



The research of relevance among Economic growth, unemployment, external debt and national expenditure in Viet Nam

Thai Thi Kim Oanh¹, Nguyen Thị Thu Cuc², Nguyen Thai Dung³, Dao Quang Thang⁴

^{1,2,3} Department of Economics, ⁴Youth Group
^{1,2,3,4}Vinh University

¹ Email: Thaithikimoanhkt@gmail.com, ² Email: cucntt@vinhuni.edu.vn,
³Email: ntdung@vinhuni.edu.vn, ⁴Email: Daoquangthang@gmail.com

ABSTRACT

The objective of this study is to assess high school students' satisfaction with the new English program at in Hanoi. Results from the survey of 314 students in 8 high schools in Hanoi and the in-depth interview of 11 people (included 2 teachers, 3 parents and 6 students) shows that students satisfied with the new English program at medium level. Those students tend to be more satisfied with learning environment. In contrast, they have the lowest level of satisfaction with teaching methods, and English speaking skills (especially the pronunciation) of teachers. This study also recommended the schools to create encouraging environment by organizing extra activities and improving facilities quality. Besides, the Ministry of Education and Training should improve the textbook' contents and English teacher's expertise to increase students' satisfaction.

Keywords: Student satisfaction, Teaching English, High school.



1. Introduction

With the average growth by 6.6% over the period 2000–2018, Viet Nam's economy has been known as the most dynamic in East Asia. This is a result of an expansion in exports in addition to stable macroeconomics. However, this country must face economic obstacles such as macroeconomic and financial vulnerabilities and the increase of asset prices and ignite inflationary effects due to rapid monetary expansion. Further, thin financial buffers generate an inflexibility of macroeconomic policy frameworks in managing possible shocks.

Since 2005, foreign debt of Viet Nam increased rapidly and in early 2018, foreign debt level accounted for 51,8% of gross domestic product (GDP) of this country. Most of the debt of Viet Nam is public debt and by 2019, public debt accounted for 58.4% of GDP of this country. The Vietnamese government is facing budget deficit because of increasing expenditures which accounting for more than two third of the government's annual spending. In the last a decade, external debt of Viet Nam tended to increase continuously.

What is the relevance among Economic Growth, Unemployment, External Debt and National Expenditure in Viet Nam? How do these variables correlated in the short run and long run? This article aims to examine the causal relevance among Economic Growth, Unemployment, External Debt and National Expenditure in Viet Nam for the last three decades (1987–2018). This period is chosen for the study because it presents important events for the development of socio-economics of Viet Nam. For example, in 1986, this country has implemented the renovation by eradicating a planned central economy and transforming into a market-oriented economy. After that, the integration of Vietnam into the international community has been enhanced by participating in the Association of Southeast Asian Nations (ASEAN) in 1995 and the World Trade Organization (WTO) in 2006. Another important contribution of the study to practice is it recommends policies to foster economic growth, control external debt and unemployment to achieve a sustainable development of Viet Nam.

2. Methodology

2.1. Data and Sources

A panel dataset for the relevance among Economic Growth, Unemployment, External Debt and National Expenditure in Viet Nam is gathered from the database released by the World Bank. A panel dataset is collected for the last three decades (1987-2018). So that, a total of 30 observations is entered for data analysis. The panel data is used for this research because of the following advantages: (1) it benefits in terms of obtaining a large sample, giving more degree of freedom, more information, and less multi-collinearity among variables; and (2) it may overcome constraints related to control individual or time heterogeneity faced by the cross-sectional data (Hsiao, 2014).



2.2. The Vector Autoregressive (VAR) Model

The VAR model is used to examine the causality between external debt, GDP, unemployment and national expenditure in Viet Nam for the last three decades (1987-2018). The VAR model is chosen for this study because it interpret the endogenous variables solely by their own history, apart from deterministic regressors and therefore this method incorporates non-statistical a priori information (Pfaff, 2008). In addition, the VAR model is a popular method in economics and other sciences since it is a simple and flexible model for multivariate time series data (Suharsono et al., 2017).

The specification of a VAR model can be defined as follows (Pfaff, 2008):

$$Y_t = A_1 Y_{t-1} + \dots + A_p Y_{t-p} + \epsilon_t$$

Where: Y_t denotes a set of K endogenous variables (external debt, GDP, unemployment rate, and national expenditure); A_i represents $(K \times K)$ coefficient matrices for $i = 1, \dots, p$; and ϵ_t is a K -dimensional process with $E(\epsilon_t) = 0$.

An important characteristic of the VAR model is stability and therefore it generates stationary time series with time invariant means, variances and covariance structure, given sufficient starting values. The stability of an empirical VAR model can be analyzed by considering the companion form and computing the eigenvalues of the coefficient matrix. A VAR model may be specified as follows (Pfaff, 2008):

$$\epsilon_t = A \epsilon_{t-1} + V_t$$

Where: ϵ_t denotes the dimension of the stacked vector; A is the dimension of the matrix $(Kp \times Kp)$; and V_t represents $(Kp \times 1)$.

Table 1. Description of covariates in the VAR model

Variable definitions	Unit
External debt: the aggregate of debt liabilities to nonresidents to be repaid in foreign currency, goods or services	US\$
GDP	US\$
Unemployment rate	%
National expenditure: the total expense of a country, including both public and private expenses, excluding export expenses	US\$

In this study, the procedure of a VAR model comprises six steps, consisting of (1) performing the unit root test; (2) determining lag length; (3) estimating the VAR model; (4) testing the Granger causality; (5) checking the stability of eigenvalues; and (6) implementing the Johansen test for co-integration. The VAR model is estimated by the Stata MP 14.2 software.



3. Results and Discussion

3.1. Characteristics of Economic Growth, Unemployment, External Debt and National Expenditure in Viet Nam

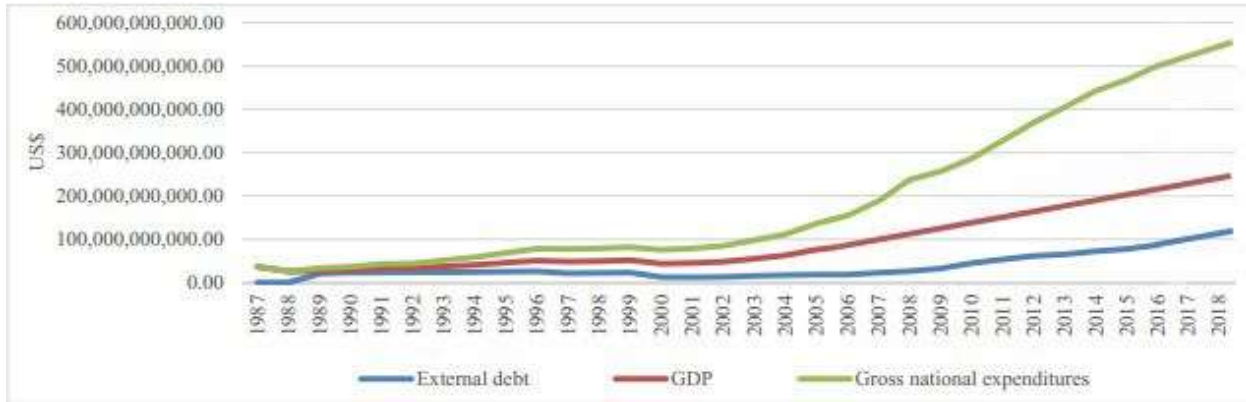


Figure 1. External debt, GDP and national expenditure of Viet Nam (1987-2018)

(Source. World Bank, 2018)

For the last three decades (1987-2018), GDP and national expenditure of Viet Nam presented a sharp increase, in particular 2004 onward. By 2018, in Viet Nam, national expenditure was higher than GDP by more than US\$3.3 billion. The correlation between GDP and national expenditure can be explained by the formula used to compute GDP. Specifically, GDP is calculated by a total of national expenditure and trade balance and consequently, an increase in national expenditure generates a growth of GDP. External debt also significantly increased in the same period. For instance, external debt increased by about US\$86.7 billion from more than US\$191 million in 1987 to nearly US\$87 billion in 2018 (Figure 1).

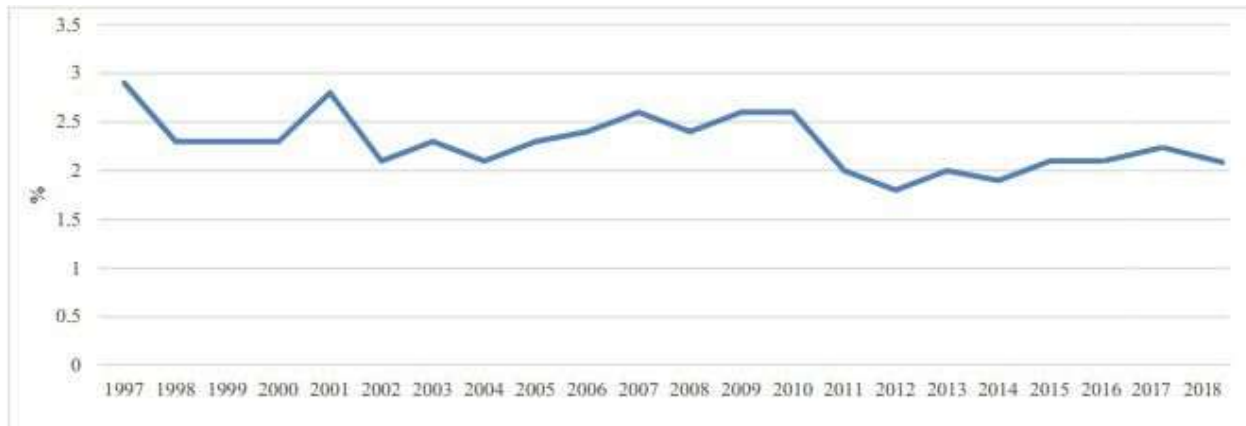


Figure 2. Unemployment rates of Viet Nam (1997-2018)

(Source. World Bank, 2018)



Unemployment of Viet Nam tended to decline over the last two decades (1997-2018). Unemployment rate of this country decreased by nearly 1% from 2.9 % in 1997 to 2.1 % in 2018. This result reflects effective impacts of macroeconomic policies implemented by the Vietnamese government in the last two decades, especially in facilitating exports and creating employment in the economy (Figure 2).

Table 2. Characteristics of macroeconomic indicators in Viet Nam

Variable	Mean	SD	Min	Max
External debt	3.05e+10	2.21e+10	1.9e+08	8.70e+10
GDP	6.69e+10	6.25e+10	6.29e+09	2.05e+11
Unemployment rate	1.92	0.81	0	2.9
National expenditure	6.73e+10	6.48e+10	0	2.09e+11

The average external debt of Viet Nam accounts for US\$30.5 billion, while the average GDP and national expenditure are nearly equivalent by US\$66.9 billion and US\$67.3 billion, respectively. That means external debt accounts for about 45 % of GDP value. The average unemployment rate of this country reaches more than 1.9 % (Table 2).

3.2. The Relevance among Economic Growth, Unemployment, External Debt and National Expenditure in Viet Nam

3.2.1. Implementation of the Unit Root Test

The unit root test is carried out to check the stationarity of the time series variables (Adeola and Ikpesu, 2018). In this research, the Augmented Dickey-Fuller (ADF) test is employed to examine the stationarity of Economic Growth, Unemployment, External Debt and National Expenditure with the hypothesis as follows:

Null hypothesis (H₀): The variables contain a unit root

Alternative hypothesis (H_a): The variables do not contain a unit root



Table 3. The ADF test for the unit root

Variables	Level	1 st difference	2 nd difference
LnExternal debt	T-statistic: -5.22	T-statistic: -5.81	T-statistic: 0.67
	P-value: 0.00	P-value: 0.00	P-value: 0.98
	Critical values:	Critical values:	Critical values:
	1% level: -3.72	1% level: -3.73	1% level: -3.73
	5% level: -2.98	5% level: -2.99	5% level: -2.99
	10% level: -2.62	10% level: -2.62	10% level: 2.62
LnGDP	T-statistic: -0.02	T-statistic: -0.56	T-statistic: -1.34
	P-value: 0.95	P-value: 0.87	P-value: 0.60
	Critical values:	Critical values:	Critical values:
	1% level: -3.72	1% level: -3.73	1% level: -3.73
	5% level: -2.98	5% level: -2.99	5% level: -2.99
	10% level: -2.62	10% level: -2.62	10% level: -2.62
LnUnemployment rate	T-statistic: -2.68	T-statistic: -2.91	T-statistic: -3.61
	P-value: 0.07	P-value: 0.04	P-value: 0.00
	Critical values:	Critical values:	Critical values:
	1% level: -3.72	1% level: -3.73	1% level: -3.73
	5% level: -2.98	5% level: -2.99	5% level: -2.99
	10% level: -2.62	10% level: -2.62	10% level: -2.62
LNNational expenditure	T-statistic: -4.85	T-statistic: -25.75	T-statistic: -1.38
	P-value: 0.00	P-value: 0.00	P-value: 0.59
	Critical values:	Critical values:	Critical values:
	1% level: -3.72	1% level: -3.73	1% level: -3.73
	5% level: -2.98	5% level: -2.99	5% level: -2.99
	10% level: -2.62	10% level: -2.62	10% level: -2.62

Results show that cannot reject the null hypothesis because P-values of all variables are greater than critical values at 1%, 5%, and 10%, respectively and these imply that variables exhibit a unit root (Table 3).



3.2.2 Determination of the Lag Length

The objective of this step is to specify the optimal lag for the VAR model. If the lag is used too little, then the residual of the regression will not show the white noise process and as the result, the actual error could not be accurately estimated by the model (Suharsono et al., 2017).

Table 4. Selection of the lag length

Lag	LL	LR	dF	p	FPE	AIC	HQIC	SBIC
0	26.10				2.1e-0.6	-1.70	-1.64	-1.50
1	139.70	272.2	16	0.00	1.e-09	-9.20	-8.92	-8.24*
2	155.27	31.14	16	0.01	1.4e-09	-9.17	-8.67	-7.43
3	191.55	72.55	16	0.00	3.8e-10	-10.73	-10.01	-8.21
4	216.50	49.90	16	0.00	3.6e-10*	-11.42	-10.47*	-8.13

Endogenous: LnExternal debt LnGDP LnUnemployment rate LnNational expenditure

Exogenous: Constant

Number of observations = 26

Notes. *denotes lag order selected by the criterion; LL means log likelihood values; LR represents sequential modified LR test statistics; FPE denotes final prediction error; AIC means Akaike information criterion; HQIC represents Hannan-Quinn information criterion; and SBIC means Schwarz's Bayesian information criterion.

As seen in Table 4, results suggest that the optimal lag length in this case is four lags because this value is recommended by FPE, AIC and HQIC indicators, while one lag is only recommended by SBIC. Therefore, four lags (the number of lag is equal to 4) is chosen to run the VAR model in the next step.

3.2.3. Estimation of the VAR Model

Firstly, external debt positively affects GDP, but it has a negative relationship with GDP in lag 4. This implies that if have a longer time, an increase of external debt leads to a decrease in GDP of Viet Nam. External debt negatively affects unemployment in lag 1, but it has a positive impact on unemployment in lag 2 and these reflect that if have a longer time, an increase of external debt generates a rise in unemployment. External debt positively affects national expenditure in lag 1, but it has a negative effect on national expenditure in lag 3 and these suggest that the Vietnamese government has implemented macroeconomic policies to manage its expenditures in recent years.

Secondly, GDP has a negative relationship with unemployment and this implies that an increase of GDP generates more jobs for workers in the economy and consequently, unemployment rates tend to decrease. GDP positively affects national expenditure in lag 2, but it has a negative



effect on national expenditure in lag 3 and this reflects that if have a longer time, an increase of GDP leads to a decrease in national expenditure.

In addition, unemployment has positive relationships with GDP and national expenditure. These imply a change in quality of the labour market in Viet Nam in recent years by employing more high-skill labours rather than simple labours. However, the government needs to increase its spending in order to support to unemployment workers and create more jobs in the labour market.

National expenditure negatively affects GDP in lag 2, but it has a positive impact on GDP in lag 4 and this implies that spending of the government facilitates consumption and investment in the domestic market and these lead to an increase of GDP. National expenditure positively affects unemployment.

3.2.4. Testing the Granger Causality

The objective of this step is to evaluate the predictive capacity of a single variable on other variables (Musunuru, 2017). In this study, hypotheses need to be tested as follows:

Testing the relevance among external debt and other variables:

- Null hypothesis (H₀): External debt does not cause GDP, unemployment, and national expenditure
- Alternative hypothesis (H_a): External debt causes GDP, unemployment, and national expenditure

Testing the relevance among GDP and other variables:

- Null hypothesis (H₀): GDP does not cause external debt, unemployment, and national expenditure
- Alternative hypothesis (H_a): GDP causes external debt, unemployment, and national expenditure

Testing the relevance among unemployment and other variables:

- Null hypothesis (H₀): Unemployment does not cause external debt, GDP, and national expenditure
- Alternative hypothesis (H_a): Unemployment causes external debt, GDP, and national expenditure

Testing the relevance among national expenditure and other variables:

- Null hypothesis (H₀): National expenditure does not cause external debt, GDP, and unemployment



- Alternative hypothesis (Ha): National expenditure causes external debt, GDP, and unemployment

Table 5. Results of the Granger causality Wald test

Directional relationship	Probability	Conclusion
External debt → GDP	0.91 > 0.05	Accept H0: External debt doesn't cause GDP
External debt → Unemployment	0.55 > 0.05	Accept H0: External debt doesn't cause unemployment
External debt → Expenditure	0.75 > 0.05	Accept H0: External debt doesn't cause expenditure
GDP → External debt	0.01 < 0.05	Reject H0: GDP causes external debt
GDP → Unemployment	0.21 > 0.05	Accept H0: GDP doesn't cause unemployment
GDP → Expenditure	0.02 < 0.05	Reject H0: GDP causes expenditure
Unemployment → External debt	0.00 < 0.05	Reject H0: Unemployment causes external debt
Unemployment → GDP	0.01 < 0.05	Reject H0: Unemployment causes GDP
Unemployment → Expenditure	0.03 < 0.05	Reject H0: Unemployment causes expenditure
Expenditure → External debt	0.01 < 0.05	Reject H0: Expenditure causes external debt
Expenditure → GDP	0.01 < 0.05	Reject H0: Expenditure causes GDP
Expenditure → Unemployment	0.16 > 0.05	Accept H0: Expenditure does not cause unemployment

From the table above it is found that there are directional relevances among GDP and external debt and GDP and national expenditure; unemployment and external debt, GDP, and national expenditure. Results addressed directional relevances among national expenditure and external debt and GDP.



3.3. Discussion

The effect of a variable on other variables varies in the short run. External debt positively affects GDP, but it has a negative relationship with GDP in lag 4. External debt negatively affects unemployment in lag 1, but it has a positive impact on unemployment in lag 2. External debt positively affects national expenditure in lag 1, but it has a negative effect on national expenditure in lag 3. Also found that GDP has a negative relationship with unemployment. GDP positively affects national expenditure in lag 2, but it has a negative effect on national expenditure in lag 3. Unemployment has positive relationships with GDP and national expenditure. National expenditure negatively affects GDP in lag 2, but it has a positive impact on GDP in lag 4. In the long run, there are directional causalities between external debt, GDP, unemployment, and national expenditure and other variables and there are two co-integrations among variables.

Thereby find that there are directional relevances among GDP and external debt and GDP and national expenditure. Also found that there are directional relevances among unemployment and external debt, GDP, and national expenditure. Results addressed directional relevances among national expenditure and external debt and GDP.

4. Conclusion and Policy Implications

This article investigates the relevance among Economic Growth, Unemployment, External Debt and National Expenditure in Viet Nam between 1987 and 2018. The influence of a variable on other variables varies in the short run. Results addressed that external debt positively affects GDP, but it has a negative relationship with GDP in lag 4. External debt negatively affects unemployment in lag 1, but it has a positive impact on unemployment in lag 2. External debt positively affects national expenditure in lag 1, but it has a negative effect on national expenditure in lag 3. Also found that GDP has a negative relationship with unemployment. GDP positively affects national expenditure in lag 2, but it has a negative effect on national expenditure in lag 3. Unemployment has positive relationships with GDP and national expenditure. National expenditure negatively affects GDP in lag 2, but it has a positive impact on GDP in lag 4. In the long run, there are directional causalities between external debt, GDP, unemployment, and national expenditure and other variables and there are two co-integrations among variables.

Thereby find that there are directional relevances among GDP and external debt and GDP and national expenditure. Also found that there are directional relevances among unemployment and external debt, GDP, and national expenditure. Results addressed directional relevances among national expenditure and external debt and GDP.

In order to achieve the target in a sustainable development for socio-economics in Viet Nam, external debt should be effectively managed by the government because an increase in external debt leads to a decrease in GDP and a growth of unemployment. Moreover, GDP should be facilitated to reduce unemployment in the economy. Lastly, unemployment needs to be controlled because it generates a boom of national expenditure and vice versa.



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