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# EFFECT OF INSURANCE PRICING ON ECONOMIC GROWTH IN NIGERIA

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**ABSTRACT**
*The study established the influence of insurance pricing on the growth Nigerian economy, covering the period 2000-2022. Using the unit root test, descriptive statistics, and ARDL model, we examined the effects of insurance premium, venture, and underwriting profit on economic advancement. Our result suggests that insurance premium had a substantial positive outcome (p-value = 0.0000 < 5% significance level), insurance investment had a substantial positive outcome (p-value = 0.0005 < 5% significance level), and underwriting profit had a substantial adverse outcome (p-value = 0.0004 < 5% significance level) on economic growth. The results suggested that insurance pricing played a crucial role in promoting economic growth in Nigeria. We recommended improved corporate governance and transparency in the insurance industry to enhance underwriting profits and contribute to economic development.*
**KEYWORDS:** *insurance pricing, economic growth, Nigeria, ARDL model, corporate governance.*

## 1. INTRODUCTION

Nigeria's insurance industry serves as the cornerstone of risk management, providing a financial safety net, facilitating intermediation, and offering long-term capital for infrastructure development (Ward, 2020). By mitigating risk and enabling entrepreneurs to manage exposures, the sector plays a pivotal function in economic growth (Johnson, 2018). A robust and collaborative insurance industry is crucial for Nigeria's economic progress. Insurance facilitates economic transactions, promotes financial stability, mobilizes savings, and ensures efficient risk management (Ward, 2020). It also safeguards individuals, companies, and society against unexpected financial losses (Oke, 2022). The modern concept of insurance was introduced to Nigeria by British trading companies in the late 19th century, with local agents and branch offices emerging later (Badejo, 2021). As new risk areas emerge, innovative insurance solutions are necessary to address them. A thriving insurance sector is a key characteristic of a healthy economy, underscoring its significance (Johnson, 2018).

### 1.2 Statement of the Problem

The Nigerian insurance sub-sector has significantly contributed to economic advancement and risk mitigation through insurance policies and fund mobilization (Ward, 2020). However, industry challenges, such as discriminatory practices, inefficient claim settlement, and inadequate premium income, hinder its functionality and sustainability (Badejo, 2021). Cultural beliefs emphasizing divine protection also impact public perception and acceptance of insurance services, limiting its economic development contributions (Johnson, 2018). This study addresses the knowledge gap by carrying out a detailed analysis of the interplay between insurance pricing and growth of Nigerian economy, examining the causal link between the two variables. By investigating this correlation, the study sought to provide insights for policymakers and industry stakeholders.

### 1.3 Aim and Objectives

The key goal of the study is to ascertain the consequence of insurance pricing on the expansion of Nigerian economy. The precise goals are:

1. To assess the influence of insurance premiums on economic growth in Nigeria.
2. To explore the relationship between insurance investments and economic growth in Nigeria.
3. To determine the impact of underwriting profits on economic growth in Nigeria.

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### 1.4 Research Questions

1. What is the significance of insurance premiums on Nigeria's economic growth?
2. To what extent do insurance investments affect Nigeria's economic growth?
3. What is the significance of underwriting profits on Nigeria's economic growth?

### 1.5 Research Hypotheses:

To address the research questions, the following testable hypotheses are proposed:
H01: Insurance premiums have a significant impact on Nigeria's economic growth.
H02: Insurance investments have a significant effect on Nigeria's economic growth.
H03: Underwriting profits have a significant impact on Nigeria's economic growth.

## 2.0 REVIEW OF RELATED LITERATURE

### 2.1 Conceptual Review

2.1.1 Meaning of Insurance

Insurance is a risk management mechanism that pools funds from multiple entities to cover unexpected losses (Encarta, 2019). It is a business and a significant part of the financial services industry. Insurance involves transferring potential loss costs to another entity in exchange for a premium (Churchill, 2019).

#### 2.1.2 Insurance Premium

The volume of money that the insured pays the insurer is known as the insurance premium. (Nwite, 2004). It is a necessary element in forming an insurance contract. Premium income is not entirely profit for the insurance company, as part of it may be liability in the future (Alamsyah & Wiratno, 2017).

#### 2.1.3 Insurance Investment

Insurance investment involves converting insurance funds into assets that generate income or profit (George & John Clendenin, 2018). In Nigeria, insurance fund investment is heavily regulated due to growth and problems (Muchtar, 2016).

#### 2.1.4 Insurance Underwriting

Insurance underwriting is the process of selecting who and what to insure based on risk assessment (Cape, 2021). It involves determining premium pricing and choosing who not to insure.

#### 2.1.5 Economic Growth

The extension of a nation's capacity to produce goods and services over time is known as economic growth (Guru, 2017). It may be characterised by annual increases in real national income or income per capita that are steady.

### 2.2 Theoretical Review

#### 2.1.1 Game Theory

The theory was advocated by John Von Neumann in 1940, highlights strategic interdependence in setting insurance policy prices (Warren, Rourke, & Iwanik, 2012). This research aligns with game theory, emphasizing the importance of considering competitors' behavior when setting prices.

### 2.3 Empirical Review

Numerous studies have explored the connection between insurance and expansion of economy. Sendang (2022) assessed the influence of policies on the profitability of insurance firms in Indonesia. The findings indicated that premium, underwriting ratio, and ROI had a significant positive impact on profits, whereas return on equity showed no significant effect.

Wahyuddin & Mauliyana (2021) investigated the effects of premium, underwriting, ROI, and risk-based capital on the profits of insurance firms in Indonesia. Their study concluded that all these factors positively and significantly contributed to profits.

Din et al. (2020) examined the links between assurance and non-life insurance and growth of economy across various countries. Study found a favourable and substantial interplay between assurance and advancement of economy in short and long term, except when insurance penetration was used as a proxy.

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Ezu et al. (2020) explored the impact of consolidation on the Nigerian insurance sector's contribution to economic expansion. The paper suggested a substantial favourable interplay between insurance premiums, total assets, insurance investments, and gross domestic product. This study extends these findings by analysing the consequence of insurance pricing on Nigeria's economic advancement from 2000 to 2022. It aims to contribute to the literature by offering insights into the interplay among insurance pricing and advancement of Nigeria's economy.

## 3. METHODOLOGY

This research investigated the implication of insurance pricing on Nigeria's economic growth from 2000 to 2022. An ex-post facto design was used, leveraging secondary data from Nigeria's apex bank and National Insurance Commission. The study focused on insurance companies in Nigeria, examining variables like premiums, investments, underwriting profit, and gross domestic product.

The regression model, adapted from Mwangi and Murugi (2015), was specified as:

$GDP = b0 + \beta 1IP + \beta 2II + \beta 3UP + \mu$

Where:

GDP = Gross Domestic Product
IP = Insurance Premium
II = Insurance Investment
UP = Underwriting Profit
$\beta 0$ = Intercept
$\beta 1$, $\beta 2$, $\beta 3$ = Coefficients (parameters that were estimated)
$\mu$ = Stochastic error term

This study aimed to contribute to existing research on insurance pricing and economic growth in Nigeria, building on works like Sendang (2022), Wahyuddin & Mauliyana (2021), Din et al. (2020), and Ezu et al. (2020).

## 4. DATA PRESENTATION AND ANALYSIS

### 4.1 Data Presentation

The data for the study is contained in table 4.1 for consideration.

**Table 4.1: DATA OF INSURANCE PREMIUM (IP), INSURANCE INVESTMENT, UNDERWRITING PROFIT (UP) AND ECONOMIC GROWTH PROXY GDP (NPM) FROM 2000- 2022**

| Years | IP (#,Billion) | II (#,Billion) | UP (#,Billion) | GDP (#,Billion) |
|---|---|---|---|---|
| 2000 | 22,531.50 | 25,192.60 | 61,600.00 | 23,688,280.33 |
| 2001 | 28,981.30 | 32,157.30 | 78,060.48 | 25,267,542.02 |
| 2002 | 37,765.9 | 36,940.90 | 85,255.73 | 25,267,542.02 |
| 2003 | 43,944.70 | 54,642.80 | 124,267.37 | 31,709,447.39 |
| 2004 | 50,495.90 | 74,590.80 | 141,222.03 | 35,020,549.08 |
| 2005 | 67,746.30 | 121,844.20 | 203,113.12 | 37,474,949.16 |
| 2006 | 82,361.90 | 216,359.90 | 307,542.61 | 39,995,504.55 |
| 2007 | 105,379.30 | 329,247.90 | 427,497.16 | 42,922,407.93 |
| 2008 | 157,206.00 | 336,491.40 | 573,154.46 | 46,012,515.31 |
| 2009 | 189,960.50 | 343,894.20 | 586,459.54 | 49,856,099.08 |
| 2010 | 200,376.00 | 351,459.90 | 585,015.79 | 54,612,264.18 |
| 2011 | 233,752.90 | 359,192.00 | 621,095.14 | 57,511,041.77 |
| 2012 | 251,822.20 | 366,813.10 | 315,008.96 | 59,929,893.04 |
| 2013 | 273,718.40 | 374,462.00 | 405,807.31 | 63,218,721.73 |
| 2014 | 295,614.60 | 382,110.90 | 384,007.06 | 67,152,785.84 |
| 2015 | 317,510.80 | 389,759.80 | 530,287,980 | 69,023,929.94 |

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| | | | | |
|---|---|---|---|---|
| 2016 | 356,592.70 | 490,225.30 | 615,894,780 | 67,931,235.93 |
| 2017 | 366,345.81 | 520,479.45 | 751,535,141 | 69,785,678.65 |
| 2018 | 373,245.45 | 531,356.13 | 763,529,398 | 73,678,901.21 |
| 2019 | 373,245.45 | 531,356.13 | 834,226,132 | 76,543.933.34 |
| 2020 | 432,263.23 | 55,5242.63 | 856,212,583 | 77,675,897.11 |
| 2021 | 454,227.56 | 56,5625.45 | 865,424,235 | 78,893.633.23 |
| 2022 | 561,423.84 | 76,325.65 | 955,674,739 | 81,432,783.65 |

***Source: CBN Statistical Bulletin, 2022, NDIC Reports; NAICOM Annual Report 2022.***

Table 4.1 presents the trends in insurance premiums, investments, underwriting profits, and GDP in Nigeria from 2000 to 2022. Insurance premiums increased from N22,531.50 billion in 2000 to N22,531.50 billion in 2022. Insurance investments grew from N25,192.60 billion in 2000 to N76,325.65 billion in 2022. Underwriting profits remained constant at N61,600.00 billion from 2000 to 2022. GDP increased from N23,688,280.33 billion in 2000 to N81,432,783.65 billion in 2022.

### 4.2 Data Analysis

This study uses data from 2000 to 2022 to ascertain the consequence of insurance pricing on advancement of Nigeria's economy. The analysis employs: ADF unit root test to verify stationarity. Descriptive statistics to summarize the data and Autoregressive Distributed Lag (ARDL) model for long-run estimation.

#### 4.2.1 Stationarity Test

The test below ascertain if the data series are stationary at levels, first difference, or second difference. This test is crucial for validating or rejecting the study's hypotheses and drawing valid conclusions.

**Table 4.2: Result of ADF Unit Root Test**

Null Hypothesis: D(GDP) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=4)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -4.185786 | 0.0060 |
| Test critical values: | 1% level | -3.920350 | |
| | 5% level | -3.065585 | |
| | 10% level | -2.673459 | |

According to Table 4.2, the ADF test statistics for GDP is -4.185786, which is less than the critical value of -3.065585 at a 0.05 alpha. This suggests that the GDP series with a constant is stationary at the first difference level. As a result, the hypothesis that GDP has unit root is overruled.

In other words, the ADF test suggests that the GDP series becomes stationary after differencing it once, which implies that the series have no unit root and is therefore suitable for further analysis.

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Null Hypothesis: D(IP,2) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -7.269235 | 0.0000 |
| Test critical values: | 1% level | -3.808546 | |
| | 5% level | -3.020686 | |
| | 10% level | -2.650413 | |

At second order difference
The ADF test results, the test statistic for Insurance Premiums (IP) is -7.269235, which is less than the critical value of -3.020686 at a 0.05 alpha. This suggests that the IP series with a constant is stationary at the second difference level, meaning it is integrated of order 2 (I(2)). As a result, the hypothesis that IP has unit root is overruled.

In other words, the ADF test suggests that the IP series becomes stationary after differencing it twice, indicating that it does not have a unit root and is therefore suitable for further analysis.

Null Hypothesis: D(II,2) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -4.891234 | 0.0011 |
| Test critical values: | 1% level | -3.831511 | |
| | 5% level | -3.029970 | |
| | 10% level | -2.655194 | |

The ADF test results show that the test statistic for Insurance Investments (II) is -4.891234, which is less than the critical value of -3.029970 at a 0.05 alpha. This suggests that the II series with a constant is stationary at the second difference level, meaning it achieves stationarity after differencing twice. As a result, the hypothesis that II has unit root is overruled.

In other words, the ADF test suggests that the II series does not have a unit root and is therefore suitable for further analysis, after accounting for its second-order integration.

Null Hypothesis: D(UP,2) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on AIC, maxlag=4)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -7.770386 | 0.0000 |
| Test critical values: | 1% level | -3.808546 | |
| | 5% level | -3.020686 | |
| | 10% level | -2.650413 | |

At second order difference
The ADF test results indicate that the test statistic for Underwriting Profit (UP) is -7.770386, < -3.020686 at a 0.05 alpha. This suggests that the UP series with a constant is stationary at the second difference level, leading to the denial of the hypothesis that UP has unit root.

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**4.2.2 Descriptive Statistics**

Table 4.2 below, providing an overview of each variables utilised in the study.

Table 4.3 Summary of the Descriptive Statistics

Date: 03/01/24
Time: 13:07
Sample: 2000 2022

| | GDP | C | IP | II | UP |
|---|---|---|---|---|---|
| Mean | 52341332 | 1.000000 | 211859.0 | 284228.0 | 2.13E+08 |
| Median | 54612264 | 1.000000 | 200376.0 | 343894.2 | 427497.2 |
| Maximum | 81432784 | 1.000000 | 561423.8 | 555242.6 | 9.56E+08 |
| Minimum | 23688280 | 1.000000 | 22531.50 | 25192.60 | 61600.00 |
| Std. Dev. | 18326630 | 0.000000 | 153625.9 | 180215.8 | 3.54E+08 |
| Skewness | -0.116572 | NA | 0.462930 | -0.191753 | 1.101503 |
| Kurtosis | 1.736970 | NA | 2.338899 | 1.693205 | 2.411521 |
| Jarque-Bera | 1.443402 | NA | 1.132487 | 1.622942 | 4.549597 |
| Probability | 0.485925 | NA | 0.567654 | 0.444204 | 0.102818 |
| Sum | 1.104309 | 21.00000 | 4449039.3 | 5968789.5 | 4.48E+09 |
| Sum Sq. Dev. | 6.72E+15 | 0.000000 | 4.72E+11 | 6.50E+11 | 2.50E+18 |
| Observations | 23 | 23 | 23 | 23 | 23 |

*Source: E-view output, version 9.*

The table presents descriptive statistics for GDP (mean: 52,341.32 billion, maximum: 81,432.78 billion, minimum: 23,688.28 billion, sum: 1.104309 trillion), Insurance Premiums (mean: 211,859.0, maximum: 561,423.8, minimum: 22,531.50, sum: 4,449,039.3), Insurance Investments (mean: 284,228.0, maximum: 555,242.6, minimum: 25,192.60, sum: 5,968,789.5), and Underwriting Profit (mean: 2.13E+08, maximum: 9.56E+08, minimum: 61,600.00, sum: 4.48E+09), also including skewness and kurtosis values, to provide a comprehensive overview of their distribution and inform further regression analysis.

**Regression analysis**

A multivariate linear regression model was utilised to test the hypotheses to examining the long-run effects among the variables.

Dependent Variable: GDP
Method: ARDL
Dynamic regressors (0 lag, automatic): IP II UP
Fixed regressors: C

| Variable | Coefficient | Std. Error | t-Statistic | Prob.* |
|---|---|---|---|---|
| GDP(-1) | 0.866613 | 0.195718 | 4.427876 | 0.0007 |
| IP | 15.46583 | 26.97633 | 0.573311 | 0.0000 |
| II | 4.281279 | 7.802023 | 0.548740 | 0.0005 |
| UP | -0.003180 | 0.002329 | -1.365110 | 0.0004 |
| C | 5455482. | 4419993. | 1.234274 | 0.2389 |

| | | | |
|---|---|---|---|
| R-squared | 0.990897 | Mean dependent var | 50909500 |
| Adjusted R-squared | 0.988096 | S.D. dependent var | 16035355 |

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| | | | |
|---|---|---|---|
| S.E. of regression | 1749551. | Akaike info criterion | 31.81775 |
| Sum squared resid | 3.98E+13 | Schwarz criterion | 32.06508 |
| Log likelihood | -281.3597 | Hannan-Quinn criter. | 31.85185 |
| F-statistic | 353.7703 | Durbin-Watson stat | 2.025019 |
| Prob(F-statistic) | 0.000000 | | |

**4.3 Test of Hypotheses**

A Priori Expectations:

- $\alpha 0 > 0$
- $\alpha 1 > 0$
- $\alpha 2 > 0$

**Hypothesis Testing**

**Hypothesis 1 ($H_1$):** Insurance premium has a significant effect on economic growth in Nigeria.
- Probability value (p-value) = 0.0000 < 5% significance level
- Null hypothesis rejected
- Conclusion: Insurance premium has a substantial and favourable implication on economic growth in Nigeria.

**Hypothesis 2 ($H_2$):** Insurance investment has a significant effect on economic growth in Nigeria.
- p-value = 0.0005 < 5% significance level
- Null hypothesis rejected
- Conclusion: Insurance investment has a substantial and favourable consequence on economic growth in Nigeria.

**Hypothesis 3 ($H_3$):** Underwriting profit has a significant effect on economic growth in Nigeria.
- p-value = 0.0004 < 5% significance level
- Null hypothesis rejected
- Conclusion: Underwriting profit has a substantial but adverse consequence on economic growth in Nigeria.

**Table 4.5 Ramsey RESET Stability Diagnostic Test**

Ramsey RESET Test
Equation: UNTITLED
Specification: GDP GDP(-1) IP II UP C
Omitted Variables: Squares of fitted values

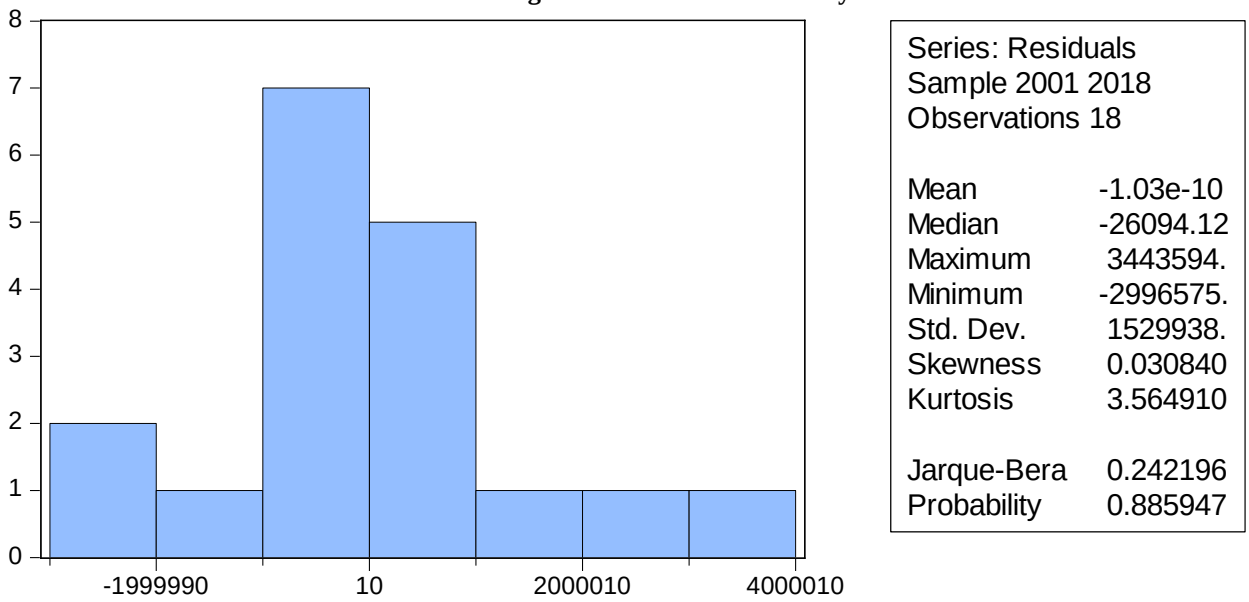
| | Value | df | Probability |
|---|---|---|---|
| t-statistic | 0.579631 | 12 | 0.5729 |
| F-statistic | 0.335972 | (1, 12) | 0.5729 |

**Source: E. view Author's computation 2024**

The Ramsey Reset test was conducted to establish the accuracy of our data and results. The result revealed that the probability values presented in Table 4.5 are greater than our chosen significance level of 0.005. This indicates that our model is free from errors and the results are reliable, thereby validating the goodness of fit of our regression model. In other words, the Ramsey Reset test confirms that our data and results are robust and not subject to specification errors or misspecification.

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**Table 4.6 Residual Diagnostic Result for Normality distribution**




**Source: Eview Author's computation 2024.**

Further analysis using the Jarque-Bera test reveals a p-value = 0.242196, which exceeds the 0.05 alpha. This indicates that our data set is properly dispersed and free from bias. In other words, the Jarque-Bera test confirms that our data follows a normal distribution, and we can rule out any potential issues with skewness or kurtosis that might affect the validity of our results. This provides additional justification for the reliability and accuracy of our findings.

**Discussion of Findings**

The study's regression estimates reveal the implication of insurance pricing on Nigeria's economic growth from 2000 to 2022. Table 4.4 presents the long-run coefficients, showing a statistically substantial outcome of insurance pricing on economic growth, with a general Prob(F-Stats) value of 0.000000.

The results suggests that insurance premiums has a favourable and substantial consequence on economic growth, with a coefficient value of 15.46583. This suggests that a unit rise in insurance premium results to a corresponding 15.46583 positive change in GDP.

Insurance investments also show a favourable and substantial consequence on economic growth, with a coefficient value of 4.281279. This suggests that a unit rise in insurance investment leads to a corresponding 4.281279 positive change in GDP.

However, underwriting profit has a negative but substantial consequence on economic growth, with a coefficient value of -0.003180. This suggests that a unit decrease in underwriting profit leads to a corresponding -0.003180 negative change in GDP.

The study's findings align with Din et al. (2020), who examined the relationships between insurance policies and economic growth.

**Conclusion and Recommendations**

Insurance pricing significantly impacts Nigeria's economic growth. To enhance growth, the industry should increase premiums and investments, improve underwriting profits, and prioritize corporate governance.

In light of the result, the following suggestions are made:

1. Insurance firms should invest in portfolios that generate more investment returns, enhancing economic growth in Nigeria.

2. Insurance companies should embark on public awareness programs to increase insurance premiums and enhance economic growth.
3. The Nigerian insurance industry should prioritize corporate governance to increase underwriting profits and contribute to economic growth.

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