domestic Product (GDP) per capita of the poorest Brazilian municipalities, in relation to that observed in the country's richest municipalities in the period 1999-2020. The data used were: total GDPs; GDP per capita; and agricultural GDP. The data source was the Brazilian Institute of Geography and Statistics (IBGE). We indexed all values for 2020 using the General Price Index (GPI) of the Getúlio Vargas Foundation. Brazil's 5,570 municipalities were ranked in ascending order using annual GDP per capita, and organized into deciles. We selected the first decile, which included the 557 municipalities with the lowest GDP per capita, and the last decile, which included the 557 municipalities with the highest GDP per capita, for comparison purposes. We evaluated the evolution of the per capita GDP/total GDP ratio in these deciles. Geometric Growth Rates (GGR) were estimated in order to gauge the trends observed in these ratios between 1999-2020. The evidence showed that the magnitudes of GDP per capita observed in the tenth and first deciles are quite unequal. However, the study also showed that there was a small reduction in the evolution of the GDP per capita/total GDP between 1999-2020, which suggests a small reduction in inequality in the appropriation of wealth generated in Brazil over the period evaluated. It was also observed that in the richest deciles, the agricultural GDP/total GDP ratio was lower than that observed in the poorest deciles.

Keywords:*Absolute poverty Gross domestic productHuman capitalMinimum wagePoverty cycleRelative poverty.*

Contribution/Originality: Over a period of time, there have been no scientific studies comparing the GDP per capita of the poorest municipalities with that of the richest municipalities in Brazil, such as this study. There are also no studies showing that in Brazil's poorest municipalities, agricultural GDP has a greater share of total GDP.

1. INTRODUCTION

Brazil is known for its inequality in relation to the patterns of appropriation of the wealth generated and the development of its five regions, its 26 states, the Federal District, and its current 5570 municipalities. A small portion of its population enjoys standards of income and quality of life comparable to those observed in the world's most developed economies. However, when they do, the majority have access to income levels that significantly affect this population's quality of life. This results in some of the highest indicators of poverty and social exclusion in the country (Lemos, 2012).

In fact, the 5,570 municipalities have very different shares of both the total wealth generated and the per capita share. This is most pronounced in the North and Northeast regions, where the majority of municipalities have the lowest GDP, both total and per capita. This fact is manifested, among other reasons, by the human capital differential that prevails in the two poorest regions, compared to the

richest: Southeast and South (Barbosa & Lemos, 2019).

This phenomenon has manifested itself historically and has been a cause for concern for the country's rulers. Thus, the Legislative Branch created Law no. 185, which the then the President of Republic, Getúlio Vargas, sanctioned on January 14, 1936. Article 1 of the law established that "Every worker has the right, in payment for services rendered, to a minimum wage capable of satisfying, in a given region of the country and at a given time, their normal needs for food, housing, clothing, hygiene, and transportation" (Chamber of Deputies, 1936).

However, the seventh article of the law, which established the minimum wage, already establishes a difference in value based on the region:
Art. 7: For the purposes of this law, the country shall be divided into 22 regions corresponding to the 20 states, the Federal District, and the Territory of Acre. Each region shall have a wage commission headquartered in the capital of the state, the Federal District, and in that of the general government in the territory of Acre (Chamber of Deputies, 1936).In this way, the federal government established minimum wage differentials between Brazilian regions and states, penalizing the poorest, who were precisely in the North and Northeast of the country. However, the military government in Brazil unified the minimum wage throughout the country in May 1984.Complementary Law 103 allows states to set state floors higher than the national minimum.It is clear, therefore, that the creation of the minimum wage, first in a differentiated way between the Brazilian states and regions, and then in a unified way, constituted an attempt by the federal government to interfere in the purchasing power of the Brazilian population. An attempt that, unfortunately, has not materialized in practice, given that there are a huge number of municipalities whose populations have no income at all or survive on incomes below the minimum wage.

This research aims to show the evolution of GDP per capita in the poorest municipalities, in relation to that observed in the richest municipalities, between 1999 and 2020. The specific objectives of the study are a) To evaluate the variations in absolute and relative totals, as well as populations, in municipalities whose GDP per capita was at most one minimum wage per year between 1999 and 2020; b) To present the evolution of the ratio between the GDP per capita of municipalities belonging to the first decile (the one with the lowest GDP per capita) compared to those belonging to the decile with the highest GDP per capita; c) Present the variations in the ratio between GDP per capita and the minimum wage in the municipalities of the first and tenth deciles over the period analyzed; d) Evaluate the evolution of the shares of agricultural GDPs in relation to total GDPs in the first and last deciles over the course of the evaluation between 1999 and 2020; e) evaluate the evolution of the annual populations of the first and last deciles.

2. THEORETICAL BACKGROUND

This section provides a brief overview of the concept of poverty, which has various forms of me asurement. The concept of multifunctional poverty, which incorporates several variables, as well as the more restricted concept, which only considers aspects related to the appropriation of income, is the focus of this research. Additionally, we discuss the significance of the agriculture's sectors contribution to overall income. It is based on the premise that agriculture plays a more significant role in shaping the incomes of poorer economies. The aim of this research was to validate or refute this claim.

2.1. Poverty

The concept of poverty lacks a standardized and universal definition. It is possible, however, to state that it manifests itself in situations of deprivation, where individuals face difficulties in maintaining a basic standard of living according to the norms established in a given historical context (Lemos, 2012). The discussion of poverty must inevitably address a crucial factor that drives it, which is access to a minimum income that provides for the basic needs of individuals and families. Classical political economists not only recognized this interconnection, but also elevated it to the category of "the main problem of political economy."Their concern was with the reciprocal effects of the distributive profile on economic growth, i.e., the accumulation of wealth or capital (Carvalho & Souza, 2021).

According to the analysis of Barros, Henrique, and Mendonca (2000), Brazil is not an economically poor country but rather a nation that faces the significant presence of people in poverty. It is a country that has resources; however, their distribution is unequal, concentrated in the hands of a few, while the majority has limited access, including with regard to public goods and services, whose responsibility falls on the state.Neoclassical economists based their definition of poverty on the concept of utility, used as an indicator of an individual's general well-being. This perspective viewed well-being as a quantitative variable, directly and proportionally linked to an individual's income (Lago, 1990).

This neoclassical interpretation suggests that income growth is the key to eradicating poverty. In this line of thought, the theory argues that individuals and families have the capacity to overcome poverty by simply increasing the average individual or family income (Loayza, Fajnzylber, & Calderón, 2005).This analytical approach does not take into account that poverty is both a cause and a result of the wealth produced in the economic context. Therefore, an increase in income will not necessarily guarantee improvements in development standards, conceived as a generalized advance in social well-being (Human Development Report, 1994; Langoni, 1972).

From the perspective of interpreting the political or historical economy of poverty, solving this problem requires a change in social relations. This implies a transformation in the way and processes by which social groups acquire and retain control over productive, social, and environmental assets (Lemos, 2020; Veloso, Villela, & Giambiagi, 2008).This research uses the GDP per capita of the Brazilian municipalities used as observation units to measure poverty in aggregate terms. In this way, it is assumed that GDP per capita is a proxy for the average income of each municipality, and a relationship is made between this approximate average income and the minimum wage. As per capita GDPs are averages, the research will not be able to capture how they are distributed around the average, but it will show the populations of municipalities that have a certain level of average income. The research will also show the inequalities in the appropriation of GDP per capita between municipalities and will also show that municipalities where GDP per capita is below the annual minimum wage can be considered poor on average, in th e absolute sense.

2.2. Impact of Agricultural GDP on Total GDP as a Definition of Poverty

There is a debate among economics scholars in general and those specializing in rural economics in particular about the relative participation of the agricultural sector's GDP as an inducer of economic development. Evidence shows that, in the process of economic development, the relative share of agricultural GDP in the total GDP of a society (country, region, state, municipality, or village) tends to

decrease.

However, this decrease should be relative, and in absolute terms, the generated wealth share should increase over time. This trend is justified by considering the dynamics of economic development as a "moving train," where the locomotive that "pulls" the wagons would be represented by the urban-industrial sector, which includes the manufacturing and services segments. In this context, the "wagon" associated with wealth generation in the agricultural sector plays a supporting role. In this scenario, the agricultural sector is expected to be able to supply the raw materials and food demanded by the other segments that make up the development "train" efficiently, quickly, and at low costs.

To achieve this, the agricultural sector must have a comprehensive technological infrastructure and adequate equipment to ensure that the productivity of the land and other factors involved in agricultural production are efficient, both from a technical and economic point of view.The urban-industrial sector, as the "lever" of the development process, should be endowed with good equipment, advanced technologies, capital stock, and human capital (Solow, 1956).The dynamics of all productive sectors are quite complex. Vieira Filho and Silveira (2012) highlight the role of investments in generating technological innovations and technically and economically efficient combinations of inputs, which provide comparative and competitive advantages. But this is only possible if there is a qualified and vigorous workforce, from a health point of view (Becker, 1964; Schütz, 1962).Studies such as those by Johansen (2014); Larionova and Varlamova (2015) and Lee and Lee (2018), highlight the relevance of human capital by demonstrating that a more equal distribution of education contributes significantly to reducing income inequalities.

There are studies that show that the reduction of inequalities in income distribution may have been influenced by the improvement of human capital skills, and, reciprocally, improvements in income distribution affect the quality of human capital. This proposition had already been defended by Galor (2012), who showed both theoretically and through empirical evidence that income distribution has an impact on the formation of human capital and the dynamics of economic development.Therefore, it follows that economic growth and development in any sector must lead to an increase in the income of the populations involved. Thus, in the municipalities with the lowest GDP per capita, this is due to the low quality of the workforce in general, the low level of investment in productive capital and technology. In these cases, the rural sector generally exhibits low levels of productivity across all factors of production, particularly the workforce.

This is reflected in the total productivity differentials (Barbosa & Lemos, 2019). These deficiencies tend to be greater in the poorer municipalities, which are also poor because of this. Forming a vicious circle (Nurkse, 1953). In this search, which is based on the total GDP and GDP per capita of all Brazilian municipalities, it will not be possible to assess the role of human capital in these municipal income indicators. However, it is believed that the low quality of human capital, which is more prevalent in the poorest regions of Brazil (North and Northeast), was one of the factors influencing the differences in this variable in Brazilian municipalities.

3. MATERIAL AND METHODS

The research used secondary data on Brazilian municipal GDP, published by the Brazilian Institute of Geography and Statistics (IBGE), for the period between 1999 and 2020. The variables studied were: Total GDP, GDP per capita, Agricultural GDP and Population. The units of observation are the Brazilian municipalities existing in the period investigated. The research also used the annual values of minimum wages for each year. We corrected all the annual values using the General Price Index of the Getúlio Vargas Foundation (GPI) as an index, based on the year 2021.

When then corrected values in Brazilian reais (Brazilian currency) into US dollars using the average exchange rate for 2021 (R$5.5748/US$). During the studied period, Brazil saw an increase in the number of municipalities, with 5507 in 1999 and 2000; 5560 from 2001 to 2004; 5564 from 2005 to 2008; 5563 in 2009; 5565 from 2010 to 2012; 5570 from 2013 to 2018; 5568 in 2019 and 2020. We ranked the data for each year in ascending order based on GDP per capita. Below are the methodologies used to achieve each of the four research objectives.

3.1. Methodology to Achieve Objective "A"

In order to identify the absolute and relative totals of municipalities with a GDP per capita of no more than one annual minimum wage, adjusted to 2021 values, Brazilian municipalities were ranked in ascending order during the period studied, at five-year intervals.We obtained the annualized minimum wages for these years. Initially, all the municipalities per state and their respective populations that met this criterion were counted. Next, the total number of municipalities per state in the first and last deciles were counted, respectively, those with the lowest and highest GDP per capita, along with their respective populations that also met this criterion.

3.2. Methodology for Reaching the Second "B"

In order to demonstrate the evolution of the relationship between the GDP per capita of the first decile (the 10% of municipalities with the lowest values) and those in the last decile (made up of the 10% with the highest GDP per capita in Brazil) in the period from 1999 to 2020, the populations and GDP per capita of the first and last decile sof Brazilian municipalities over the historical series were evaluated.

When then used Equation 1 to estimate the instantaneous geometric growth rate of this ratio: using Equation

1:

$$Y_t = \beta . e^{(\rho T + \epsilon t)} \qquad (1)$$

In Equation 1, the linear coefficient has been transformed into a linear log. The constant "e" corresponds to natural logarithms base. The variable "T" represents time (T = 0, 1, ..., 21). The value T = 0 corresponds to the year 1999, T = 1 to the year 2000, and so on. The angular coefficient "ρ" is the derivative of the logarithm of Yt with respect to time [d(logYt / dT)], multiplied by 100, to express this value as a percentage, representing the instantaneous annual TGC of Yt. The random term "Єt", by assumption, meets the requirements of the classic linear model, which means that it has zero mean, constant variance, and is not autoregressive (Wooldridge, 2015).

If GGRis statistically greater than zero, this indicates that the variable Yt has grown at an annual rate defined by its estimated magnitude. If TGC is statistically less than zero, it means that there was a decrease in the ratio of the Yt variable during the period analyzed at an average annual rate defined by the magnitude of TGC. If TGC is not statistically different from zero, it suggests that the variable has remained stable over time.

3.3. Methodology for Measuring Objective "C"

To assess the annual evolution of the relationship between GDP per capita and the annualized minimum wage for each decile studied, the GDP per capita value was divided by the wage, transforming the result into a percentage. Subsequently, the GGRof this ratio is calculated, following the procedure indicated in Equation 1.

3.4. Methodology for Measuring Objectives "D" and "E"

In order to achieve this objective, the research sought to assess the annual variation in the share of agricultural GDP in relation to total GDP for each decile examined (first and tenth decile), as well as the populations corresponding to each decile. Agricultural GDP was divided by the total GDP of the municipalities, and the annual populations in the first and tenth deciles were calculated. To calculate the average of this ratio over the period, the Geometric Growth Rate (GGR) was used, as shown in Equation 1.

In Equation 1, the linear coefficient has been transformed into a linear logarithm. The constant "e" corresponds to the base of natural logarithms. The variable "T" represents time (T = 0, 1, ..., 21). The value T = 0 corresponds to the year 1999, T = 1 to the year 2000 and so on. The angular coefficient "ρ" is the derivative of the logarithm of Yt with respect to time [d(logYt / dT)], multiplied by 100, to express this value as a percentage, representing the instantaneous annual TGC of Yt. The random term "Єt", by assumption, meets the requirements of the classic linear model, which means that it has zero mean, constant variance, and is not autoregressive (Wooldridge, 2015).

If TGC is statistically greater than zero, this indicates that the variable Yt has grown at an annual rate defined by its estimated magnitude.

If TGC is statistically less than zero, this means that there has been a decrease in the proportion of the Yt variable during the period analyzed at an average annual rate defined by the magnitude of TGC. If TGC is not statistically different from zero, this suggests that the variable remained stable during the period.

3.5. Methodology for Measuring Objectives "D" and "E"

In order to achieve these objectives, the research sought to evaluate the annual variation in the share of agricultural GDP in relation to total GDP for each decile examined (first and tenth deciles), as well as the populations corresponding to each decile. We divided the agricultural GDP by the total GDP of the municipalities and calculated the annual populations in the first and the tenth deciles. In order to calculate the changes as well as the average rates of change in these ratios over the period, the instantaneous Geometric Growth Rate (GGR) over the period was estimated using Equation 1.

4. RESULTS AND DISCUSSION

Each of the set objectives will guide the presentation of the research results. This approach has been adopted by the document's authors to make it easier for readers to understand. However, before showing these results, the research evidence showed that between 1999 and 2020, the minimum wage in Brazil, in 2021 values, varied between US$1828.35 and US$3255.74, with an average value of US$2537.92 and a coefficient of variation of 19.6%. In the same period, inflation in Brazil, measured by the Getúlio Vargas Foundation's GPI, had a geometric growth rate (GGR) of 2.7%.

The minimum wage experienced GGR=3.0%. Therefore, between 1999 and 2020, there was a real gain in the purchasing power of the minimum wage in Brazil.

4.1. Results Found to Meet Objective "A"

Before analyzing the disparities between the deciles (poorest and richest), it is necessary to examine the quantitative evolution of the municipalities whose residents have a per capita income of up to one annualized minimum wage. We observed that the proportion of municipalities with an income of less than one annualized minimum wage remained at a minimum of 27.9% in 2000 and a maximum of 35.2% in 2006. The population for these years was approximately 25.03 million and 32.86 million, respectively, representing 14.61% of the Brazilian population in 2000 and 17.59% in 2006.

Among the states that had municipalities in this condition, Bahia stood out as having the largest absolute number of municipalities that met the criteria established for this objective, throughout all the years, reaching its peak in 2017, with 331 of its 417 municipalities (79.4%), whose GDP per capita was less than one minimum wage, and a population of 6.52 million inhabitants. This contingent represents 3.14% of the country's total population that year, and corresponds to 20.22% of the municipalities considered to be the poorest, those in the first decile.

Next in line was the state of Minas Gerais, which had 289 municipalities and a population of 2.74 million in the same year. In 2019, Maranhão had 85.25% (185) of its municipalities and a population of 4.93 million individuals with an average income of less than one annualized minimum wage. It should be noted that, proportionally, Maranhão is the state with the poorest municipalities in the country. Although the number of municipalities is relevant information, analyzing the size of the population in these conditions is even more important. To this end, Figure 1 illustrates the evolution of the population by state in specific years, and Table 1 shows this evolution by year. Thus, in 2020, there were 1656 (29.7%) municipalities whose GDP per capita was at most one minimum wage. These municipalities had 29.93 million inhabitants.

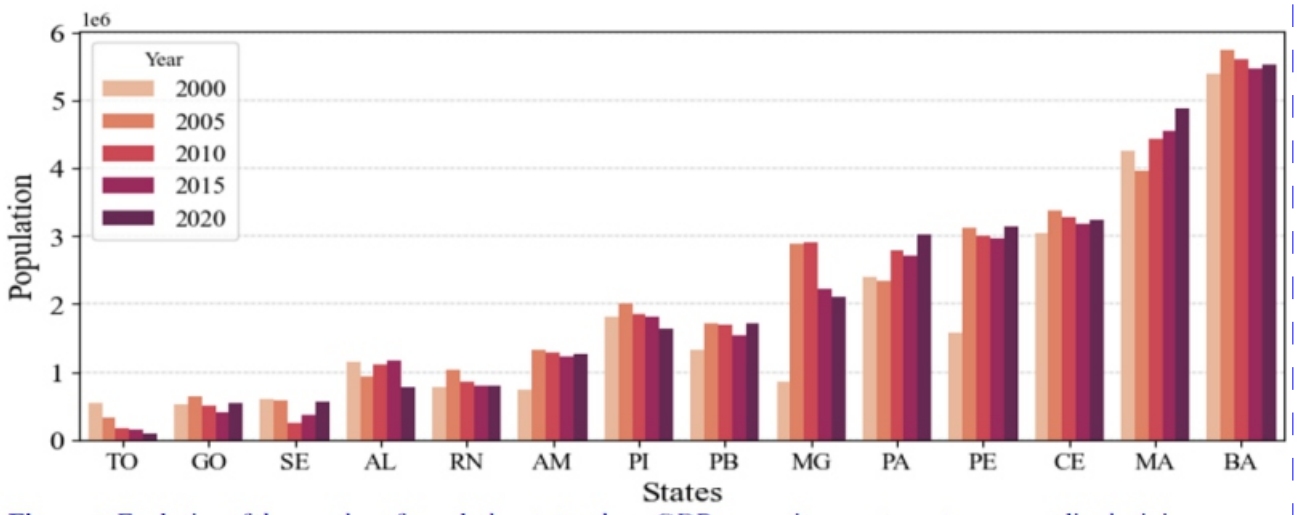


Figure 1. Evolution of the number of people, by state, whose GDP per capita was at most one annualized minimum wage.

Note: Legend: "1e6" is an abbreviated way of expressing a value in the order of millions. For example, 6 1e6 equals 6 million.
States of Brazil: Tocantins (TO), Goiás (GO), Sergipe (SE), Alagoas (AL), Rio Grande do Norte (RN), Amazonas (AM), Piauí (PI), Paraíba (PB), Minas Gerais (MG), Pará (PA), Pernambuco (PE), Ceará (CE), Maranhão (MA), Bahia (BA).

Source: Brazilian institute of geography and statistics(IBGE) data, various years.

Table 1. Evolution of the number of municipalities and their population whose GDP per capita was less than 1 minimum wage.

Year	Municipality	Absolute population*	Relative population**(%)
2000	1536	25033	14.60
2005	1861	30544	16.60
2010	1827	29973	15.70
2015	1712	28884	14.10
2020	1656	29939	14.10

Note: * Population in 1000 inhabitants; ** Proportion of the population living in municipalities whose GDP per capita was less than one annualized minimum wage in relation to the country's total population for the respective year.

Source: Prepared by the authors based on Brazilian institute of geography and statistics(IBGE) data, various years.

Figure 2:illustrates the distribution of municipalities by state in the first decile (where the poorest municipalities are) over the years studied. São Paulo, Goiás and Sergipe had only one municipality each, while Tocantins had 38 municipalities in 2000, down to 3 in 2005. Among the states portrayed, Maranhão, relatively, stood out with the highest number of municipalities with the lowest GDP per capita in the country, despite having experienced a decrease from 171 (in 2000) to 140 (in 2020). Piauí

also achieved a remarkable result, reducing the number of poor municipalities from 127 (in 2000) to 54 (in 2020). The states of Ceará, Amazonas, Alagoas, and Rio Grande do Norte showed no significant changes in the number of municipalities over the period analyzed. On th e other hand, Minas Gerais and Pernambuco saw an annual increase in the number of poor municipalities, reaching 31 and 51, respectively, in 2020. Paraíba, on the other hand, registered a notable increase, reaching 41 municipalities in 2020, more than double the number five years earlier.

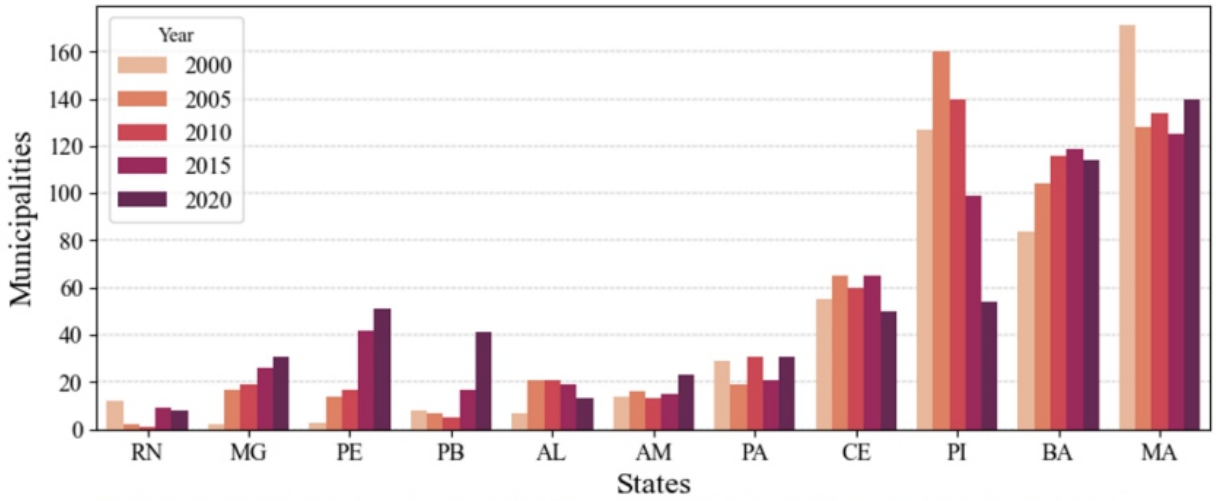


Figure 2. Evolution of the number of municipalities and states whose GDP per capita was in the first decile.
Source: Prepared by the authors based on Brazilian institute of geography and statistics(IBGE) data, various years.

Table 2:shows the populations trends over time for the municipalities with the lowest GDP per capita (first deciles) in each state. This gives an overview of the number of inhabitants occupying the most income -deprived municipalities in the country. As mentioned earlier, Maranhão is the state with the largest contingent of individuals living in municipalities with the lowest GDP per capita, followed by Bahia. In 2020, the population of Bahia living in the municipalities with the lowest GDP per capita represented 57.9% of the population of Maranhão living in that condition.Compared to 2000, the population surviving in the municipalities in the first decile in Pernambuco increased by 93.65%, in Minas Gerais by 94.44% and in Paraíba by 79.69%. On the other hand, the population of Rio Grande do Norte fell by 59.31%, and even Maranhão, by 16.62%.

Table 2. Evolution of the population (POP) of Brazil and municipalities per Brazilian state that were part of the first decile.

State	Population in 1000 inhabitants.				
	2000	2005	2010	2015	2020
Maranhão	3,709	2,392	2,707	2,551	3,181
Bahia	1,402	1,730	1,785	1975	1,841
Pernambuco	68	225	254	796	1,068
Ceará	985	1,223	1,103	1,321	1,009
Pará	942	415	907	555	928
Amazonas	266	361	247	457	640
Piauí	976	1,223	1,029	718	490
Paraíba	76	71	50	151	373
Minas Gerais	17	186	190	253	309
Alagoas	168	337	317	312	193
Rio Grande do Norte	127	20	10	85	80
Total (1)	8,736	8,183	8,599	9,174	10,112
Brazil POP. (2)	171280	184181	190585	204283	211587
%Relationship (1) / (2)	5.10%	4.44%	4.51%	4.49%	4.78%

Source: Brazilian institute of geography and statistics(IBGE) data, various years.

The results shown in Table 2 suggest that the resident populations in the first deciles grew from 8,736,000 to 10,112,000 inhabitants, an increase of 15.75%. This increase in the population of municipalities in the top decile in 2020 compared to 2019 and, why not, to other years, can be attributed to the COVID-19 pandemic, which led to the general impoverishment of the country and had an impact, above all, on the population of the poorest municipalities. There was probably a migration of populations from the upper deciles to the decile that grouped together the municipalities with the lowest GDP per capita.

Figure 3 illustrates the distribution of municipalities in Brazil's richest bracket (decile 10). It is important to note that states from the Southeast and South regions dominate this category. Since 2000, the state of São Paulo has held the lead, with 167 municipalities, but this number fell to 103 in 2020. Both Rio Grande do Sul and Rio de Janeiro showed a more significant drop in the number of municipalities. On the other hand, the states of Mato Grosso and Paraná recorded a substantial increase in the number of municipalities in this range over the period analyzed.

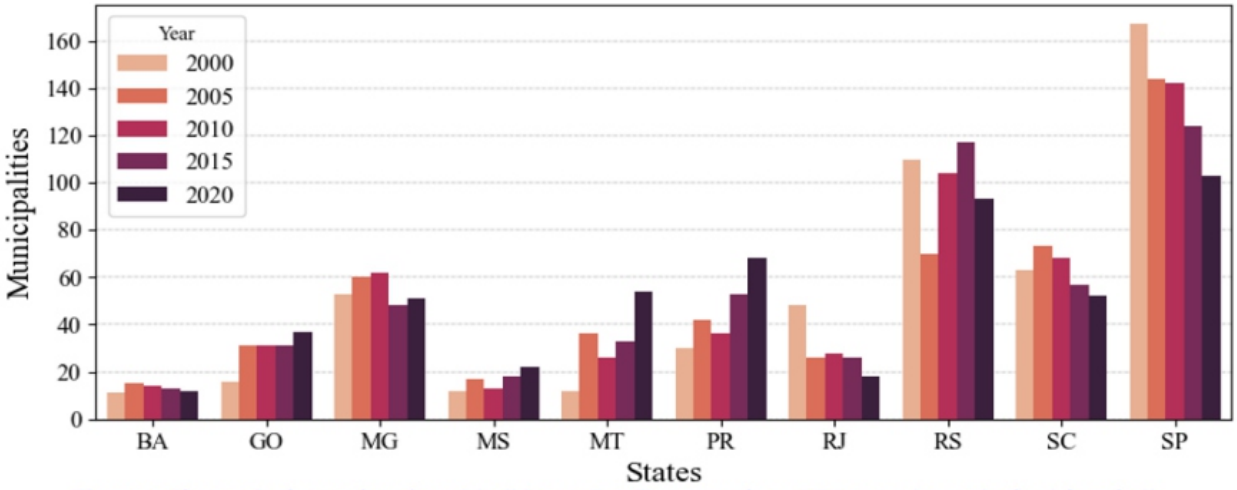
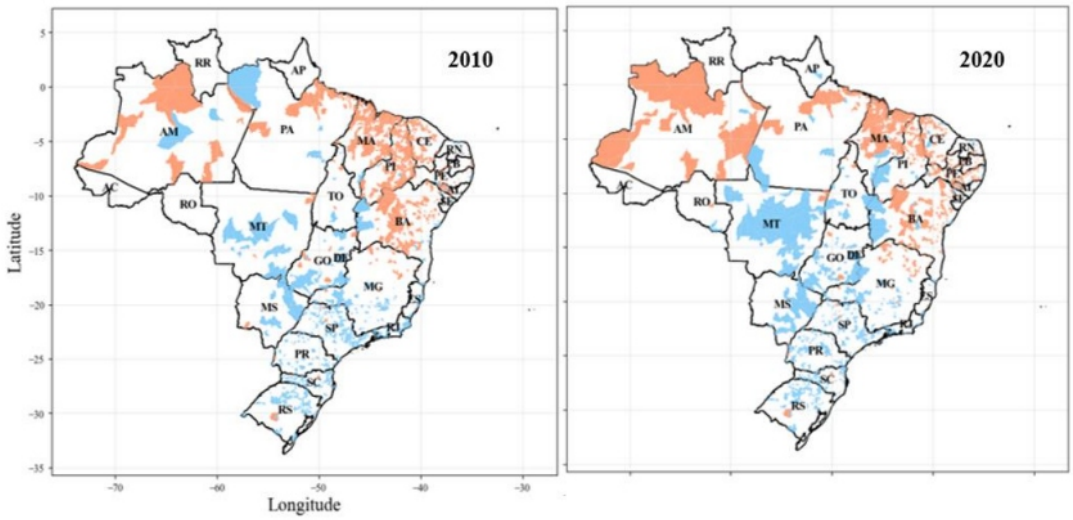


Figure 3. Changes in the number of municipalities per Brazilian state whose GDPper capita was in the richest decile.

Note: States of Brazil: Mato Grosso do Sul (MS), Mato Grosso (MT), Paraná (PR), Rio de Janeiro (RJ), Rio Grande do Sul (RS), Santa Catarina (SC), São Paulo (SP).

Source: Brazilian institute of geography and statistics(IBGE) data, various years.

Figure:illustrates the distribution, by state, of municipalities that were part of the first decile (in red) and those that were part of the last decile (in blue) in the years 2010 and 2020. As observed in this map which is confirmed in Figures 2 and 3, the municipalities remain concentrated in practically the same states (in the first and 10th deciles) over the years, with only the quantities varying.



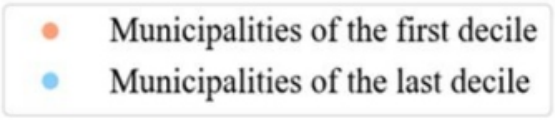


Figure 4. Distribution of municipalities by Brazilian state in 2010 and 2020, according to deciles.

Source: Based on the survey results in 2010 and 2020.

Table 3shows the changes in resident populations within the richest deciles municipalities and states during the survey years. As expected, the state of São Paulo leads the way with a significant number, exceeding 22.6 million people in 2020. Minas Gerais is in second place, with around 2.4 million, representing approximately 1/9 of São Paulo's population.

Table 3. Evolution of the population (POP) of the states with municipalities whose GDP per capita were in the richest decile.

States	Population in 1000 inhabitants				
	2000	2005	2010	2015	2020
São Paulo	23,025	26,296	27,479	25,640	22,608
Minas Gerais	3,029	3,000	6,322	3,321	2,445
Santa Catarina	1,892	2,771	3,278	3,247	2,042
Rio de Janeiro	8,735	9,139	9,980	10,466	1,933
Rio Grande do Sul	4,459	3,913	4,748	4,403	1,808
Paraná	1,096	4,005	3,559	4,018	1,651
Mato Grosso	168	1,124	639	781	1,253
Bahia	529	711	794	776	730
Goiás	174	644	1001	760	581
Mato Grosso do Sul	145	332	300	407	486
Total (1)	43,252	51,935	58,100	53,819	35,537
Brazil POP. (2)	171280	184181	190585	204283	211587
%Relationship (1) / (2)	25.25%	28.20%	30.49%	26.35%	16.80%

Source: Brazilian institute of geography and statistics(IBGE) data, various years.

The evidence shown in Table 3 suggests that between 2000 and 2020 there was a reduction of -21.71% in the populations living in the municipalities that were part of the tenth deciles, those with the highest GDP per capita. In this case, it was observed that the trajectory of the populations evolved between the years 2000, 2005, and 2010. In 2015, it already experienced a decline, which continued in 2020. The COVID-19 pandemic may have aggravated the decline in the populations of municipalities in the tenth decile in 2020, leading some of these populations to migrate to the lower deciles.

4.2. Results Found for Objectives "B"; "C" And "D"

Table 4 displays the result for these objectives. This table uses the following names for the variables: D1 refers to the first decile of municipalities, those with the lowest GDP per capita in each of the years observed. The variables PERD1t and PERD10t, respectively, refer to the GDP per capita of the first decile and the last decile in the t th year. The variable MWt refers to each year's minimum wage. The GDPD1t and GDPD10t variables, respectively, refer to the total annual GDP of the municipalities in the first and last decile. The variables POPD1t and POPD10tquantify the populations observed annually in the first and tenth deciles, respectively. Finally, the GDPAGRD1t and GDPAGRD10t variables, respectively, quantify the agricultural GDP recorded in the first and last decile each year.

Table 4. Results found for estimating the geometric growth rates.

Variable	Constant		Geometric rate of growth		
	Value	Sign	Value	Sign	Adjust R^2
GDP_{D1t} / GDP_{D10t}	-4.44	0.000	0.019	0.000	0.640
PER_{D1t}/PER_{D10t}	-2.55	0.000	0.017	0.000	0.956
$PER_{D1}t/MW_t$	-0.63	0.000	0.006	0.000	0.750
PER_{D10t}/MW_t	1.92	0.000	-0.010	0.000	0.852
$GDPAGR_{D1t}$ / GDP_{D1t}	-1.46	0.000	-0.035	0.000	0.974
$GDPAGR_{D10}t/GDP_{D10t}$	-3.80	0.000	-0.007	0.487	0.156
POP_{D1t}	15.91	0.000	0.007	0.000	0.709
POP_{D10t}	17.80	0.000	0.004	0.297	0.232

Note: Gross domestic product (GDP), Minimum wage (MW), Agricultural gross domestic product (GDPAGR), Gross domestic product per capita (PER).
Source: Brazilian institute of geography and statistics (IBGE), various years.

4.2.1. Results Found to Achieve Objective "B"

From the results presented in Table 4 and Figure 5, it can be inferred that, over the period investigated (1999 to 2020), there has been an evolution in the ratio between the total GDP of the top decile and the bottom decile.

This ratio progressed at an average annual rate of 1.9%. This indicator suggests that, in aggregate terms, there has been a reduction in inequalities in the generation of wealth between the 10% of municipalities with the lowest totalGDP compared to the 10% that had the highest volume of wealth generated in the period evaluated.

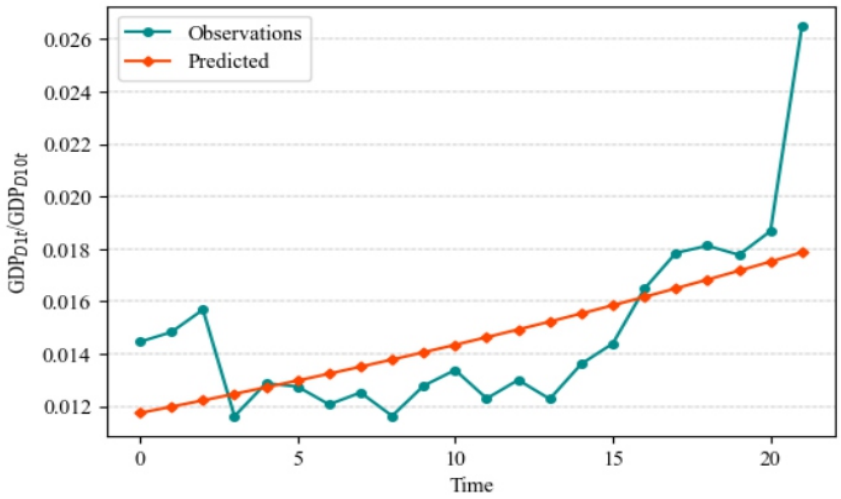


Figure 5. Geometric growth rate of the ratio between total GDP in the first and last decile.
Source: IBGE data, various years.

The ratios between the GDP per capita of the municipalities in the bottom decile and those in the top decile also rose at an average annual rate of 1.7% per year. This suggests a reduction in inequalities between the two groups of municipalities (Table 4 and Figure 6).

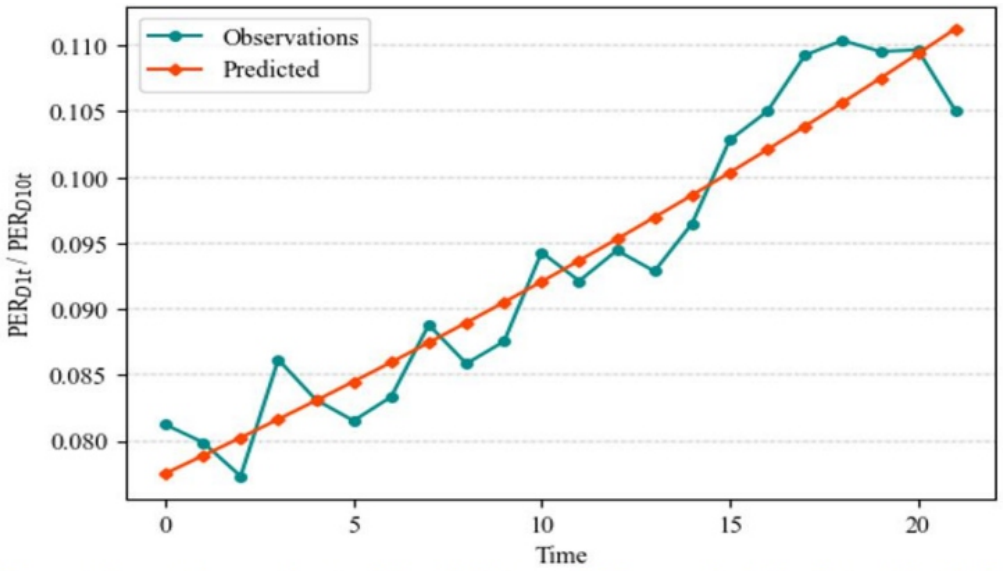


Figure 6. Geometric growth rate of the ratio between GDP per capita in the first and last decile
Source: IBGE data, various years.

4.2.2. Results Found to Achieve Objective "C"

The results presented in Table 4 show that the relationship between the GDP per capita of the municipalities positioned in the first decile and the annualized minimum wage experienced a modest increase of 0.6% per year over the period studied. This suggests that, on average, these incomes in the municipalities in the first deciles were above the minimum wage adjustments. As the annual adjustments to minimum wages tak e inflation in the previous year, it can be seen that the GDP per capita of these municipalities experienced a slight improvement in purchasing power over the period evaluated (Table 1 and Figure 7).

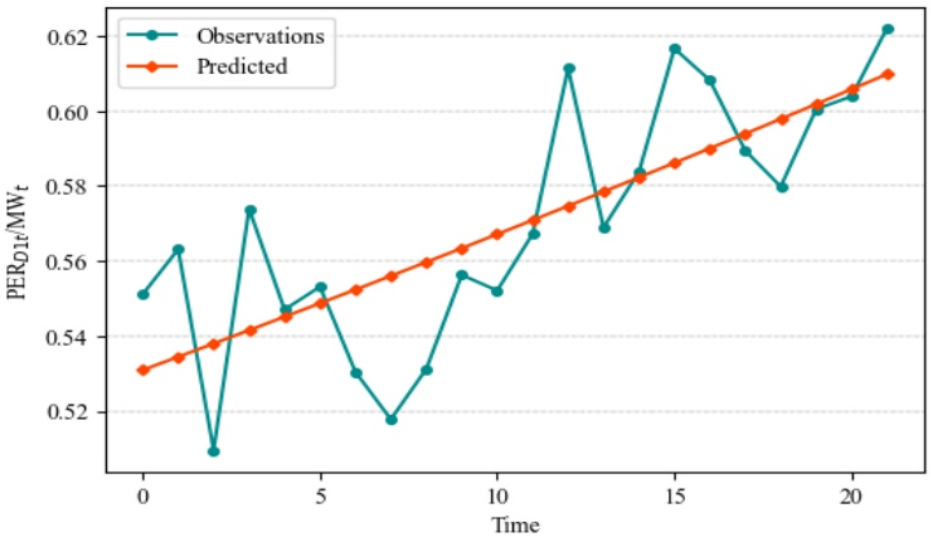


Figure 7. Geometric growth rate of the ratio between GDP per capita and minimum wage in the first decile.
Source: IBGE data, various years.

The municipalities in the richest deciles (deciles 10) saw an average annual decline in GDP per capita of 1.0%. This result suggests that there was a slight drop in the average purchasing power of the income of the populations living in the municipalities in this group (Table 1 and Figure 8).

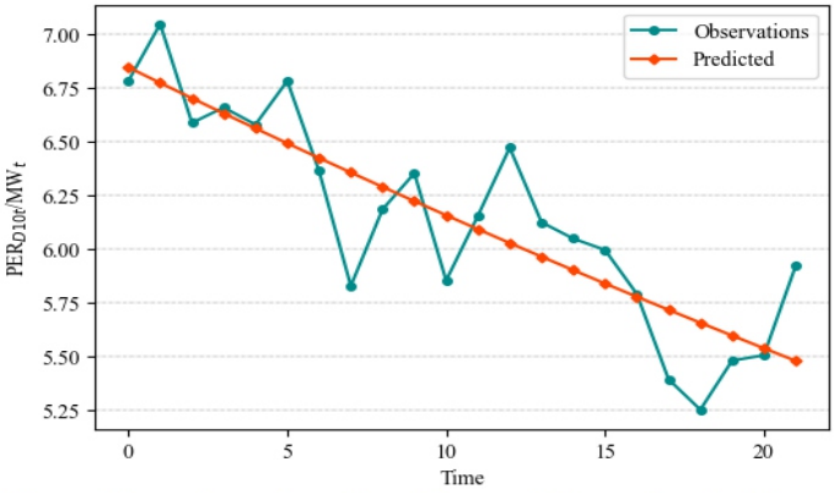


Figure 8. Geometric growth rate of the ratio between GDP per capita and minimum wage in the tenth decile.
Source: IBGE data, various years.

4.2.3. Results Found to Achieve Objective "D"

To this end, the study sought to evaluate the annual evolution of the share of agricultural GDP in relation to total GDP for each decile studied (first and tenth decile). In the first decile, the average share of agricultural GDP in total GDP during the studied period was 16.3%, ranging from a minimum value of 11.0% to a maximum value of 23.5% with a CV of 24.3%. In the tenth decile, the average share of agricultural GDP/total GDP ranged from 1.3% to 4.2%, with an average of 2.2% and CV=34.1%. Therefore, as expected, the relative shares of agricultural GDP in total GDP are much higher and more stable in the first decile than in the tenth decile.The results shown in Table 4 suggest that in both deciles there was a drop in the agricultural GDP/total GDP ratio. However, this drop was much more significant in the municipalities that were part of the first deciles (3.5% per year) than in those grouped in the richest decile (0.7% per year).

We can assume that the sharper drop in the municipalities belonging to the first decile is due to the fact that the most of the municipalities are located in the Northeast. In 2010 and between 2012 and 2017, there was a period of drought, which possibly led to a reduction in agricultural production in practically all the municipalities in this region (Table 4 and Figure 9).

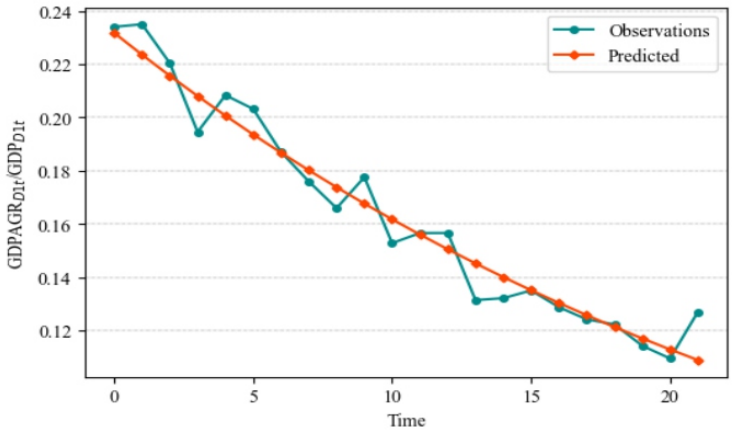


Figure 9. Geometric growth rate of the ratio between agricultural GDP and total GDP in the first decile.
Source: IBGE data, various years.

4.2.4. Results Found to Achieve Objective "E"

The aim was to show the average annual evolution of populations in the first and last deciles. It can be seen that the populations observed in the first decile experienced a GGR of 0.7% per year, slightly higher than that estimated for the populations in the tenth decile where the GGR was 0.4% per year.These results suggest that, over the 22 years evaluated, there was an average increase in the populations of thelowest-income municipalities. The government's special programs implemented in the country during the evaluated period provide the largest transfers to these municipalities. This suggests that these transfers were unable to reduce or, at least, contain the population contingents of Brazil's lowest-income municipalities between 1999 and 2020 (Table 4 and Figure 10).

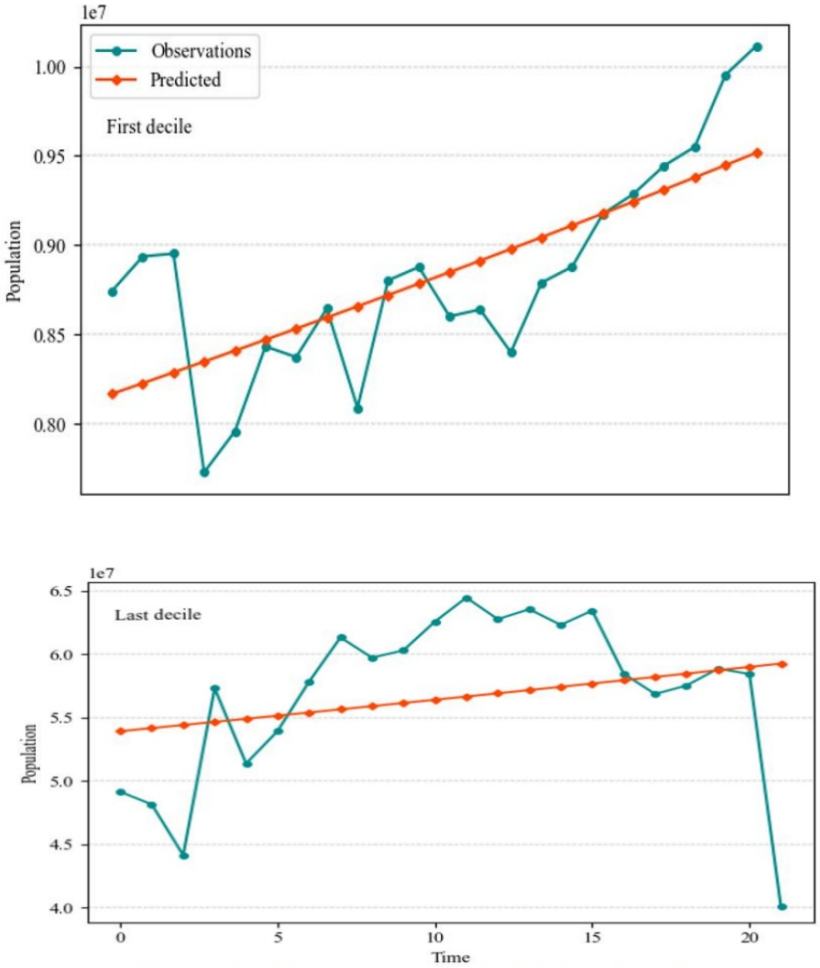


Figure 10. Geometric growth rate of populations in the first and last decile.

Note: '1e7' is a shortened way of expressing a value in the tens of millions. For example, 6 1e7 is equivalent to 60 million.

Source: Prepared by the authors based on IBGE data, various years.

5. CONCLUSIONS

The evidence found by the research confirmed the existence of two Brazils, in terms of the appropriation of wealth generated in their municipalities, as was the assumption that anchored this research. These results confirmed that the vast majority of municipalities with the lowest total GDP and the lowest GDP per capita are located in the states that are part of the North and Northeast regions of Brazil. On the other hand, the municipalities with the highest total GDP and highest GDP per capita are located predominantly in the Southeast and South regions of Brazil. The percentage of municipalities and populations whose GDP per capita is less than the minimum wage ranged from 14.10% to 16.6%, with

populations representing between 4.4% and 5.1% of the Brazilian population between 1999 and 2020. Despite the disparities between total GDP and GDP per capita observed in the first and last deciles, the research showed that the ratios of both, both in the first and last deciles, showed a downward trend over the period analyzed, which means a slight drop in inequalities between the municipalities with the highest wealth in relation to those with the lowest wealth. The research indicates a slight annual increase of 0.6% in GDP per capita in the first decile in relation to the minimum wage. Given the positive growth of the minimum wage, we can conclude that these municipalities saw average gain in wealth accumulation per person. On the other hand, a decrease (-1.0%) in this ratio was observed in the municipalities of the tenth decile, the wealthiest ones. The research confirms that in the poorest municipalities, the share of agricultural GDP in total GDP is much higher, although there has been a downward trend in this ratio, especially since 2010. This is because that year and the years from 2012 to 2017 saw drought in the Northeast, where most of the municipalities with the lowest GDP per capita are located. The general conclusion of the research is that, between 1999 and 2020, there was a reduction in the populations inhabiting the decile where the municipalities with the highest GDP per capita were located, consequently a greater concentration of the wealth generated in that group of municipalities, and an increase in the populations where the municipalities with the lowest GDP per capita were located, therefore an increase in the number of poor people, in the relative sense, in Brazil between the years 1999 and 2020.

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REFERENCES

Barbosa, V. S., & Lemos, J. J. S. (2019). Human capital differentials induce inequalities in labor productivity differentials between Brazilian states. Development Under Debate, 7(2), 11-27.

Barros, R. P., Henrique, R., & Mendonca, R. (2000). Inequalities and poverty in Brazil: Portrait of unacceptable stability. Texts for Discussion (No. 800). Rio De Janeiro.

Becker, G. S. (1964). Human capital: A theoretical and empirical analysis, with special reference to education. Chicago: University of Chicago Press.

Carvalho, A. R. D., & Souza, L. R. (2021). The conceptual evolution of inequality and poverty in economic thought. Brazilian Journal of Political Economy, 41, 402-425. doi:https://doi.org/10.1590/0101-31572021-3142

Chamber of Deputies. (1936). Law No. 185, of January 14, 1936. Retrieved from https://www2.camara.leg.br/legin/fed/lei/1930-1939/lei-185-14-janeiro-1936-398024-publicacaooriginal-1-pl.html#:~:text=Institue%20as%20comiss%C3%B5es%20de%20sal%C3%A1rio%20m%C3%ADni

moGalor, O. (2012). Inequality, human capital formation and the process of development. IZA Discussion Papers No. 6328.

Human Development Report. (1994). A program for the world summit on human development. Retrieved from http://hdr.undp.org/en/reports/global/hdr1994

Johansen, A. L. (2014). The effect of human capital on income inequality: An econometric analysis.

Copenhagen: Copenhagen Business School.
Lago, L. (1990). The resumption of growth and the distortions of the "Miracle": 1967-1973. In.: ABREU, MP (Org.), The Order of Progress: one hundred years of republican economic policy. In (pp. 233-295). São Paulo: Campus.Langoni, C. G. (1972). Income distribution and economic development in Brazil. Estudos Econômicos (São Paulo), 2(5), 5-88.
Larionova, N. I., & Varlamova, J. A. (2015). Analysis of human capital level and inequality interrelation. Mediterranean Journal od Social Sciences, 6(1), 252-255.
Lee, J. W., & Lee, H. (2018). Human capital and income inequality. Tokyo: Asian Development Bank Institute.Lemos, J. D. J. S. (2020). Vulnerabilities induced in the semi-arid region. Fortaleza: Imprensa Universitária.Lemos, J. J. S. (2012). Map of social exclusion in Brazil: X-ray of an asymmetrically poor country (2nd ed.). Fortaleza: Banco do Nordeste do Brasil.
Loayza, N., Fajnzylber, P., & Calderón, C. (2005). Economic growth in Latin America and the Caribbean. Washington, D.C: The World Bank.
Nurkse, R. (1953). Problems of capital formation in underdeveloped countries. Oxford: Oxford University Press.
Schütz, A. (1962). The problem of social reality: Collected papers I. The Hague: Martinus Nijhoff.
Solow, R. M. (1956). A contribution to the theory of economic growth. The Quarterly Journal of Economics, 70(1), 65-94.
Veloso, F. A., Villela, A., & Giambiagi, F. (2008). Determinants of the Brazilian economic "miracle" (1968-1973): An empirical analysis. Revista Brasileira De Economia, 62, 221-246. doi:https://doi.org/10.1590/s0034-71402008000200006
Vieira Filho, J. E. R., & Silveira, J. M. F. J. (2012). Technological change in agriculture: Acritical review of the literature and the role of learning economies. Revista de Economia e Sociologia Rural, 50(4), 721-742. doi:https://doi.org/10.1590/s0103-20032012000400008
Wooldridge, J. M. (2015). Introductory econometrics: A modern approach - standalone book (6th ed.). USA: Cengage Learning.

The influence of entrepreneurial orientation on business performance of SMEs: Evidence from Kathmandu, Nepal

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A B S T R A C T

The purpose of the study was to investigate the impact of entrepreneurial orientation comprising autonomy, innovation, networking, and pro-activeness on business performance in Nepalese context. The literature of entrepreneurial orientation concerning to business performance depicted distinct directions with divergent and unsettled evidences. This research was conducted to address the research objective and for testing hypotheses. Thus, this study employed a descriptive and causal-comparative research approach, through cross-sectional data to gather information from participantsto address research issues and objectives. A structured questionnaire of total 425 adopting the convenience sampling technique distributed among the targeted respondents in Kathmandu and received only 410 useful questionnaire for analysis. The findings of the study revealed that entrepreneurial orientation comprising autonomy, innovation, networking, and pro-activeness behavior found positively associated with the business performance of small and medium enterprises (SMEs) in Kathmandu, Nepal. There was a positive impact of entrepreneurial orientation on SMEs' business performance. It showed that better entrepreneurial orientation leads towards better business performance. This research contributes for better understanding of the association between entrepreneurs' orientation and business performance with their effect for business performance. This study establishes significant benchmark to a number of stakeholders consisting entrepreneurs, educators, academic institutions, regulators, and policymakers for a better understanding and optimum execution of the research outcomes to prepare effective policies for entrepreneurship development.

Keywords:*AutonomyBusiness performanceEntrepreneurial orientationInnovationNetworkingPro-activenessSMEs.*

Contribution/Originality: This study extends the significant contribution to the currently existed literature by examining the impact of entrepreneurial orientation on business performance.

1. INTRODUCTION

A crucial element for the success of an organization is its entrepreneurial mindset (Majali, Alkaraki, Asad, Aladwan, & Aledeinat, 2022). In addition, in the current economic climate, enhancing a firm's performance through entrepreneurial orientation (EO) has gained significant importance. Despite the generally positive results on the relationship between entrepreneurial orientation (EO) and company performance, scholars have emphasized the significance account for and managing abilities well (Ferreras-Méndez, Olmos-Penuela, Salas-Vallina, & Alegre, 2021). In particular, the small and medium-sized enterprise (SME) sector is crucial for the economic development of a country. Small and medium-sized firms (SMEs) have a significant influence on the employment and other economic prosperity of many countries worldwide (Ayyagari, Beck, & Demirguc-Kunt, 2007; Kusa, Duda, & Suder, 2021). Additionally, entrepreneurial intention is the cognitive state in which individuals concentrate their attention, acquire pertinent experience, and engage in activities related to a business

idea. This concept is intricately connected to how individuals view entrepreneurial prospects and subsequently make the decision to initiate a company venture (Bird, 1988; Hu et al., 2023; Thompson, 2009). On the other hand, entrepreneurial orientation refers to a company's inclination to aggressively seek out and capitalize on new market opportunities, as well as rejuvenate established business areas. This is demonstrated via qualities such as a willingness to take risks, actively exploiting market chances, and fostering innovation (Daradkeh & Mansoor, 2023; Roh, Park, & Xiao, 2022).

Specifically, in Nepal, a small industry classified as an industry with a fixed capital of no more than one hundred fifty million rupees, excluding micro companies and cottage industries. Conversely, a medium-sized industry in Nepal characterized as an industry with a fixed capital that surpasses one hundred fifty million rupees but does not exceed five hundred million rupees (Industrial Enterprises Act, 2020). Small and medium-sized businesses' (SMEs) increasing numbers reflected in their expanding contribution. Nepal has tremendous number of small industries with a total capital of NPR 21,457.42 million as of the fiscal year 2022–2023. These industries employed 8,929individuals in the country. During the same fiscal year, there were 70 medium-sized industries that were officially recorded, with a collective capital amounting to rupees 33,483.85. During that year, these industries generated employment for a total of 6,303 workers (Industrial Statistics, 2022).

Dynamic environmental circumstances found linking to enterprises and provide a fluctuating business atmosphere, which raises concerns about their long-term viability. An organization's creative and proactive tendencies, in particular, reflected in its entrepreneurial orientation. To improve their position in the market, small and medium-sized businesses (SMEs) need to exhibit innovation by developing new goods, services, and procedures. In addition, there must be exhibition of a superior degree of proactivity relative to their rivals in every domain and demonstrate a willingness to undertake risks (Arshad, Rasli, Arshad, & Zain, 2014; Muenjohn & Armstrong, 2008). Next, the degree to which a person is independent and flexible in choosing the manners and scheduling of their job responsibilities referred to as their level of autonomy, and it is crucial to the functioning of an organization. Independence reduces work-family conflicts by providing individuals with greater autonomy over their work and increased capacity to handle diverse work demands (Breaugh, 1985; Zakhem, Farmanesh, Zargar, & Kassar, 2022). However, there is no substantial correlation between autonomy and corporate performance (Fairoz, Hirobumi, & Tanaka, 2010; Kraus, Rigtering, Hughes, & Hosman, 2012). Liu and Lee (2015) found no statistically significant correlation between innovativeness, pro-activeness, total entrepreneurial orientation, and success and profit (Liu & Lee, 2015).

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Importantly, it is often known that innovation is essential to a company's long-term viability. Research on innovation's beneficial effects on business performance is consistently strong, showing that it increases market share, boosts productivity, boosts sales, and increases profitability (Al-Ansari, Pervan, & Xu, 2013; Hilman & Kaliappen, 2015; Jiménez-Jiménez & Sanz-Valle, 2011; Saunila, 2014; Wahyuni & Sara, 2020). A relationship between innovation and the success of small and medium-sized businesses was established (Anjaningrum, Azizah, & Suryadi, 2024). Conversely, business performance and innovation are not highly correlated (Fairoz et al., 2010; Kraus et al., 2012). According to another study, pro-activeness, innovation, and a general entrepreneurial mindset do not significantly correlate with business performance and profit (Liu & Lee, 2015).

In a similar manner, the next critical component of the organization is networking orientation, which is commonly seen as a strategic position for controlling entrepreneurial behavior. Startups are characterized by their scarcity of resources, poor organizational design, and difficulties in gaining traction in the market. Therefore, proactive network building and maintenance helps mitigate the high costs of resource acquisition for startups, which stem from their natural weaknesses—being small, young, and lacking in credibility—as well as the difficulties they face in obtaining market resources (Daradkeh & Mansoor, 2023; Seo & Park, 2022). Similarly,network entrepreneurial orientation refers to the encouragement of collaborative routines and actions that create opportunities for networked companies. This is achieved by fostering joint participation in proactive initiatives aimed at developing innovations and undertaking risky projects. It entails the efficient use and blending of fresh resources (Monferrer, Moliner, Irún, & Estrada, 2021; Wincent, Thorgren, & Anokhin, 2014). By contrast, there is insufficient empirical evidence to suggest that networking orientation has a substantial impact on corporate performance (Fairoz et al., 2010; Kraus et al., 2012) and pro-activeness, innovation, and general entrepreneurial orientation do not significantly correlate with success or profit (Liu & Lee, 2015).

Moreover, organizations that are proactive can obtain a competitive advantage by being the first to act in the market (Astrini et al., 2020; Ferrier, Smith, & Grimm, 1999). Nonetheless, the lack of a meaningful correlation with business performance was demonstrated by a few empirical findings (Fairoz et al., 2010; Kraus et al., 2012) and found little evidence of a connection between overall entrepreneurial orientation, proactivity, and innovation with success and profit (Liu & Lee, 2015).

In general, company performance is a crucial element of strategic company management. It is an essential component of all company activities conducted by managers in their endeavor to expand the business (Srimulyani, Hermanto, Rustiyaningsih, & Waloyo, 2023). Additionally, SMEs need an entrepreneurial mindset to prosper since economies depend on entrepreneurship. SMEs are vital to many nations' growth, especially emerging economies. Globalization reduces economies of scale, helping SMEs grow (Alam et al., 2022). Furthermore, in emerging countries, SMEs encounter volatile surroundings and weak institutions. Entrepreneurial orientation links to growth, competitiveness, and success. Empirical research demonstrates entrepreneurial orientation enhances business performance. Entrepreneurship fosters firm competitiveness, growth, and performance. Entrepreneurial orientation and business performance have found association in a number of studies (Lumpkin & Dess, 1996). In

addition, entrepreneurship and corporate performance involve innovation, risk-taking, and proactivity. Small and medium-sized firms must encourage entrepreneurship and an entrepreneurial mindset. SME success requires innovation, proactivity, and risk-taking. Companies need entrepreneurial activity to stay competitive in today's complex global economy (Adam, 2018).

In the context of Nepal, Paudel (2019) studied the relationship between business performance, environmental dynamism, organizational innovation, and entrepreneurial leadership in the context of business performance, a study on the competitive advantage, entrepreneurial orientation, and performance of women-owned businesses in Nepal's Gandaki Province was carried out by Bhandari and Amponstira (2021). Researchers Dahal and Krisjanti (2021) used innovativeness, pro-activeness, risk-taking, autonomy, competitive aggressiveness, access to financing, and export intention to examine the impact of individual entrepreneurship orientation on export intention in micro and small enterprises. The study discovered that only autonomy had a positive and significant effect on export intention, and a study on the use of entrepreneurial marketing in micro, small, and medium-sized businesses in Dhaulagiri, Nepal (Gyanwali & Bunchapattanasakda, 2019). An evaluation of the 4D SME entrepreneurial marketing model reflected that as carried out by Gyanwali, Gyanwali, and Yadav (2022) from the viewpoint of Nepalese SMEs.

However, few comprehensive studies have been conducted to investigate the relationship between small and medium-sized firms' (SMEs) business performance in Kathmandu and their entrepreneurial orientation (EO). Moreover, the relationship between entrepreneurial orientation and business performance has been the subject of conflicting study in the past; whilst some studies have found a positive link, others have found no correlation at all, or even a negative correlation (Koirala, 2019). Hence, it is essential to investigate the relationship between small and medium-sized businesses' (SMEs) business performance in Kathmandu and entrepreneurial orientation in order to have a deeper understanding of the relationship between entrepreneurial orientation and company performance.

Therefore, the aim of this research is to examine the relationship between small and medium-sized firms' (SMEs) business performance and their entrepreneurial orientation in Kathmandu, Nepal. The study concentrates on the independent variables of autonomy, innovation, networking, and pro-activeness, while measuring the dependent variable of SMEs' business success. The remaining chapter of the research structured into the following segments: a literature review that encompasses both theoretical and empirical perspectives. Data and methodology, results, and findings, conclusion and discussion, and limitation, and future research.

2. LITERATURE REVIEW

2.1. Theoretical Literature Review

2.1.1. Entrepreneurship

Although the term "entrepreneurship" has been around for a while, no one can agree on exactly what it means. (Williams, Wood, Mitchell, & Urbig, 2019). The literature covers a wide range of topics, but the most common themes include wealth, enterprise, innovation, change, employment, value, and growth. A uniform definition foundpreferred by recent efforts. Morris, Schindehutte, and LaForge (2002) discovered 18 terms that defined as entrepreneurship and used at least five times in pertinent literature.

Later on, Stevenson and Jarillo (2007) the process of generating value by assembling a special set of resources to take advantage of a chance is known as entrepreneurship," which encompasses all the important terms they discovered during their investigation. Regardless of size or age, entrepreneurial behavior seen in both newly created companies and well-established ones (Kraus et al., 2012). Business entrepreneurship, entrepreneurial orientation, and intrapreneurship are some of the phrases used to describe the entrepreneurial activities of well-known and established businesses (Antoncic & Hisrich, 2004). The term "entrepreneurial orientation" refers to the methods, approaches, practices, and dispositions that promote the introduction of new or preexisting products or services into markets (Walter, Auer, & Ritter, 2006).

Rauch, Wiklund, Lumpkin, and Frese (2009) carried out a meta-analysis in a recent study to investigate the relationship between business performance and entrepreneurial orientation. They found a strong and positive relationship between business performance and entrepreneurial orientation, based on a review of 51 articles. Further study studies also carried out in the Netherlands by Stam and Elfring (2008). Kemelgor (2002) carried out a comparative analysis of the differences in entrepreneurial orientation between American direct competitors and Dutch companies. The findings showed particularly for US-based businesses, there was a direct relationship between entrepreneurial orientation and every performance metric they looked at, such as the quantity of new ideas, the number of patents obtained, and the return on sales.

2.1.2. Individual Entrepreneurial Orientation (IEO)

Miller (1983) stated that entrepreneurial orientation encompasses the strategies, tactics, behaviors, and mindsets that encourage the launch of new or already-existing goods and services onto the market which contributed significantly to its continued promotion. In a later study, Lumpkin and Dess (1996) expanded on the idea of entrepreneurial orientation by presenting a thorough five-dimension framework. The characteristics of proactivity, risk-taking, inventiveness, autonomy, and competitive aggression are all included in the paradigm. Scholars have progressively come to see entrepreneurial orientation as a factor that affects a company's success at the business level (Grande, Madsen, & Borch, 2011; Hafeez, Siddiqui, & Rehman, 2011). The market and brand performance of small and medium-sized businesses in Hungary were found to benefit from entrepreneurial orientation (Reijonen, Hirvonen, Nagy, Laukkanen, & Gabrielsson, 2015).

In recent years, proposed by researchers that entrepreneurial orientation may be viewed as a construct at the individual level (Robinson & Stubberud, 2014). Companies are now able to look at entrepreneurial orientation from new perspectives because to this approach. Research indicates that individual entrepreneurial orientation (IEO) is a multifaceted entity with elements resembling firm-level entrepreneurial orientation. The understanding of IEO as a personal EO has changed in consequences of the studies mentioned above. Most pay attention to performance and IEO. Individual IEO influences a person's behavior and mindset about vendor orientation, hence research is essential (Koe, 2016).

2.1.3. SMEs Business Performance

The relationship between business performance and entrepreneurial orientation may vary depending on the study's indicators (Hughes & Morgan, 2007; Lumpkin & Dess, 1996). Recently, many markers have used in empirical research. In order to evaluate performance, three areas typically found in use:

perceived non-financial, perceived financial, and historical financial. Based on the meta-analysis, there was no change in the relationship between entrepreneurial approach and performance and perceived financial, non-financial, or archival financial performance. Corporate performance and an entrepreneurial orientation are positively correlated, according to numerous studies (Hughes & Morgan, 2007; Lumpkin & Dess, 1996). Different markers found employed in empirical studies. Historically, three categories employed to assess performance: perceived non-financial, perceived financial, and historical financial. The meta-analysis revealed no shift in the association between perceived financial, non-financial, and archival financial performance and entrepreneurial orientation and performance. According to several research, there is a positive correlation between entrepreneurial orientation and corporate performance(Chow, 2006; Coulthard, 2007; Jantunen, Puumalainen, Saarenketo, & Kyläheiko, 2005; Madsen, 2007; Rauch et al., 2009; Wiklund & Shepherd, 2005).

Performance described as the assessment of the outcomes of a specific behavior in a particular setting. It also perceived as the consequence of an action or the conclusion of any activity. Experts recommend that research on business performance should utilize a combination of financial and nonfinancial measurement constructs. This approach allows for a comprehensive evaluation of all areas of a company's success, leading to a more thorough understanding of the results. In the context of entrepreneurship, evaluating financial performance usually done in relation to a company's expansion (Xuhua, Kwofie, & Antwi, 2018).

2.2. Empirical Literature Review

2.2.1. Autonomy

Autonomy refers to the ability to make a decision based on well-informed and voluntary choices, without any external pressure or influence. Autonomous organizations or institutions are characterized by their independence and self-governance (Alam et al., 2022). From an HR perspective, autonomy is the amount of freedom that individual has to decide for themselves and accomplish their job. The importance of autonomy is demonstrated by research on the motivation and happiness of entrepreneurs as well as by other societal trends that encourage increased self-sufficiency (Taylor, 2013). Alam et al. (2022) discovered a significant and positive relationship between the entrepreneurial orientation and business performance of SMEs. According to a study by Taylor (2013), internalization of small and medium-sized businesses and entrepreneurial orientation are strongly correlated (SMEs).

The study conducted by Xuhua et al. (2018) discovered a significant relationship between business performance, potential growth, and entrepreneurial orientation. Similarly, the study found a significant and positive relationship between small and medium-sized businesses' operational success and their entrepreneurial orientation(SMEs) (Alam et al., 2022).

H1: There is a significant relationship between autonomy and the business performance of SMEs.

2.2.2. Innovation

Innovation demonstrates a company's dedication to pursuing new possibilities and is crucial for fostering an entrepreneurial mindset. Innovation entails the relinquishment of outdated processes and technology to advance the area (Baker & Sinkula, 2009). Innovation refers to a vendor's capacity to

foster and stimulate novel concepts,experiments, and methodologies that could lead to the development of fresh products, services, technological breakthroughs, or market exploration (Li, 2012). The study conducted by Fairoz et al. (2010) shown that innovations have had a positive and significant impact on small and medium-sized business performance (SMEs). Additional research revealed that the performance of SMEs was positively correlated with entrepreneurial orientation (Isichei, Emmanuel Agbaeze, & Odiba, 2020; Taylor, 2013). Moreover, a positive correlation between entrepreneurial orientation and business performance discovered (Alam et al., 2022; Xuhua et al., 2018).

H2: There is a significant relationship between innovation and the business performance of SMEs.

2.2.3. Networking

Networking is a strategic business practice in which individuals in the business world come together to establish professional connections, identify and pursue business prospects, exchange information, and seek out possible collaborators for commercial projects. Business networking is a highly effective strategy for generating referrals and establishing a sustainable and prosperous firm (Taylor, 2013). The study showed that internalizing small and medium-sized businesses and having an entrepreneurial attitude are directly correlated (SMEs). Likewise, there is a favorable correlation between entrepreneurial orientation and corporate performance (Alam et al., 2022; Xuhua et al., 2018).H3: There is a significant relationship between networking and business performance of SMEs.

2.2.4. Pro-Activeness

Being proactive is a vendor's capacity to foresee and address wants and demands in the marketplace in the future (Kropp, Lindsay, & Shoham, 2008). To get a competitive advantage over others by being the first to market (Lumpkin & Dess, 2001). This strategy is forward-thinking and proactive since it introduces new goods and services before rivals do Miller (1983) outlined the aggressive invention urge of entrepreneurs (Baker & Sinkula, 2009). Proactive behavior entails taking action in anticipation of future circumstances, rather than merely adapting to a situation or simply reacting (Solikahan & Mohammad, 2019). It signifies exerting authority and actively initiating actions rather than merely adapting to a circumstance or passively waiting for events to unfold (Taylor, 2013). Pro-activeness extends beyond extra-role performance actions. Attaining success as an entrepreneur necessitates the acquisition of numerous abilities. Strategic foresight is a crucial element of entrepreneurship. Numerous variables in the actual world are outside the control, which is the fundamental fact of being an entrepreneur (Miller, 1983).

The study conducted by Fairoz et al. (2010) discovered a significant and positive relationship between corporate performance and pro-activeness. Similar results were shown in the investigation conducted by Kraus et al. (2012); Liu and Lee (2015) and Isichei et al. (2020). Subsequent research revealed a favorable correlation between an entrepreneurial mindset and company performance (Alam et al., 2022; Taylor, 2013; Xuhua et al., 2018).H4: There is a significant relationship between pro-activeness and business performance of SMEs.

2.2.5. Research Framework

The research framework established below reflects the factors for investigation. The independent

variable in this framework comprises autonomy, innovation, networking, and pro-activeness. The dependent variable consists of business performance. This study aims to investigate the impact of entrepreneurial orientation on business performance. The research framework for the study depicted in Figure 1:

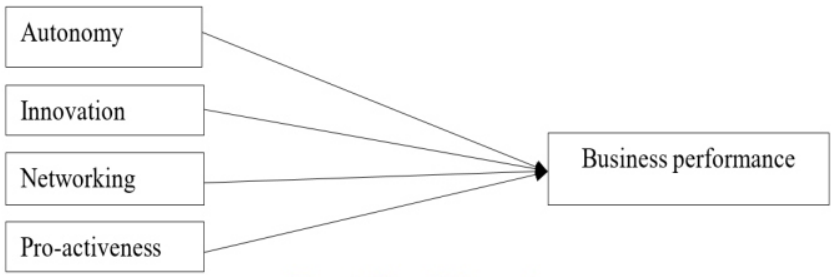

Figure 1. Research framework.
Source: Arshad et al. (2014); Daradkeh and Mansoor (2023) and Mason, Floreani, Miani, Beltrame, and Cappelletto (2015).

Figure 1:illustrates the research framework that contains the autonomy, innovation, networking, and pro-activeness as independent variables and business performance as dependent variable. The research represents these major variables for further investigation of their relationship and level of effect of independent variables on dependent variable.

3. DATAAND RESEARCH METHODOLOGY

Examining the impact of entrepreneurial orientation on the business performance of SMEs is the aim of this study. The research used a causal comparative and descriptive research approach to meet the research objectives.The study included business performance as a dependent variable and autonomy, networking, pro-activeness, and innovation as independent variables. The study was built around a structured questionnaire for collecting primary data from cross-sectional data. Utilizing non-probability-convenience sampling among the intended respondents, a total of 425 questionnaires were distributed Kraus et al. (2012) in Kathmandu and only 410 useful questionnairewere obtained. The questionnaire covered the first segment for the collection of demographic information and further Likert items were used for other information based on each variable adopted in the study (Alam et al., 2022; Taylor, 2013). Further, using Cronbach alpha, reliability was examined, and descriptive statistics were used to reflect demographic data. Similarly, rregression analysis and correlation were produced to evaluate the influence of the variables and determine their relationship. Further, the Cronbach alpha was tested for each variable in which autonomy comprising four items in total reflects the value of Cronbach alpha 0.726 depicting the reliability as its value exceeds 0.70. The Cronbach alpha value of innovation comprising five items was 0.744, the Cronbach alpha of networking consisting of four items was 0.882, the Cronbach alpha value of pro-activeness containing four items was 0.78 and the Cronbach alpha value of SMEs business performance representating four items was 0.833. Each value of Cronbach's alpha indicated the reliability.

4. RESULTS AND ANALYSIS

4.1. Descriptive Statistics

Table 1 showed the demographics of the 410 respondents that took part in the survey. It showed that (46.7 percent) of respondents were female and 53.30 percent of respondents were male. The age group of respondents 31 to 40 (39.1 percent) was a leading portion of participants and the age group below 20 (10.8 percent) was the least respondents of participants. Similarly, unmarried (50.6 percent) found a

majority of participants and married (49.4 percent). Further, (38.9 percent) of the respondents had a bachelor's degree, placing them in the majority categoryand the least was secondary education examination or school leaving certificate (SEE/SLC) or below (13 percent) educational level. The experience year between 6 to 8 (31.8 percent) respondents were the majority in the survey and the least were with experience 9 and above (14.4 percent). Finally, enterprise establishment through self-effort (37.4 percent) remains high and the least was other procedures (11 percent) for the establishment of enterprises.

Table 1. Demographic characteristics of respondents.

Demographic variables	Classification	Frequency	Percent
Gender of respondents	Male	218	53.3
	Female	191	46.7
	Total	410	100
Age of respondents	below 20	44	10.8
	21-30	113	27.6
	31-40	160	39.1
	Above 40	92	22.5
	Total	410	100
Marital status of respondents	Married	202	49.4
	Unmarried	207	50.6
	Total	410	100
Education level of respondents	SEE/SLC or below	53	13
	Intermediate	110	26.9
	Bachelor	159	38.9
	Master and above	87	21.3
	Total	410	100
Business experience of respondents	Less than 2	92	22.5
	3 to 5	128	31.3
	6 to 8	130	31.8
	9 and above	59	14.4
	Total	410	100
Establishment of respondents' enterprise	Self	153	37.4
	Parents	118	28.9
	Purchased	93	22.7
	Others	45	11
	Total	410	100

Table 2. Correlation analysis.

Variables	BP	AU	NW	PA	IN
BP	1				
AU	0.304**	1			
NW	0.330**	0.319**	1		
PA	0.267**	0.350**	0.388**	1	
IN	0.301**	0.291**	0.330**	0.317**	1

Note: **. Correlation is significant at the 0.01 level (2-tailed).

4.2. Correlation Analysis

Table 2 presents the correlation coefficients (Pearson's correlation) between the dependent variable SME business performance and the independent variables autonomy, innovation, networking, and pro-activeness. The business performance of SMEs positively and significantly correlated with autonomy (AU). It implies that the business performance of SMEs would increase with increased autonomy. Likewise, there is a strong and positiveassociation between networking (NW) and the business performance of SMEs. This shows that companies who engage in more networking activities typically have more successful SMEs' businesses. Further, pro-activeness (PA) demonstrates a positive and significant correlation with SME business performance. It indicates that higher levels of pro-activeness lead to an increase in the SMEs' Business performance. Finally, innovation (IN) shows a positive and significant correlation with SMEs' Business performance. It depicts that organizations emphasizing innovation tend to have higher SME business performance

4.3. Regression Analysis

Regression analysis assumes that two or more variables causally associated, whereas correlation analysis makes no such assumption. Multiple linear regression illustrates the impacts of several independent variables on a single dependent variable, whereas simple linear regression only demonstrates the influence of one independent variable on a single dependent variable. Thus, multiple regression analysis conducted for a better understanding of the impact of independent variables autonomy, networking, pro-activeness, and innovation on SMEs' business performance in Kathmandu, Nepal. The proposed research model for multiple regression was developed as follows:

$$Y = \alpha_1 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + ei$$

Where,

α_1= Constant Intercept of the Regression and β_1, β_2, β_3, β_4 and β_5 are the coefficient of regression.

Y = Business performance of SMEs.

X_1= Autonomy.

X_2= Networking.

X_3= Pro activeness.

X_4= Innovation.

ei= Error term.

Table 3. Regression analysis.

Model	Unstandardized coefficients		T	Sig.	R square	F	Sig.
	B	Std. error					
(Constant)	1.155	0.248	4.65	0	0.91	20.939	0.000[b]
AU	0.158	0.055	2.898	0.004	-	-	-
NW	0.163	0.051	3.217	0.001	-	-	-
PA	0.052	0.053	0.979	0.328	-	-	-
IN	0.159	0.053	2.975	0.003	-	-	-

Note: Dependent variable: BP
b. Predictors: (Constant), IN, AU, NW, PA

Table 3 displays the coefficient estimates for the regression model's coefficient estimates that shows how the independent factors of autonomy, networking, pro-activeness, and innovation affect the dependent variable of SMEs' business performance. It depicts that the beta coefficient found positive and significant for autonomy (AU). It shows that autonomy has a positive and significant impact on SMEs

business performance. It means that one unit increase in autonomy leads to an increase in the SMEs' business performance by 0.158 units. Similarly, the beta coefficient for networking (NW) found positive and significant depicting that networking has a positive and significant impact on SMEs' business performance. It means that one unit change in networking brings the 0.163-unit change in SME' business performance in a positive direction. Further, the beta coefficient for pro-activeness (PA) found positive reflecting the positive impact of pro-activeness on SMEs' business performance but it found insignificant.

Table 4. Summary of hypotheses.

Hypothesis	Description	Results
H_1:	There is a significant relationship between autonomy and business performance of SMEs.	Confirmed
H_2:	There is a significant relationship between innovation and the business performance of SMEs.	Confirmed
H_3:	There is a significant relationship between networking and the business performance of SMEs.	Confirmed
H_4:	There is a significant relationship between pro-activeness and the business performance of SMEs.	Not confirmed

shows that one unit increase in pro-activeness increases 0.052 units in SME' business performance. Finally, the beta coefficient for innovation found positive and significant depicting the positive impact of innovation on SMEs' business performance. It shows that a unit increase in innovation leads to an increase of 0.159 units in SME business performance. Further, in this study, the model explained 91% of the variance in the business performance (R2 = 0.91). Further, regression analysis revealed a significant model (F value, degrees of freedom), which explained 91 percent of variance in business performance indicating strong correlation between entrepreneurial orientation and business performance. The p value < 0.05 depicted the model fit for the regression analysis.

4.4. Summary of Hypothesis

Table 4 showed that the research based on the hypotheses was successful. Theory supported the first hypothesis, which states that there is a significant relationship between autonomy and business performance of SMEs. The second hypothesis, which postulates a noteworthy correlation between innovation and the commercial performance of small and medium-sized enterprises (SMEs), discovered to align with theoretical frameworks. Furthermore, theoretical support provided for the third hypothesis of the study, which held that there is a substantial correlation between networking and SMEs' business performance. Lastly, theoretical support could not find for the fourth hypothesis, which asserts that pro-activeness and SMEs' business performance significantly correlated.

5. DISCUSSION AND CONCLUSION

5.1. Discussion

The study aimed to examine the impact of entrepreneurial orientation on SMEs' business performance in Kathmandu, Nepal consisting of the independent variables autonomy, innovation, networking, and pro-activeness for measuring its impact on dependent variable SMEs' business performance. The results demonstrated the favorable and significant relationship and impact that autonomy has on the business performance of SMEs. This finding is consistent with Kraus et al. (2012) and Xuhua et al. (2018).

Similarly, the performance of SMEs' businesses found positively and significantly affected by networking. This finding is in the same direction withIsichei et al. (2020) and Matzembacher, Raudsaar, De Barcellos, and Mets (2019). Further, pro-activeness found to have a favorable, but negligible, impact on SMEs' company performance. . This finding is supported by Alam et al. (2022). Finally, innovation has found positive and significant associations and impacts on SMEs' business performance. This finding is consistent with Kraus et al. (2012).

5.2. Conclusion

The study aimed to examine the impact of entrepreneurial orientation on SMEs' business performance. Autonomy, creativity, networking, and innovation were the independent factors in the study, and the dependent variable was the business performance of SMEs. The study's conclusions showed that SMEs' business performance was positively and significantly impacted by autonomy, suggesting that SMEs perform better when their degree of autonomy increases. Moreover, it was discovered that networking has a favorable and significant impact on SMEs' business performance, indicating that SMEs' business performance grows as business networking levels rise. Similarly, pro-activeness was also found positive but insignificant on SMEs business performance reflecting that adopting more pro-activeness in business leads to an increase in the SMEs' business performance. Finally, Additionally, it was discovered that innovation had a favorable and significant impact on the business performance of SMEs, indicating that increased innovation inside the organization contributes to the expansion of SMEs' business performance.

5.3. Limitation and Future Research

The research was conducted utilizing the cross-sectional data for the empirical examination, which may create the constraints to establish causality, or changing path over time. Moreover, cultural and contextual factors that remain distinct in Nepal may affect and differ the results and limit the generalizability of the findings. The study was conducted comprising a few variables i.e. autonomy, networking, pro-activeness, and innovation to examine its influence on SMEs' business performance and placed the study only in Kathmandu district of Nepal. Therefore, further research can be extended based on longitudinal data comprising more variables, covering the different regions, and location of the study even comprising the study to examine the effect of moderating and mediating variables in the future study.

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REFERENCES

Adam, A. M. (2018). Foreign direct investment and growth causal-nexus in economic community of West African States: Evidence from spectral causality. Business and Economic Horizons, 14(1), 17–28.

Al-Ansari, Y., Pervan, S., & Xu, J. (2013). Innovation and business performance of SMEs: The case of Dubai. Education, Business and Society: Contemporary Middle Eastern Issues, 6(3/4), 162-180. https://doi.org/10.1108/ebs-04-2013-0012

Alam, S. S., Md Salleh, M. F., Masukujjaman, M., Al-Shaikh, M. E., Makmor, N., & Makhbul, Z. K. M. (2022). Relationship between entrepreneurial orientation and business performance among Malay-owned SMEs in Malaysia: A PLS analysis. Sustainability, 14(10), 6308. https://doi.org/10.3390/su14106308

Anjaningrum, W. D., Azizah, N., & Suryadi, N. (2024). Spurring SMEs' performance through business intelligence, organizational and network learning, customer value anticipation, and innovation-Empirical evidence of the creative economy sector in East Java, Indonesia. Heliyon, 10(7), e27998.

Antoncic, B., & Hisrich, R. D. (2004). Corporate entrepreneurship contingencies and organizational wealth creation. Journal of Management Development, 23(6), 518-550. https://doi.org/10.1108/02621710410541114

Arshad, A. S., Rasli, A., Arshad, A. A., & Zain, Z. M. (2014). The impact of entrepreneurial orientation on business performance: A study of technology-based SMEs in Malaysia. Procedia-Social and Behavioral Sciences, 130, 46-53.

Astrini, N. J., Rakhmawati, T., Sumaedi, S., Bakti, I. G. M. Y., Yarmen, M., & Damayanti, S. (2020). Innovativeness, proactiveness, and risk-taking: Corporate entrepreneurship of indonesian SMEs. IOP Conference Series: Materials Science and Engineering, 722(1), 012037. https://doi.org/10.1088/1757-899X/722/1/012037

Ayyagari, M., Beck, T., & Demirguc-Kunt, A. (2007). Small and medium enterprises across the globe. Small Business Economics, 29(4), 415-434. https://doi.org/10.1007/s11187-006-9002-5

Baker, W. E., & Sinkula, J. M. (2009). The complementary effects of market orientation and entrepreneurial orientation on profitability in small businesses. Journal of Small Business Management, 47(4), 443-464. https://doi.org/10.1111/j.1540-627x.2009.00278.x

Bhandari, P., & Amponstira, F. (2021). Model of entrepreneurial orientation, competitive advantage and performance of women owned enterprises in Gandaki Province, Nepal. Open Journal of Business and Management, 9(6), 2854-2865. https://doi.org/10.4236/ojbm.2021.96159

Bird, B. (1988). Implementing entrepreneurial ideas: The case for intention. Academy of Management Review, 13(3), 442-453. https://doi.org/10.5465/amr.1988.4306970

Breaugh, J. A. (1985). The measurement of work autonomy. Human Relations, 38(6), 551–570. https://doi.org/10.1177/001872678503800604

Chow, I. H. (2006). The relationship between entrepreneurial orientation and firm performance in China. S.A.M. Advanced Management Journal, 71(3), 11–20.

Coulthard, M. (2007). The role of entrepreneurial orientation on firm performance and the potential influence of relational dynamism. Journal of Global Business and Technology, 3(1), 29–39.

Dahal, A., & Krisjanti, M. (2021). Effect of individual entrepreneurship orientation on export intention in micro and small enterprises: The moderating role of access to finance. Econviews-Review of Contemporary Business, Entrepreneurship and Economic Issues, 34(1), 87-99. https://doi.org/10.51680/ev.34.1.7

Daradkeh, M., & Mansoor, W. (2023). The impact of network orientation and entrepreneurial orientation on startup innovation and performance in emerging economies: The moderating role of

strategic flexibility. Journal of Open Innovation: Technology, Market, and Complexity, 9(1), 100004.
Fairoz, F. M., Hirobumi, T., & Tanaka, Y. (2010). Entrepreneurial orientation and business performance of small and medium scale enterprises of Hambantota District Sri Lanka. Asian Social Science, 6(3), 34. https://doi.org/10.5539/ass.v6n3p34
Ferreras-Méndez, J. L., Olmos-Penuela, J., Salas-Vallina, A., & Alegre, J. (2021). Entrepreneurial orientation and new product development performance in SMEs: The mediating role of business model innovation. Technovation, 108, 102325.
Ferrier, W. J., Smith, K. G., & Grimm, C. M. (1999). The role of competitive action in market share erosion and industry dethronement: A study of industry leaders and challengers. Academy of Management Journal, 42(4), 372–388.
Grande, J., Madsen, E. L., & Borch, O. J. (2011). The relationship between resources, entrepreneurial orientation and performance in farm-based ventures. Entrepreneurship and Regional Development, 23(3-4), 89-111. https://doi.org/10.1080/08985620903183710
Gyanwali, S., & Bunchapattanasakda, C. (2019). Application of entrepreneurial marketing in micro, small and medium enterprise in Dhaulagiri, Nepal. Open Journal of Business and Management, 7(02), 693-708.
Gyanwali, S., Gyanwali, M., & Yadav, U. S. (2022). Assessment of 4D SME entrepreneurial marketing model: The perspective of Nepalese MSMEs. Paper presented at the International Conference on Intelligent Computing & Optimization, Cham: Springer International Publishing.
Hafeez, S., Siddiqui, Z. U., & Rehman, K. U. (2011). The effect of market and entrepreneurial orientation on firm performance. Information Management and Business Review, 3(6), 389-395.
Hilman, H., & Kaliappen, N. (2015). Innovation strategies and performance: Are they truly linked? World Journal of Entrepreneurship, Management and Sustainable Development, 11(1), 48-63.
Hu, R., Shen, Z., Kang, T.-W., Wang, L., Bin, P., & Sun, S. (2023). Entrepreneurial passion matters: The relationship between proactive personality and entrepreneurial intention. SAGE Open, 13(4), 21582440231200940.
Hughes, M., & Morgan, R. E. (2007). Deconstructing the relationship between entrepreneurial orientation and business performance at the embryonic stage of firm growth. Industrial Marketing Management, 36(5), 651-661.
Industrial Enterprises Act. (2020). The industrial enterprises act, 2076 (2020). Retrieved from https://doind.gov.np/detail/196 Industrial Statistics. (2022). Industrial statistics (2079/080) Retrieved from https://doind.gov.np/detail/218
Isichei, E. E., Emmanuel Agbaeze, K., & Odiba, M. O. (2020). Entrepreneurial orientation and performance in SMEs: The mediating role of structural infrastructure capability. International Journal of Emerging Markets, 15(6), 1219-1241.
Jantunen, A., Puumalainen, K., Saarenketo, S., & Kyläheiko, K. (2005). Entrepreneurial orientation, dynamic capabilities and international performance. Journal of International Entrepreneurship, 3, 223-243. https://doi.org/10.1007/s10843-005-1133-2
Jiménez-Jiménez, D., & Sanz-Valle, R. (2011). Innovation, organizational learning, and performance. Journal of Business Research, 64(4), 408-417.
Kemelgor, B. H. (2002). A comparative analysis of corporate entrepreneurial orientation between selected firms in the Netherlands and the USA. Entrepreneurship & Regional Development, 14(1), 67-87.
Koe, W.-L. (2016). The relationship between Individual Entrepreneurial Orientation (IEO) and entrepreneurial intention. Journal of Global Entrepreneurship Research, 6(13), 1-11.
Koirala, K. P. (2019). Successful leadership practice in school. Education and Development, 29,

119–131. https://doi.org/10.3126/ed.v29i0.32576
Kraus, S., Rigtering, J. C., Hughes, M., & Hosman, V. (2012). Entrepreneurial orientation and the business performance of SMEs: A quantitative study from the Netherlands. Review of Managerial Science, 6, 161-182. https://doi.org/10.1007/s11846-011-0062-9
Kropp, F., Lindsay, N. J., & Shoham, A. (2008). Entrepreneurial orientation and international entrepreneurial business venture startup. International Journal of Entrepreneurial Behavior & Research, 14(2), 102-117. https://doi.org/10.1108/13552550810863080
Kusa, R., Duda, J., & Suder, M. (2021). Explaining SME performance with fsQCA: The role of entrepreneurial orientation, entrepreneur motivation, and opportunity perception. Journal of Innovation & Knowledge, 6(4), 234-245.
Li, C.-Y. (2012). The influence of entrepreneurial orientation on technology commercialization: The moderating roles of technological turbulence and integration. African Journal of Business Management, 6(1), 370-387.
Liu, C.-H., & Lee, T. (2015). Promoting entrepreneurial orientation through the accumulation of social capital, and knowledge management. International Journal of Hospitality Management, 46, 138-150.
Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. Academy of Management Review, 21(1), 135-172.
Lumpkin, G. T., & Dess, G. G. (2001). Linking two dimensions of entrepreneurial orientation to firm performance: The moderating role of environment and industry life cycle. Journal of Business Venturing, 16(5), 429-451.
Madsen, E. L. (2007). The significance of sustained entrepreneurial orientation on performance of firms–A longitudinal analysis. Entrepreneurship and Regional Development, 19(2), 185-204.
Majali, T. E., Alkaraki, M., Asad, M., Aladwan, N., & Aledeinat, M. (2022). Green transformational leadership, green entrepreneurial orientation and performance of SMEs: The mediating role of green product innovation. Journal of Open Innovation: Technology, Market, and Complexity, 8(4), 1-14.
Mason, M. C., Floreani, J., Miani, S., Beltrame, F., & Cappelletto, R. (2015). Understanding the impact of entrepreneurial orientation on SMEs' performance. The role of the financing structure. Procedia Economics and Finance, 23, 1649-1661.
Matzembacher, D. E., Raudsaar, M., De Barcellos, M. D., & Mets, T. (2019). Sustainable entrepreneurial process: From idea generation to impact measurement. Sustainability, 11(21), 5892. https://doi.org/10.3390/su11215892
Miller, D. (1983). The correlates of entrepreneurship in three types of firms. Management Science, 29(7), 770-791.
Monferrer, D., Moliner, M. Á., Irún, B., & Estrada, M. (2021). Network market and entrepreneurial orientations as facilitators of international performance in born globals. The mediating role of ambidextrous dynamic capabilities. Journal of Business Research, 137, 430-443.
Morris, M. H., Schindehutte, M., & LaForge, R. W. (2002). Entrepreneurial marketing: A construct for integrating emerging entrepreneurship and marketing perspectives. Journal of Marketing Theory and Practice, 10(4), 1-19.
Muenjohn, N., & Armstrong, A. (2008). Evaluating the structural validity of the Multifactor Leadership Questionnaire (MLQ), capturing the leadership factors of transformational-transactional leadership. Contemporary Management Research, 4(1), 3-14.
Paudel, S. (2019). Entrepreneurial leadership and business performance: Effect of organizational innovation and environmental dynamism. South Asian Journal of Business Studies, 8(3), 348-369.
Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M. (2009). Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. Entrepreneurship Theory

and Practice, 33(3), 761-787.
Reijonen, H., Hirvonen, S., Nagy, G., Laukkanen, T., & Gabrielsson, M. (2015). The impact of entrepreneurial orientation on B2B branding and business growth in emerging markets. Industrial Marketing Management, 51(1), 35-46.
Robinson, S., & Stubberud, H. A. (2014). Incorporating the triple bottom line in an entrepreneurship summer camp. Journal of Entrepreneurship Education, 17(1), 13-24.
Roh, T., Park, B. I., & Xiao, S. S. (2022). Multiple principal conflicts and technological innovation performances of international new ventures: Moderating role of founder's experiences. Journal of Innovation & Knowledge, 7(4), 100274.
Saunila, M. (2014). Innovation capability for SME success: Perspectives of financial and operational performance. Journal of Advances in Management Research, 11(2), 163-175.
Seo, R., & Park, J.-H. (2022). When is interorganizational learning beneficial for inbound open innovation of ventures? A contingent role of entrepreneurial orientation. Technovation, 116, 102514.
Solikahan, E. Z., & Mohammad, A. (2019). Development of entrepreneurial orientation. International Journal of Applied Business and International Management, 4(1), 31-37.
Srimulyani, V. A., Hermanto, Y. B., Rustiyaningsih, S., & Waloyo, L. A. S. (2023). Internal factors of entrepreneurial and business performance of small and medium enterprises (SMEs) in East Java, Indonesia. Heliyon, 9(11), e21637.
Stam, W., & Elfring, T. (2008). Entrepreneurial orientation and new venture performance: The moderating role of intra-and extraindustry social capital. Academy of Management Journal, 51(1), 97-111.
Stevenson, H. H., & Jarillo, J. C. (2007). A paradigm of entrepreneurship: Entrepreneurial management. In entrepreneurship:
Concepts, theory and perspective. In (pp. 155-170). Berlin, Heidelberg: Springer Berlin Heidelberg.
Taylor, P. (2013). The effect of entrepreneurial orientation on the internationalization of SMEs in developing countries. African Journal of Business Management, 17, 19-21.
Thompson, E. R. (2009). Individual entrepreneurial intent: Construct clarification and development of an internationally reliable
metric. Entrepreneurship Theory and Practice, 33(3), 669-694. https://doi.org/10.1111/j.1540-6520.2009.00321.x
Wahyuni, N. M., & Sara, I. M. (2020). The effect of entrepreneurial orientation variables on business performance in the SME industry context. Journal of Workplace Learning, 32(1), 35-62. https://doi.org/10.1108/JWL-03-2019-0033
Walter, A., Auer, M., & Ritter, T. (2006). The impact of network capabilities and entrepreneurial orientation on university spinoff performance. Journal of Business Venturing, 21(4), 541-567.
Wiklund, J., & Shepherd, D. (2005). Entrepreneurial orientation and small business performance: A configurational approach. Journal of Business Venturing, 20(1), 71-91.
Williams, D. W., Wood, M. S., Mitchell, J. R., & Urbig, D. (2019). Applying experimental methods to advance entrepreneurship research: On the need for and publication of experiments. Journal of Business Venturing, 34(2), 215-223.
Wincent, J., Thorgren, S., & Anokhin, S. (2014). Entrepreneurial orientation and network board diversity in network organizations. Journal of Business Venturing, 29(2), 327-344.
Xuhua, H., Kwofie, A. S., & Antwi, H. A. (2018). The influence of entrepreneurs orientations and business performance: A study of small hotels in Ghana. European Journal of Contemporary Research, 7(1), 264-276.
Zakhem, N. B., Farmanesh, P., Zargar, P., & Kassar, A. (2022). Wellbeing during a pandemic: An

An empirical research examining autonomy, work-family conflict and informational support among SME employees. Frontiers in Psychology, 13, 890265. https://doi.org/10.3389/fpsyg.2022.890265

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