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Private Investment and Economic Growth in South Africa: A Multivariate Causality Approach

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Abstract. This study examines the causal relationship between private investment and economic growth in South Africa using the autoregressive distributed lag (ARDL) bound test for cointegration and data from 1980 to 2022. The study incorporated other macroeconomic determinants of private investment in the model, such as public investment and financial development, to create a multivariate Granger causality model. The results indicate that in the long and short run there is bidirectional causality between private investment and economic growth. It is also found that there is unidirectional causality from public investment to private investment in the long run. However, there is bidirectional causality between public investment to private investment, while there is unidirectional causality from private investment to financial development in the short run. Based on these results, the study concludes that economic growth and public investment promote private investment in South Africa.

Keywords: public investment, financial development, multivariate Granger causality, South Africa

JEL Classification: E22, O16, O47

1. Introduction

The findings from the studies that have been conducted to determine the relationship between private investment and its determinants (Mlambo and Oshikoya, 2001; Erden and Holcombe, 2006; Ambaye et al., 2013; Maluleke, 2024) have been inconclusive. These determinants from these studies include public investment, economic growth, interest rates, credit to private sector, and inflation, among others. These studies have found that the impact of the determinants on private investment can be positive, negative, or inconclusive; however, most

of the studies found that the determinants have a positive effect. Although the debate on the determinants of private investment has not been fully settled. It has been well researched unlike the causality dimension whose debate is still nascent, as economies engage in the pro-investment mode, designing policies that attract private investment. In recent times, the debate has widened, extending from merely establishing the drivers of private investment to the addition of the causality element, further examining the direction of causality between private investment and its determinants (see Tan and Tang, 2012; Molapo and Damane, 2015). Furthermore, in terms of the causality between private investment and its various determinants such as economic growth, the literature is both scant and inconclusive, leaving policy gaps, especially in African countries and South Africa in particular, where economies are desperate to increase investment and improve their economic growth prospects. Prior studies tended to focus on determining the factors of private investment. However, little attention has been given to the assessment of the causal linkages between private investment and economic growth.

In literature, there are four views that exist on this causal relationship between private investment and its numerous macroeconomic determinants. These are: unidirectional causality from determinants to private investment, unidirectional causality from private investment to the determinants, bidirectional causality between private investment and the determinants, and no causal relationship between private investment and the determinants (see Erenburg and Wohar, 1995).

Even though several studies have been done on the dynamic causal linkage between private investment and some of its macroeconomic determinants in developing and developed countries, the finds are largely inconclusive. Therefore, the study aims to fill this gap by investigating the causal relationship between private investment and economic growth in South Africa using multivariate Granger causality. The motivation for the study focusing on South Africa is that the country has developed policies and strategies over the years to increase the level of investment. As the country wants to promote and increase the level of investment, especially from the private sector, the current study aims to establish whether economic growth causes private investment. The findings of the study will also add to the literature on the causal relationship between private investment and its determinants in Southern African countries.

The rest of the study is organized as follows: Section 2 reviews literature on the causality between private investment and its determinants, Section 3 discusses the methodology selected to examine the causal relationship, Section 4 presents the empirical findings and discussion of the results, and, lastly, Section 5 concludes the study.

2. Literature Review

The findings on the causal relationship between private investment and its determinants, although limited, show that all four possible outcomes of the analysis have found support in empirical literature. Thus, there is empirical evidence of unidirectional causality from private investment to its determinants and from determinants to private investment, bidirectional causality between private investment and its determinants, and no causality between private investment and its determinants.

In Malawi, Mataya and Veeman (1996) analysed the investment behaviour in the private and public goods sectors between 1967 and 1988 and used the Granger causality test. The study found that there was a bidirectional causality between private and public investment. Nazlioglu et al. (2009) investigated the causality between investment and financial development in Turkey in both the short and the long run using quarterly data from 1987-1 to 2007-1. Using the Dolado and Lutkepohl test of Granger causality, the study found that there was a bidirectional causality between private investment and financial development.

Using the Granger causality test, Keho and Echui (2011) found that public investment in transport infrastructure had not caused private investment both in the short and the long run in Côte d'Ivoire over the period from 1970 to 2002. Also using the Granger causality test, Aurangzeb and Haq (2012) examined the causal relationship between investments and economic growth in Pakistan for the period from 1981 to 2010. They also examined the causal relationship using the Granger causality test and found a unidirectional causality running from economic growth to private investment.

Muyambiri et al. (2012) examined the relationship between private and public investment in Zimbabwe for the period from 1967 to 2004, and the findings from the Granger causality test reveal that there is unidirectional causality from private to public investment. Also using the Granger causality test, Tan and Tang (2012) examined the dynamic relationship between private domestic investment, the user cost of capital, and economic growth in Malaysia for the period from 1970 to 2009 and found that there was a unidirectional causality running from private domestic investment to economic growth and to the user cost of capital in the long run. In the short run, there is a bi-directional causality between private domestic investment and user cost of capital and between private domestic investment and economic growth.

Xu and Yan (2014) investigated the causal relationship between private investment and disaggregated government investment in China for the period

from 1980 to 2011. Using the Granger causality test, the results reveal that there is unidirectional causality from government investment in public goods to private investment and bidirectional causality between government investment in private goods and private investment in China.

In Lesotho, Molapo and Damane (2015) examined the direction of causality between private investment and its determinants using the Granger causality test for the period from 1982 to 2013. The study found that there was a unidirectional causality running from private investment to GDP per capita, a bidirectional causality between private investment and government investment and did not find a causal relationship between private investment and general price level.

Using the Granger causality test for Tanzania, Mabula and Mutasa (2019) found that there was no causal relationship between private investment and domestic debt, external debt, debt service, and private consumption expenditure. Olaifa and Benjamin (2019) used the Toda-Yamamoto (T-Y) causality test and found that there was a bidirectional causality between private sector investment and government capital expenditure in Nigeria. Also using the Toda-Yamamoto (TY) Granger causality test, Ari et al. (2019) examined the causal relationship between public investment and private investment in GCC countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE)) for the period from 1960 to 2015. They found that in two of the counties, Bahrain and Kuwait, there was unidirectional causality running from private to public investment and bidirectional causality between public and private investment. The study further established that there was nonlinear bidirectional causality between public and private investment in Saudi Arabia and the UAE.

Ari and Koc (2020) investigates the nonlinear causal relationships between public/private investment and economic growth in the U.S. and China using data from 1960 to 2015. The linear causality results reveal that private investment has bidirectional causality between economic growth and public investment in China and in the U.S. and that in the U.S. there is a unidirectional nonlinear causality running from private to public investment and from economic growth to private investment. The nonlinear Granger causality test results show that private investment has bidirectional causality with economic growth and public investment in China, while in the U.S. there is a unidirectional nonlinear causality running from private to public investment and from economic growth to private investment. Awad et al. (2021) used the Granger causality test and found that there was no causality between domestic private investment and lending interest rates in Palestine. A summary of empirical studies on the causal relationship between private investment and its determinants is presented in the table below.

Table 1. *A summary of empirical studies on the causal relationship between private investment and its determinants*

Author(s)	Country and sample period	Methodology	Direction of Causality
Unidirectional Causality from Private Investment to Determinants			
Muyambiri et al. **(2012)**	Zimbabwe 1967–2004	Granger causality test	private investment → public investment
Tan and Tang (2012)	Malaysia 1970–2009	Granger causality test	private domestic investment → economic growth private domestic investment → user cost of capital
Molapo and Damane (2015)	Lesotho 1982–2013	Granger causality test	private investment → GDP per capita
Ari et al. (2019)	GCC countries 1960–2015	TY Granger causality test	private investment → public investment (Bahrain and Kuwait)
Ari and Koc (2020)	U.S. and China 1960–2015	TY and Nonlinear Granger causality test	Linear and nonlinear causality for the U.S. private investment → public investment
Unidirectional Causality from Determinants to Private Investment			
Hyder (2001)	Pakistan 1964–2001	Granger causality test	economic growth → private investment public investment → private investment
Aurangzeb and Haq (2012)	Pakistan 1981–2010	Granger causality test	economic growth → private investment
Xu and Yan (2014)	China 1980–2011	Granger causality test	government investment in public goods → private investment
Ari et al. (2019)	GCC countries 1960–2015	TY Granger causality test	nonlinear causality: public investment → private investment (Bahrain, Oman, and Qatar)
Ari and Koc (2020)	U.S. and China 1960–2015	TY and nonlinear Granger causality test	linear and nonlinear causality for U.S economic growth → private investment
Bidirectional Causality between Private Investment and Determinants			
Erenburg and Wohar (1995)	1954–1989	Multivariate Granger causality	private investment ↔ public investment
Mataya and Veeman (1996)	Malawi 1967–1988	Granger causality test	private investment ↔ public investment

Author(s)	Country and sample period	Methodology	Direction of Causality
Tan and Tang (2012)	Malaysia 1970–2009	Granger causality test	In the short run: private domestic investment ↔ user cost of capital private domestic investment ↔ economic growth
Nazlioglu et al. (2009)	Turkey 1987-1–2007-1	Dolado and Lutkepohl test of Granger causality	private investment ↔ financial development
Xu and Yan (2014)	China 1980–2011	Granger causality test	government investment in private goods ↔ private investment
Molapo and Damane (2015)	Lesotho 1982–2013	Granger causality test	private investment ↔ government investment
Ari et al. (2019)	GCC countries 1960–2015	T-Y and nonlinear Granger causality test	Public investment ↔ private investment (Oman, Qatar, United Arab Emirates) Nonlinear causality: public investment ↔ private investment (Saudi Arabia and United Arab Emirates)
Olaifa and Benjamin (2019)	Nigeria 1981–2016	T-Y causality test	private sector investment ↔ government capital expenditure
Ari and Koc (2020)	U.S. and China 1960–2015	TY and nonlinear Granger causality test	linear and nonlinear causality for China public investment ↔ private investment private investment ↔ economic growth
Studies That Found No Causality between Private Investment and Determinants			
Keho and Echui (2011)	Côte d'Ivoire 1970–2002	Granger causality test	private investment ≠ public investment in transport
Molapo and Damane (2015)	Lesotho 1982–2013	Granger causality test	private investment ≠ general price level
Mabula and Mutasa (2019)	Tanzania 1970–2016	Granger causality test	private investment ≠ domestic debt, external debt, debt service and private consumption expenditure
Awad et al. (2021)	Palestine Q1/2008–Q4/2017	Granger causality test	private investment ≠ lending interest rate

Source: author's compilation

Notes: ↔ is bidirectional causality, → is unidirectional causality, and ≠ is no causality.

3. Methodology

To examine the causal relationship between private investment and economic growth, the study employs the autoregressive distributed lag (ARDL) methodology and the error correction model (ECM) Granger causality framework. The ARDL approach was selected, as it has advantages such as its efficiency for small samples and that the variables do not need to be integrated in the same order, wherefore variables that are I(0) and I(1) can be included in the model. As there are limitations with the bivariate causality framework, this study used the multivariate Granger causality. This is because the bivariate causality model suffers from the omission of an important variable in the model, and this could lead to erroneous causal inferences (Luintel and Khan, 1999). Therefore, public investment and financial development are included as intermittent variables to make a multivariate Granger causality framework. The variables are chosen because in the literature they have been found to be the determinants of private investment (see Ngoma et al., 2019; Mose et al., 2020; Maluleke et al., 2023). The multivariate Granger causality model function is expressed as follows:

$$PrvI = f(Y, PubI, FD)$$

Private investment (PrvI), which is the dependent variable, is measured by private investment as a percentage of GDP. The explanatory variables include economic growth (Y) proxied by GDP per capita, public investment (PubI) measured by public investment as a percentage of GDP, and financial development (FD) proxied by domestic credit to private sector as a percentage of GDP. The study utilized annual time series data from 1980 to 2022 obtained from the World Bank Development Indicators. The selection of the study period was based on the availability of reliable data on the variables included in the study. The measurement of the variables is presented in *Table 2*.

Table 2. *Definitions of the variables*

Variables	Measurements
PrvI – Private investment	Private investment as a percentage of GDP
Y – Economic growth	GDP per capita (constant 2015 US $)
PubI – Public investment	Public investment as a percentage of GDP
FD – Financial development	Domestic credit to private sector as a percentage of GDP

Source: author's compilation

The ARDL model for cointegration is conducted by taking in turn each variable included in the model as a dependent variable. Following Pesaran et al. (2001),

the ARDL model used in this study for all the equations is expressed as follows (see Nyasha and Odhiambo, 2020):

$$\Delta PrvI_t = a_0 + \sum_{i=1}^{n} a_{1i}\,\Delta PrvI_{t-i} + \sum_{i=0}^{n} a_{2i}\,\Delta Y_{t-i} + \sum_{i=0}^{n} a_{3i}\,\Delta PubI_{t-i} + \sum_{i=0}^{n} a_{4i}\,FD_{t-i} + a_1 PrvI_{t-1} + a_2 Y_{t-1} + a_3 PubInv_{t-1} + a_4 FD_{t-1} + \mu_{1t}$$

$$\Delta Y_t = \gamma_0 + \sum_{i=1}^{n} \gamma_{1i}\,\Delta Y_{t-i} + \sum_{i=0}^{n} \gamma_{2i}\,\Delta PrvI_{t-i} + \sum_{i=0}^{n} \gamma_{3i}\,\Delta PubI_{t-i} + \sum_{i=0}^{n} \gamma_{4i}\,\Delta FD_{t-i} + \Delta TO_{t-i} + \gamma_1 Y_{t-1} + \gamma_2 PrvI_{t-1} + \gamma_3 PubI_{t-1} + \gamma_4 FD_{t-1} + \mu_{2t}$$

$$\Delta PubI_t = \sigma_0 + \sum_{i=1}^{n} \sigma_{1i}\,\Delta PubI_{t-i} + \sum_{i=0}^{n} \sigma_{2i}\,Y_{t-i} + \sum_{i=0}^{n} \sigma_{3i}\,PrvI_{t-i} + \sum_{i=0}^{n} \sigma_{4i}\,\Delta FD_{t-i} + \sigma_1 InPubI_{t-1} + \sigma_2 Y_{t-1} + \sigma_3 PrvI_{t-1} + \sigma_4 FD_{t-1} + \mu_{3t}$$

$$\Delta FD_t = \delta_0 + \sum_{i=1}^{n} \delta_{1i}\,\Delta FD_{t-i} + \sum_{i=0}^{n} \delta_{2i}\,\Delta Y_{t-i} + \sum_{i=0}^{n} \delta_{3i}\,\Delta PubI_{t-i} + \sum_{i=0}^{n} \delta_{4i}\,\Delta PrvI_{t-i} + \delta_1 FD_{t-1} + \delta_2 Y_{t-1} + \delta_3 PubI_{t-1} + \delta_4 PrvI_{t-1} + \mu_{4t}$$

The study tests for cointegration among the variables in the causality models before Granger causality could be estimated. The computed F-statistic is used to determine the cointegration. If the computed F-statistic is above the value of the upper critical bounds, then the null hypothesis is to be rejected. If the F-statistic is below the values of the lower bounds, then the null hypothesis of no cointegration is accepted (Pesaran et al. 2001). After the confirmation of cointegration between private investment and the explanatory variables, the causal relationship is investigated using the multivariate Granger causality model based on an ECM framework. The ECM-based Granger multivariate causality model specifications are provided as follows:

$$\Delta PrvI_t = a_0 + \sum_{i=1}^{n} a_{1i}\,\Delta PrvI_{t-i} + \sum_{i=0}^{n} a_{2i}\,\Delta Y_{t-i} + \sum_{i=0}^{n} a_{3i}\,\Delta PubI_{t-i} + \sum_{i=0}^{n} a_{4i}\,FD_{t-i} + a_5 ECM_{t-1} + \mu_{1t}$$

$$\Delta Y_t = \gamma_0 + \sum_{i=1}^{n} \gamma_{1i}\,\Delta Y_{t-i} + \sum_{i=0}^{n} \gamma_{2i}\,\Delta PrvI_{t-i} + \sum_{i=0}^{n} \gamma_{3i}\,\Delta PubI_{t-i} + \sum_{i=0}^{n} \gamma_{4i}\,\Delta FD_{t-i} + \gamma_5 ECM_{t-1} + \mu_{2t}$$

$$\Delta PubI_t = \sigma_0 + \sum_{i=1}^{n} \sigma_{1i}\, \Delta PubI_{t-i} + \sum_{i=0}^{n} \sigma_{2i}\, Y_{t-i} + \sum_{i=0}^{n} \sigma_{3i}\, PrvI_{t-i} + \sum_{i=0}^{n} \sigma_{4i}\, \Delta FD_{t-i} + \sigma_5 ECM_{t-1} + \mu_{3t}$$

$$\Delta FD_t = \delta_0 + \sum_{i=1}^{n} \delta_{1i}\, \Delta FD_{t-i} + \sum_{i=0}^{n} \delta_{2i}\, \Delta Y_{t-i} + \sum_{i=0}^{n} \delta_{3i}\, \Delta PubI_{t-i} + \sum_{i=0}^{n} \delta_{4i}\, \Delta PrvI_{t-i} + \delta_5 ECM_{t-1} + \mu_{4t},$$

where: *PrvI* – the private investment; *Y* – the economic growth; *PubInv* – the public investment; *FD* – financial development; $\mu_{1t} \ldots \mu_{4t}$ – the error term; a_0, γ_0, σ_0, δ_0 – the constants; $a_1 \ldots a_4$, $\gamma_1 \ldots \gamma_4$, $\sigma_1 \ldots \sigma_4$, $\delta_1 \ldots \delta_4$ – the coefficients; a_5, γ_5, ψ_5, δ_5 – the error correction term.

After confirmation of the cointegration relationship, the next step is to examine the direction of causality between the variables by including the ECM as an additional variable in the analysis where cointegration was confirmed. The Granger causality test is performed without an ECM for the equations where no cointegration is confirmed. The short-run causality is determined by the joint Wald *F* test, while the significance of the lagged error correction term using the t-statistics determines the long-run causality (see Chirwa and Odhiambo, 2019; Hossin, 2023).

4. Discussion of the Results

Table 3 shows the descriptive statistics of the variables, which are private investment, economic growth, public investment, and financial development. The reported results include the mean, maximum, minimum values, and standard deviation. The descriptive statistics results indicate that economic growth (Y) is more spread out with a standard deviation of 679.293 and that public investment has the lowest standard deviation of 1.875. The results further show that the variables of interest, which are economic growth and private investment, are normally distributed. This is revealed by the probability values of the Jarque–Bera statistics that are higher than the 0.05 level of significance.

Table 3. *Descriptive statistics*

	PrvI	**Y**	**PubI**	**FD**
Mean	13.989	5354.244	4.061	100.956
Median	13.594	5329.489	3.211	105.276
Maximum	18.908	6263.104	8.447	142.422
Minimum	10.768	4269.700	2.416	50.085
Std. Dev.	2.157	679.293	1.875	26.416
Skewness	0.753	-0.043	1.231	-0.527

	PrvI	Y	PubI	FD
Kurtosis	2.749	1.537	3.053	1.996
Jarque–Bera	4.080	3.757	10.607	3.709
Probability	0.130	0.152	0.005	0.157
Observations	42	42	42	42

Source: author's calculations

The study starts by testing the variables for stationarity. Although the ARDL-bounds approach does not require all the variables included in the model to be integrated of the same order, it requires that all the variables are not integrated of order higher than 2. Therefore, it is important to conduct the stationarity test, and the Augmented Dickey–Fuller (ADF) and Phillips–Perron (PP) tests are utilized for this purpose in the present study. The results show that all the variables are integrated of order I(1) when using both tests. The results of the stationarity test are reported in *Table 4*.

Table 4. *Stationarity test of all variables*

Variable	GLS-DF Test		PP Test	
	Trend and intercept		Trend and intercept	
	Level	Δ	Level	Δ
PrvI	-2.559	-4.186***	-2.081	-3.956**
Y	-1.639	-4.634***	-1.913	-4.922***
PubI	-1.179	-5.687***	-1.467	-6.282***
FD	0.680	-4.629**	0.858	-5.788***

Source: author's calculations

Notes: ** and *** indicate stationarity at 5% and 1% significance levels respectively; Δ is first difference.

As all the variables are integrated of I(1), the ARDL bounds test for cointegration can be used. Therefore, the next step is to perform the bounds F-statistic test for cointegration to confirm if there is a long-run relationship or not among the variables. The results of the cointegration test are reported in *Table 5*.

Table 5. *Cointegration test results*

Dependent Variable	Lag selection	F-Statistic				Conclusion	
PrvI	[2,2,0,0]	5.304***				Cointegrated	
Y	[2,2,0,0]	4.252*				Cointegrated	
PubI	[1,2,0,2]	2.789				Not cointegrated	
CRED	[2,0,0,0]	3.017				Not cointegrated	
Asymptotic critical values		1%		5%		10%	
		I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
		4.29	5.61	3.23	4.35	2.72	3.77

Source: author's calculations

Notes: * and *** indicate statistical significance at 10% and 1% levels respectively.

The Akaike Information Criteria (AIC) is used to determine the ARDL optimal lag length, and the results indicate that the null hypothesis of no cointegration for private investment and economic growth equations is rejected at 1% and 10% levels of significance. For public investment and financial development equations, it is found that that there are no cointegrating relationships. The results of the cointegration tests in *Table 5* suggest that the cointegration relationship between private investment and the explanatory variables differs depending on the dependent variable used. The empirical findings of cointegration for private investment and economic growth indicate that there is at least a one-way Granger causality present between private investment, economic growth, public investment, and financial development (see Narayan and Smyth, 2008). However, this does not show the direction of the causal flow among the variables. Therefore, the next step is to test for causality between the variables in the model, for which the results are presented in *Table 6*.

Table 6. *Results of the multivariate causality test*

Dependent Variable	**Short-Run Causality**				**Long-Run Causality**
	F-statistics [Probability]				ECT_{t-1} **[t-statistics]**
	ΔPrvI	ΔY	ΔPubI	ΔFD	
ΔPrvI	—	8.400*** [0.000]	7.981*** [0.008]	0.638 [0.430]	-0.419*** [-4.817]
ΔY	5.751*** [0.003]	—	1.398 [0.246]	0.650 [0.426]	-0.071*** [-4.313]
ΔPubI	5.729** [0.023]	2.036 [0.131]	—	3.271** [0.035]	—
ΔFD	6.748** [0.014]	0.208 [0.651]	8.887*** [0.006]	—	—

Source: author's calculations

Notes: *** and ** indicate statistical significance at 1% and 5% levels respectively.

The results in *Table 6* show that there is bidirectional causality between private investment and economic growth in the long and short run in South Africa. The results concur with findings of previous studies such as Hyder (2001), Aurangzeb and Haq (2012), and Ari and Koc (2020), who have found economic growth to cause private investment. The results seem to suggest that the level of private investment in South Africa is determined by the economic growth of the country. However, in the short run, the study also found a bidirectional causality between private and public investment. Studies such as Erenburg and Wohar (1995), Mataya and Veeman (1996), among others, have also found a bidirectional causality between private and public investment.

The short-run unidirectional causal relationship is supported by the F-statistic, which is statistically significant, while the long-run causal relationship is supported by the coefficient of the ECM, which is negative and statistically significant as expected. In the long run, the causality was found to be from public investment to private investment only. The findings of the study further show that private investment causes financial development in the short run, while there is no causality in the long run. The ECM for the public investment and financial development equations are not reported, as the null hypothesis of no cointegration could not be rejected. *Table 7* presents the summary of the causality test results between private investment and economic growth.

Table 7. *Summary of the causality test results*

Short run	Long run
Y ↔ PrvI	Y ↔ PrvI
PubI ↔ PrvI	PubI → PrvI
PrvI→ FD	PrvI ≠ FD

Source: author's compilation

Note: ↔ is bidirectional causality, → is unidirectional causality, and ≠ is no causality.

5. Conclusions

The study examined the causal relationship between private investment and economic growth in South Africa for the period from 1980 to 2022 using the multivariate Granger causality model. The study finds that in the long and short run there is bidirectional causality between private investment and economic growth. Regarding public investment, there is bidirectional causality only in the short run and unidirectional causality from public investment to private investment in the long run. The study also found that there was unidirectional causality from private investment to financial development in the short run in South Africa and no causality between the two variables in the long run.

The study concludes that economic growth is the driver for private investment in South Africa. In the long run, investment is found to drive private investment. Therefore, for the economy to increase the level of private investment, the government should invest in infrastructure and not in sectors or goods that will compete with the private sector. The study further recommends that the government should formulate policies that will create a conducive environment that will develop the economy and stimulate private investment in the country such as openness of the economy, low and stable inflation rate. Therefore, the government should also continue with the incentives that encourage the private sector to participate in the economy.

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