Do Reforms in Indonesia Affect Economic Growth? Learn Ten Years from 1999-2008 Period

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Do Reforms in Indonesia Affect Economic Growth? Learn Ten Years from 1999-2008 Period

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Abstract. As a result of the monetary crisis in mid-1997, Indonesia's economic growth dropped drastically in 1998 but grew back slowly starting in 1999. Since then, the Indonesian economy has been moving slowly with low growth. From this phenomenon, this study aims to see which sectors positively influence economic growth. This research uses a quantitative method in which a model of economic growth is built as a linear regression model in a time series. The economic growth model is formed based on the neoclassical production function approach from the supply side. The economic reforms in Indonesia significantly impacted economic growth, although they had a negative effect in the first ten years. Investment growth and defense spending have a positive influence on national economic growth. Meanwhile, non-defense budget growth did not affect economic growth during the ten years before and after the reform. From these results, the best way to increase Indonesia's economic growth is to create an atmosphere that encourages both foreign and domestic investors to want to invest in Indonesia with conditions that are conducive for investors.

Keywords: Economic Growth, Economic Reforms, Investment, Government Budget, Defense Expenditure

1. Introduction

As a result of the mid-1997 monetary crisis, Indonesia's economic growth dropped drastically in 1998 but grew back slowly starting in 1999. Since then, the Indonesian economy has been moving slowly with low growth. Since 10 (ten) years after the reform era, Indonesia's economic growth has averaged below 6%. Under normal conditions, growth ranges from 4–5%, for example, global economic conditions that grow well, good macroeconomic conditions, regular seasons, good harvests, no fatal natural disasters, conducive security, and other factors. Under good conditions, it may occasionally reach 6%, but conversely, under unfavorable conditions, growth can drop to 3% if several of the abovementioned factors turn out to be unfavorable[1].

Table 1. Indonesia's Economic Growth Period 1998-2008

(in percent year on year)

1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
-13.13	0.79	4.92	3.64	4.5	4.78	5.03	5.69	5.5	6.35	6.01

Source: Central Bureau of Statistics, 2020[2]

From this explanation, curiosity arises as to why the Indonesian economy is moving slowly, especially after the economic reforms in Indonesia in 1998. For this reason, this study aims to see which sectors influence economic growth. Did all of these sectors positively influence Indonesia's economic growth during the ten-year period after Indonesia carried out economic reforms?

2. Literature Review

Indonesia's Economic Growth After Reform [1]

After the 1997 crisis, Indonesia's economic growth rate fell (-13.13%) in 1998, grew slightly (0.79%) in 1999, and got better after that. The economic growth rate from 1999 to 2005 reached an average of 4.15%. The economy grew from only 0.62%, gradually improving to 4% between 2000 and 2003. Moreover, starting in 2004 it entered the range of 5%. Only in 2007 and 2008 did Indonesia grow above 6%. However, if examined more deeply, there are problems in Indonesia's economic growth. The economic sector can be grouped into two categories: the real sector and the non-real sector. Between 1999 and 2005, the real sector grew 3.33% while the non-real sector grew 5.1%. This growth needs to be improved because the non-real sector should grow to serve the growing real sector. Between 1999 and 2005, the agricultural sector grew by 3.11%, mining -by 0.8%, and the industrial sector by 5.12%. What is more worrying is that from 2002 to 2005, the growth rate of the real sector tended to slow down. It means that the overall economic growth since 2002 is due to the non-real sector growth, which has accelerated 2 (two) times that of the real sector. [1]

4-5% growth will not negatively impact if the dominant sector for growth is the real sector. Growth in the real sector will be able to absorb an additional new labor force and slightly reduce the unemployment *buffer stock*. However, the non-real sector is the dominant growth sector. In that case, the ability to absorb labor is very low, so the open unemployment rate can increase, which impacts increasing the number of groups of poor people. The absorption capacity of the non-real sector for labor is low because they often cancel each other out. It can be seen from the continued decline in job creation for every 1% of economic growth. According to Dradjad Wibowo's calculations, from August 2002–August 2003, 1% growth created 250,000 jobs. The following year it dropped to 180,000 jobs; in February 2005 – 2006, the ratio dropped to 40,000. Suppose the non-real sector is not balanced with real sector growth. In that case, many business units will be subsistence, meaning they can survive but cannot accumulate capital to expand their business. Without business, expansion means no economic growth and no additional new jobs. Unqualified growth can make growth stagnate. Indonesia should not be trapped in a low-growth trap because it must implement policies to prevent or get out of it. [1]

Effect of Government Spending on Economic Growth [3]

According to Keynesian theory[4], "An increase in government spending causes economic growth through expansionary fiscal policy. When government spending increases, production also increases, thus causing an increase in aggregate demand, which in turn causes an increase in the gross domestic product (GDP). Theoretically, Keynesians argue that government intervention can smooth fluctuations in economic growth. The government influences the economy by promoting social welfare by implementing appropriate economic, political, social, and legal programs[5]. Therefore, public spending can be used as an exogenous fiscal policy tool to generate growth through various effects of aggregate demand, especially during recessions"[6]. Based on this argument, this study will build a model in which economic growth is a function of government spending while adding or controlling other macroeconomic variables, especially investment.

Investment is crucial in economic growth, where production depends on available capital capacity. In macro theory, investment flows are expenditures that add to the physical capital stock. In West and Thompson[7], Harrod Domar explains that investment has two characteristics. On the one hand, investment contributes to aggregate demand, helping to achieve full employment and capacity in the short term. Meanwhile, on the other hand, long-term investment contributes to economic output from the ability to produce.[8]

In empirical research, the effect of government spending on economic growth gives different results. For example, the research by Balaj & Lani[9], Kunwar[10], and Nyarko-Asomani et al.[11] gave the result that government spending positively affects economic growth. Other studies have a negative effect[12,13,14], while other studies have no effect[15]. These varied findings are made possible by the different channels utilized in the government budget. Because of this, it is necessary to find the most appropriate channel so that government spending can positively affect economic growth.

In the debate, government spending can also be seen as an obstacle to development based on its[16]. "The government competes with private businesses in financing public spending through loans, causing a crowding-out effect. It will lead to a significant economic investment reduction[12]. Proponents of the neoclassical public expenditure theory emphasize that the government should not be too involved in the economy in carrying out its role in the economy[17]. In many literature studies, it is agreed that the effect of public sector spending on economic growth is indirect. However, it can stimulate economic growth[18].

The nature and influence of government spending on economic growth depend on its form or channel. Government spending on investment and productive activities in state-owned production positively contributes to economic growth. In contrast, government spending on consumption is expected to have a negative impact on growth[19]. According to Bose et al.[20], public sector spending can lead to economic growth indirectly by

increasing the marginal productivity of government and private. For example, government spending on research and development can facilitate increased production levels. Increased government spending on security can facilitate lower production costs because it reduces the need to protect physical assets and employees, thereby attracting more private investment in physical asset investment and increasing worker productivity[21].

The country's economy is negatively affected when the size of the government is so large, that it is necessary to finance government spending by increasing taxes, borrowing, and printing more money to finance the economy[22]. In addition, the size of the government can provide grounds for lobbying, corruption, and other rent-seeking activities. These activities can cause serious macroeconomic challenges, such as a decrease in the standard and quality of public infrastructure services, such as justice, health, education, and defense, unattractive foreign investment, and lead to unequal distribution of income[17]." Despite this uncertainty, there is a well-founded theory that government spending can positively influence economic growth[4,23].[3]

3. Methods and Models

This research uses a quantitative method in which a model of economic growth is built as a linear regression model in a time series. The economic growth model is formed based on the supply-side neoclassical production function approach developed by Feder[24] and Denison[25]. The economy is divided into sectors, where each sector will provide externalities that affect other sectors. Adapting this, Ram[26] developed a two-sector model consisting of the government and the private sector.[27,28] In its development, Mintz & Huang[29,30] divided the economy into several sectors and argued that, " The effects of externalities from the military sector and non-military sectors were different. Therefore, externality effects from the military sector, the non-military public sector, and the *private sector* are included in the production function separately." Review the effects of these externalities because their influence is not reflected in market prices [31]. Based on this, a model was built that can see the influence of these various sectors on economic growth, as follows.

Production Function. Formally, the model of the production function of the three economic sectors is given by the following aggregate production function: $M = F(L_m, K_m)\ ;\ N = G(L_n, K_n)\ ;\ P = H(L_p, K_p, M, N)$ (1)

Marginal Productivity (δ_i). The marginal productivity of *labor* and *capital* can be written based on the P (*private*) sector as follows: $F_l / H_l = F_k / H_k = 1 + \delta_m\ ;\ G_l / H_l = G_k / H_k = 1 + \delta_n$ (2)

Economic *Input*. *Total input* is the sum of labor (*labor*) and capital (*capital*):

$L = L_m + L_n + L_p\ ;\ K = K_m + K_n + K_p$ (3)

Total output as an objective function. Total *output* (*total economic output*), GDP *(Y),* is the sum of *the outputs* of all sectors, namely: $Y = M + N + P$ (4)

The economy grows over time; from equation (1), it can be differentiated with time *t* from each equation, namely:

$M = F(L_m, K_m)$ then: $dM = F_{l.}\, dL_{m} + F_{k.}\, dK_{m}$

$N = G(L_n, K_n)$ then: $dN = G_{l.}\, dL_{n} + G_{k.}\, dK_{n}$

$P = H(L_p, K_p, M, N)$ So: $dP = H_l dL_p + H_k dK_p + H_m dM + H_n dN$ (5)

The total differential sum of all *outputs* gives the result:

$$dY = F_l dL_m + F_k dK_m + G_l dL_n + G_k dK_n + H_l dL_p + H_k dK_p + H_m dM + H_n dN \quad (6)$$

Collecting the same variables gives:

$$dY = ((1+\delta_m)H_l dL_m + (1+\delta_n)H_l dL_n + H_l dL_p) + ((1+\delta_m)H_k dK_m + (1+\delta_n)H_k dK_n + H_k dK_p) + (H_m dM + H_n dN)$$

$$\Leftrightarrow dY = (H_l(dL_m + dL_n + dL_p) + (\delta_m H_l dL_m + \delta_n H_l dL_n)\ (H_k(dK_m + dK_n + dK_p) + (\delta_m H_k dK_m + \delta_n H_k dK_n) + (H_m dM + H_n dN)$$

$$\Leftrightarrow dY = H_l dL + (\delta_m H_l dL_m + \delta_n H_l dL_n) + H_k dK + (\delta_m H_k dK_m + \delta_n H_k dK_n) + (H_m dM + H_n dN)$$

$$\Leftrightarrow dY = (H_l dL + H_k dK) + (H_m dM + H_n dN) + \delta_m H_l dL_m + \delta_n H_l dL_n + \delta_m H_k dK_m + \delta_n H_k dK_n$$

$$\Leftrightarrow dY = (H_l dL + H_k dK) + (H_m dM + H_n dN) + \delta_m\left(\frac{F_l}{1+\delta_m} dL_m + \frac{F_k}{1+\delta_m} dK_m\right) + \delta_n\left(\frac{G_l}{1+\delta_n} dL_n + \frac{G_k}{1+\delta_n} dK_n\right)$$

$$\Leftrightarrow dY = (H_l dL + H_k dK) + (H_m dM + H_n dN) + \frac{\delta_m}{1+\delta_m} dM + \frac{\delta_n}{1+\delta_n} dN$$

$$\Leftrightarrow dY = (H_l dL + H_k dK) + \left(\frac{\delta_m}{1+\delta_m} + H_m\right) dM + \left(\frac{\delta_n}{1+\delta_n} + H_n\right) dN \quad (7)$$

Both sides are divided by the *total output* or *Y*, so it becomes:

$$\frac{dY}{Y} = H_l . \frac{dL}{Y} + H_k . \frac{dK}{Y} + \left(\frac{\delta_m}{1+\delta_m} + H_m \right) . \frac{dM}{Y} + \left(\frac{\delta_n}{1+\delta_n} + H_n \right) \frac{dN}{Y} \quad (8)$$

By performing mathematical manipulations it gives:

$$\frac{dY}{Y} = H_l . \frac{dL}{L} \frac{L}{Y} + H_k . \frac{dK}{K} \frac{K}{Y} + \left(\frac{\delta_m}{1+\delta_m} + H_m \right) . \frac{dM}{M} \frac{M}{Y} + \left(\frac{\delta_n}{1+\delta_n} + H_n \right) \frac{dN}{N} \frac{N}{Y} \quad (9)$$

Thus the final model becomes:

$$\frac{dY}{Y} = \psi_l . \frac{dL}{L} + \psi_k . \frac{dK}{K} + \left(\frac{\delta_m}{1+\delta_m} . \frac{M}{Y} + \psi_m . \right) . \frac{dM}{M} + \left(\frac{\delta_n}{1+\delta_n} . \frac{N}{Y} + \psi_n . \right) . \frac{dN}{N} \quad (10)$$

The hypothesis to be tested is:

Ho $_1$: There is no effect of investment growth on national economic growth
Ho $_2$: There is no effect of the growth of the defense budget on national economic growth
Ho $_3$: There is no influence from the growth of the non-defense budget on national economic growth
Ho $_4$: There is no influence of Indonesian reforms on national economic growth

Model (10) above is simplified into a linear regression model to test the hypothesis:

$$GROWTH = C(1) + C(2).GNIV + C(3).GMIL + (C4).GNMIL + (C5).Dummy + e \quad (11)$$

Where: *GROWTH*= the economic growth; *GNIV*= the investment growth; *GMIL*= the government's defense budget growth; *GNMIL*= the non-defense government budget growth.

4. Results And Discussion

Data

The data is secondary data for 20 years, namely 10 (years) before the reformation in Indonesia and 10 (ten) years after the reformation. The data is taken from the *World Development Indicator*[32].

Table 1. Data from Research Variables

No	Year	*GROWTH*	*GINV*	*GMIL*	*GNMIL*	*YMIL*	*YNMIL*	*Dummy*
1.	1989	0.086955	0.116061	0.037838	0.112703	0.018076	0.077183	0
2.	1990	0.086192	0.103303	0.135572	0.025341	0.018991	0.072627	0
3.	1991	0.085515	0.091403	0.050202	0.051580	0.018332	0.070204	0
4.	1992	0.069717	0.097548	0.106964	0.041856	0.019028	0.068275	0
5.	1993	0.070030	-0.002198	0.023484	-0.004294	0.018163	0.063384	0
6.	1994	0.072693	0.154239	0.146902	-0.015813	0.019562	0.058015	0
7.	1995	0.080624	0.122755	0.101412	-0.018215	0.019973	0.052555	0
8.	1996	0.073648	0.048201	0.119176	-0.011015	0.020903	0.048289	0
9.	1997	0.045928	0.061217	-0.224455	0.084255	0.015951	0.050176	0
10.	1998	-0.140720	-0.494906	-1.019698	0.000651	0.006623	0.057795	0
11.	1999	0.007880	-0.264450	0.233553	-0.022658	0.008300	0.056057	1
12.	2000	0.048028	0.161018	0.237802	0.034181	0.010034	0.055286	1
13.	2001	0.035787	0.082166	-0.034380	0.091210	0.009354	0.058436	1
14.	2002	0.044012	-0.045626	0.258501	0.098500	0.011592	0.061709	1
15.	2003	0.046696	0.102911	0.434699	0.016761	0.017087	0.059889	1
16.	2004	0.049084	0.066757	0.115328	0.016279	0.018257	0.057956	1
17.	2005	0.055364	0.116726	-0.005535	0.085254	0.017178	0.059715	1
18.	2006	0.053550	0.013346	0.243679	0.043416	0.020776	0.059113	1
19.	2007	0.061519	0.019735	0.146921	-0.003003	0.022628	0.055419	1
20.	2008	0.058331	0.118880	-0.052026	0.154917	0.020264	0.061039	1

Source: Results of Data Processing.

Note: Variables of labor or population are omitted in the model because their growth does not vary too much and to increase the degree of freedom in carrying out data regression. The dummy in the model shows economic reform in 1998 and the separation of the military and police departments in 1999. In 1998 and before that, the dummy value was 0 (zero), while in 1999 and after, the dummy value was 1 (one).

Regression results are presented in the following table:

Table 2. Linear Regression Results from Data

	coefficient	std. Error	t-Statistics	Prob.
C(1)	0.041635	0.024066	1.729995	0.1092*
C(2)	0.090345	0.048434	1.865299	0.0868*
C(3)	0.058791	0.025931	2.267235	0.0427**
C(4)	-0.115514	0.302637	-0.381692	0.7094
C(5)	-0.029250	0.010297	-2.840499	0.0149**

R-squared=0.942195 ; Adjusted R-squared=0.908475 ; Durbin-Watson stat=1.727902
Source; Data Processing Results.

From the table above, the regression results show that the reforms that took place in Indonesia significantly influenced economic growth, even though in the first ten years, they had a negative effect. Investment growth has a positive influence on national economic growth. The growth in military spending has had a significant negative effect on economic growth. In contrast, the growth in the non-defense budget did not affect economic growth during the 10 (ten) years before and after the reform.

5. Conclusions

The regression results show that investment and military spending positively influence economic growth. To these results, the best way to increase Indonesia's economic growth is to create an atmosphere that encourages foreign and domestic investors to want to invest in Indonesia. There needs to be more than creating conducive conditions for investors with the availability of business fields but also good security conditions, legal certainty, and tolerance conditions for newcomers. For this reason, it is necessary to increase the military budget, which is still too small compared to other countries in Indonesia's strategic environment. The government budget also needs to encourage economic growth in the real sector, not just the non-real sector and the routine annual budget. Further research needs to be carried out by adding variables and data, especially to form a model that can further explore the government budget so that it influences economic growth.

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