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RESEARCH PAPER

External Debt and Economic Growth in Iran and Malaysia: A Smooth Transition Regression Model

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Abstract
Since the debt crisis in the 1980s, the effect of external debt on economic growth has been a controversial issue for economists. This paper aims to investigate the effects of external debt on economic growth in Iran and Malaysia. Findings of a Smooth Transition Regression (STR) model support a nonlinear relationship between the external debt size (the ratio of external debt stocks to GDP) and economic growth in Iran and Malaysia over the period 1973–2017. Moreover, results of the STR models estimation show that external debt affects Iranian economic growth in a two-regime structure with a threshold of 2.96%, so that, the effect is negative in both regimes, but in the second regime as debt increases, the negative effect becomes larger. Also, findings indicate that external debt size harms Malaysian economic growth in a three-regime structure with two thresholds of 24.41% and 55.76%. Finally, the mentioned negative effect is considerably less severe in Malaysia than in Iran.
Keywords: External Debt, Economic Growth, STR Model, Iran, Malaysia.
JEL Classification: C22, H63, O40.

Introduction

The experience of developing countries in the 1950s and 1960s indicates that most of them relied largely on domestic resources rather than external resources to finance public investment projects. In contrast, since 1970s, an increasing number of countries have adopted debt-based growth approach (Ajayiand Oke, 2012: 297). In fact, foreign financial resources helped those economies to develop, so that it created the economic miracle of Brazil and some emerging Asian economies (Changyong et al., 2012: 158). In the 1980s, some countries, particularly in Latin America, like Brazil, Argentina, and Mexico, faced difficulties to repay their debts. Since the mid-1990s, the problem of high external debt of developing countries has been considered by policymakers and has been recognized as a big obstacle for poor countries in economic growth and development process.

Despite many difficulties, financing deficits by borrowing from foreign and international resources has remained as a broadly used way. Some countries may need to borrow in early stages of growth to achieve capital accumulation and ease economic growth. However, raising the level of debt will lead to various risks. Economists have proposed various opinions and theories in this view. Based on liquidity constraints hypothesis, in heavy indebted countries repayment of debts requires lots of credit, which causes shortage of resources for investment (Hofman and Reisen, 1991: 282). In standard overlapping generation's models, increasing debts, due to reduction of saving and capital accumulation has negative effect on long-run

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economic growth (Eberhardt and Presbitero, 2015: 3). Based on debt overhang theory, a high level of general debts, due to substitution effect, has negative effects on domestic saving and investment, so reduces economic growth (Krugman, 1988). This argument is represented in the “debt Laffer curve”, which posits that larger debt tend to be associated with lower economic growth, since it reduces total factor productivity (TFP) and lowers probabilities of debt repayments (Karadam, 2018: 2). Therefore, debt-growth relationship may be nonlinear, implying that debt is growth enhancing at lower debt/GDP ratio levels and growth reducing at higher debt/GDP ratio levels (Eboreime and Sunday, 2017: 7).

Based on this theoretical literature, empirical investigation of the effects of external debt on economic growth is important in each economy. Obviously, this importance is doubled in developing countries, such as Iran, because of their low ratio of capital formation. In fact, the main question is that, based on the “debt Laffer curve” theoretical framework, weather a suggestion for developing countries can be made to hire external borrowed reserves below an allowed ceiling to finance their productive investment projects, so these borrowed reserves have no negative effects on their economic growth.

Also, this paper tries to use a comparative approach to compare the effects of external debt on economic growth in Iran and Malaysia. However, it is supposed that Malaysian experiments in using external debts are transferable to other developing countries like Iran. There are some other reasons for selecting Malaysia as a comparative case:

- Over the recent four decades, Malaysian economy has transited from a producer and exporter of primary goods to an exporter of industrial goods. Currently, its industrial sector share in GDP is four times larger than its agricultural sector share. So, Malaysian economy may be a good model for the Iranian single product and oil based economy.
- Comparing Iran and Malaysia based on external debt size and economic growth, shows that both these variables were obviously greater than those of Iran during 1973-2017 period (figures 1 and 2). Malaysia and Iran respectively have experimented an average of 46.84 and 6.61 percent for external debt/GDP ratio and an average of 6.21 and 2.09 percent for economic growth. Therefore, two questions are remarkable: first; how external debt has affected economic growth in both economies? Second; does relying on external debt in Malaysian economy, as a relatively successful developing country in economic growth, have applied lessons for Iranian economy?

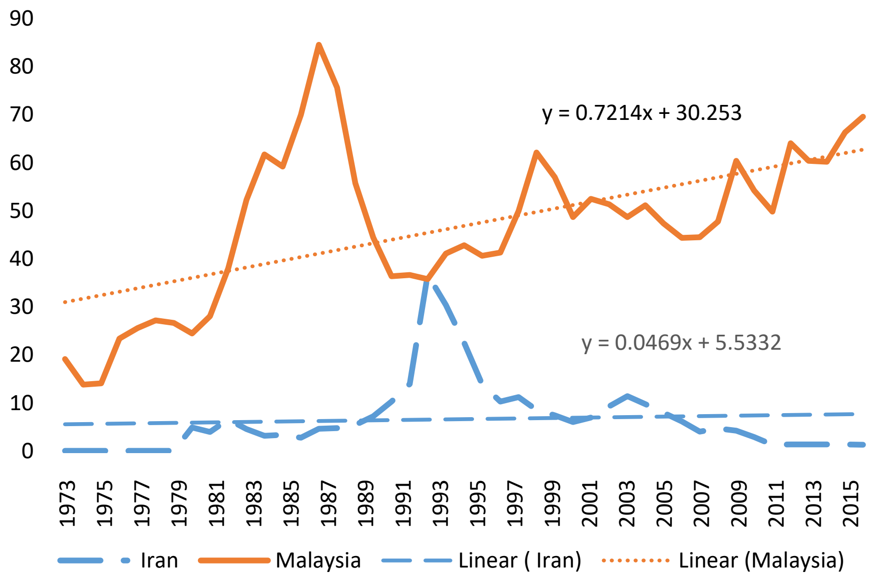

Figure 1. External Debt Stocks (% of GDP)
Source: World Development Indicators, 2019.

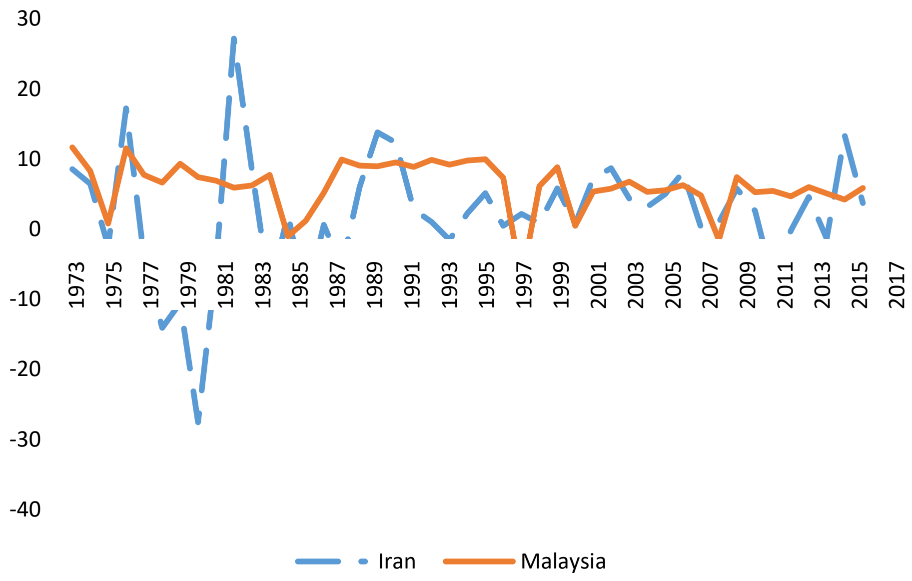

Figure 2. GDP Growth (annual %) Based on Constant 2000 U.S. $
Source: World Development Indicators (WDI), 2019.

In brief, this paper aims to investigate nonlinear effects of external debt size that is external debt over GDP ratio on economic growth and compare this effect in Iran and Malaysia. Foe this, a Smooth Transition Regression (STR) model on the data of 1973–2017 period is hired.

This paper is continued as follows. The next section presents a brief literature review on the relationship between external debt and economic growth. In Section 3, the models are presented followed by Estimation of Smooth Transition Regression (STR) models in section4. Finally, concluding remarks are given in Section 5.

Literature Review

Generally, budget deficit can be financed by domestic or international resources. In absence of a strong private sector and an efficient banking system, domestic resources are not responsible and many poor countries borrow from international lenders and other external resources. External debt affects economic growth through two channels. First, through the debt overhang effect, that states when debt level increases, investors expect rising taxes in the future; this, affect total investment, especially private investment, negatively. Second, through debt crowding out effect, that says when export revenues go to repayment debt stocks, no resources remain for investment, so economic growth reduces (Ejigayehu, 2013:3).

Presbitero (2012) states that industrial countries use borrowed funds in sectors which are more productive better than developing countries. Therefore, they control better the negative consequences of debts, such as crowding out effect, disincentive environment to investment, political uncertainty, and capital outflow due to anxiety about national currency devaluation. Thus, external debt, due to weak management, has a negative effect on the economic growth of poor countries (Kharusi and Ada, 2018:1144).

It is said, generally, that a low or reasonable level of debts probably increase economic growth, but high-level debts decrease it. This is known as nonlinearity or asymmetry effecting of external debt on economic growth. Countries that borrow in early stages of growth, actually want to benefit from investment opportunities with higher rate of return. In other words, these countries can improve economic growth through productive investments that are financed by borrowed funds. Nevertheless, raising the level of debt will lead to various risks. When the debt stocks increase, the repayment ability will be more sensitive to income level and interest rates, meanwhile, a negative shock, will severely have negative effect on the level of economic activity (Karadam, 2018: 1–2). Therefore, high-level debt stocks will lead to increase fluctuations in real sector, fragility of financial sector, and decline average long-run economic growth. Theoretically, this argument is offered under the "theory of optimal level for government debt". Based on this theory, there is an inverted U relationship between government debt/GDP ratio and economic growth (Figure 1), in which up to a certain threshold, increasing the ratio, because of increasing savings (since the government replaces borrowing for taxes to offset the deficit) has a positive effect on economic growth. Beyond that, increasing debt/GDP ratio, due to crowding out effect, causes a decline in long-run economic growth (Eboreimand Sunday, 2017:8).

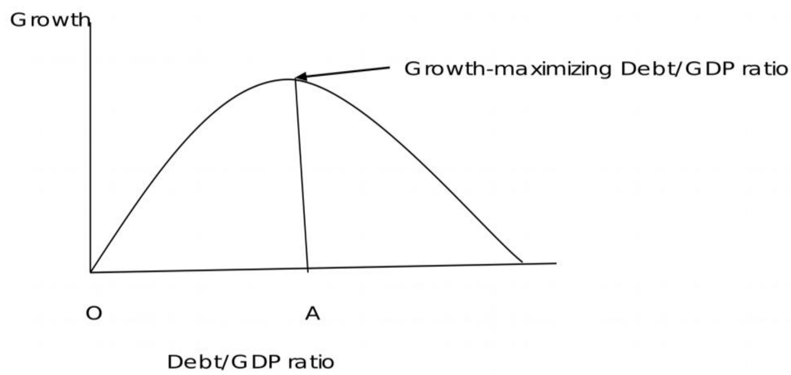

Figure 1. Nonlinear Relationship between Debt/GDP Ratio and Economic Growth
Source: Eboreimand Sunday, 2017: 8.

In summary, it can be said that asymmetric or nonlinear effect of government debt on economic growth, is more consistent with the economic realities because of three main points: First, debt is an unavoidable part of government finance. Second, depending on economic conditions and structures, debt can have different economic consequences. In other words, debt is a double-edged sword, which if there is economic stability, it will act as an economic stimulus, but in the case of wasteful growing debt stocks, it raises uncertainty and narrows private sector access to financial resources and savings, and acts as a barrier to economic growth. Third, according to Jiménez (2011), the efficiency of government debt depends on the economy condition and government financial situation.

Empirically, the effect of external debt on economic growth has been discussed in various studies. Kharusi and Ada (2018) using an Autoregressive Distributed Lag (ARDL) Cointegration model showed that external debt has negative effect on economic growth of Jordan during 1990-2015. Before, similar findings were reported by Akram (2011), and Rais and Anwar (2012) in Pakistan by the time series of 1972-2009 and 1972-2010; Umaru et al. (2013) and Mbah et al. (2016) in Nigeria in 1970-2010 and 1970-2013; Calderón and Fuentes (2013) in Latin American countries during 1970-2010 and Tchereni et al. (2013) in Malawi during 1975-2003.

On the contrary, some studies have showed positive effect of external debt on economic growth. Korkmaz (2015) using seasonal data on 2003:1-2014:3 in Turkey showed a one-way causality and positive effect of external debt on economic growth. Also, Kadiu (2015) reported this positive effect in Albany during 1991-2012, Ebi et al. (2013) and Utomi (2014) in Nigeria during 1970-2011 and 1980-2012 and in Zaman and Arslan (2014) in Pakistan during 1972-2010.

In addition, nonlinear relationship between external debt and economic growth has been studied empirically in some papers. Doğan and Bilgili (2014) by Turkish time series data during 1974-2009 using a Markov-switching model show that economic growth and borrowing variables have negative relationship but do not follow a linear path. Dao and Oanh (2017) using Johansen-Juselius technique on Vietnamese seasonal data during 2000-2012 have confirmed inverted U-shaped relationship between external debt and economic growth and showed the threshold point at 28%. Haron and Maingi (2018) examined this nonlinear relationship in Kenya during 1970-2017, using a Generalized Method of Moments (GMM) model and estimated the mentioned threshold at about 61%.

The Model

Based on theoretical framework of debt Laffer curve, the impacts of external debt size on economic growth are not the same in various observations and follow a nonlinear pattern. Therefore, very likely the dynamic relationship between variables is not constant and depends on the concurrent state of the economy. Generally, modeling this case involves using approaches that consider threshold limits such as “Threshold Regression (TR)”, “Smooth Transitional Regression (STR)”, “Artificial Neural Networks (ANN)” and “Markov Switching Model”. In this paper we use a STR model to investigate the nonlinear effects of external debt on economic growth based on the debt Laffer curve. Compared with other approaches, the STR model has some advantages as:

- The STR model considers regime switching or structural changes directly within the model and there is no need to enter dummy variables or to check structural changes by additional diagnostic tests.
- The STR model shows regime switching speed in addition to the number and the time of regime switching.
- The STR model is a specific case of TR models.
- Although the ANN approach has a good fit on data, but it involves an important problem that has no clear economic interpretation. When the number of connected units or nodes, that are called artificial neurons, is very big, the model will be over-fitted. But in the STR model the coefficients have clear interpretation.
- In Markov Switching model the regime switching is exogenous, but this is endogenous in STR model (Enders 2004, Van Dijk et.al 2000).

According to Teräsvirta (1994), for considering the nonlinear effects of external debt size on economic growth, we specify a nonlinear structure based on the smooth transition regression (STR) model as follows:

$$EG_t = \beta_0 x_t + \beta_1 Z_t * g(EDS_t, \gamma, c) \tag{1}$$

Where, EG is economic growth, EDS is the external debt size (that is the ratio of external debt stocks over GDP), and Z is the vector of explanatory variables consist of current and lagged values of EDS and lagged values of economic growth. β_0 and β_1 are the vectors of linear and nonlinear part coefficients. ε_t is an independent and identically distributed (i.i.d.) process with zero mean and finite variance. So, $\varepsilon_t \approx iid(0,\sigma^2)$. Assuming a two-regime transition function in which regime change occurs once, the logistic function is as follows:

$$g(EDS_t, \gamma, c) = \left[1 + \exp\left\{\frac{-\gamma}{\sigma_{d_t}^k} \Pi_{k=1}^k (EDS_t - c)\right\}\right]^{-1} \quad with \quad \gamma > 0 \tag{2}$$

Where, g is a transition function bounded by zero and one (where g becomes Heaviside). Additionally, $g(EDS, \gamma, c) = 0.5$; therefore, we can say that the location parameter c represents the point of transition between the two extreme regimes with $\lim_{s_t \to -\infty} g = 0$ and $\lim_{s_t \to \infty} g = 1$. k is a parameter to show the number of regime changes. The slope parameter γ indicates how rapidly the transition of g from zero to one takes place. When $\gamma \to \infty$, if $s_t > c$, then $g = 1$, and if $s_t < c$, then $g = 0$. Therefore, the Equation (1) will be a threshold regression (TR) model. When $\gamma \to 0$, the Equation (2) becomes a linear regression model (Van Dijk, 1999; Teräsvirta, 2004).

In the case of a three-regime model in which two regime-changes occur, Jansen and Teräsvirta (1996) propose the logistic function as the following form:

$$g(EDS_t, \gamma, c) = \frac{1}{1 + \exp\{(EDS_t - c_1)(EDS_t - c_2)\}} \quad c_1 \le c_2, \gamma > 0 \tag{3}$$

In this case, when $\gamma \to 0$, the model will be linear and when $\gamma \to \infty$, for $EDS_t < c_1$ and $EDS_t > c_2$, we will have $g(EDS_t, \gamma, c) = 1$, and for $c_1 < EDS_t < c_2$, we will have $g(EDS_t, \gamma, c) = 0$. Meanwhile, G is symmetric about the point $\frac{c_1 + c_2}{2}$ and $\lim_{s_t \to \pm\infty} g = 1$.

In general, STR modeling includes three steps:

1) Specification starts with setting up a linear model that forms a starting point for the analysis. It can be modelled by using the VAR framework. The second part of specification involves testing for nonlinearity, choosing transition variable and deciding whether LSTR1or LSTR2 should be used.
2) Estimation involves finding appropriate starting values for the nonlinear estimation and estimating the model.
3) Evaluation of the model usually includes various tests for problems such as error autocorrelation, parameters stability, remaining nonlinearity, ARCH and non-normality.

Empirical Results

As said before, the first step in the STR modeling is to specify an adequate linear model and determine the number of lags for relevant variables, in order to capture the dynamic process. Since, we want to investigate nonlinear effect of external debt size (EDS) on economic growth (EG) in Iran and Malaysia; we only include the EDS and its lagged values as explanatory variables. According to the number of observations (that are less than 100), the optimal lags are determined based on Schwarz Bayesian Criterion (SBC). Next, it is necessary to test the null hypothesis of linearity against nonlinearity as the alternative hypothesis. If the transition variable is unknown, then the test haste is repeated for every potential transition variable. If the null cannot be rejected in any case, then we conclude that the linear model is appropriate and there is no need to proceed with STR models. But, if the null hypothesis is rejected for any transition variable, then we must use a STR model to capture the full behavior of the time series. If the null can be rejected more than once in favor of the STR models, then the model with the strongest rejection (lowest p-value) is selected to be estimated. In brief, we test the null of linearity against the alternative hypothesis of STR model and decide for the appropriate transition variable and the number of regimes based on F, F_2, F_3, and F_4 statistics. The results of this step, reported in Table 1, indicate that the null hypothesis of linear relationship between the variables can be rejected at 5% level of significance only for EDS_{t-2} in Iran and for EDS_t in Malaysia, and these variables are selected as the transition variables.

Also, based on the test statistics F_2, F_3, and F_4 reported in Table 1, for the transition variable EDS_{t-2}, the logistic model with one threshold (LSTR1) and for the transition variable EDS_t, the logistic model with two threshold (LSTR2) are selected as the appropriate models.

Table 1. The Results of the Linearity Tests Against the STR Model

Country	Transmission variable	P-value of the F-statistic	P-value of the F_2-statistic	P-value of the F_3-statistic	P-value of the F_4-statistic	Proposed model
Iran	EDS(t)	0.79	0.85	0.21	0.84	Linear
	EDS(t-1)	0.37	0.04	0.11	0.78	Linear
	EDS(t-2)	0.04	0.004	0.62	0.08	LSTR1
	EDS(t-3)	0.26	0.03	0.77	0.32	Linear
	EDS(t-4)	0.08	0.10	0.61	0.08	Linear
Malaysia	EDS(t)	0.001	0.37	0.002	0.01	LSTR2
	EDS(t-1)	0.11	0.63	0.18	0.06	Linear

Source: Research finding.

Now, having determined the transition variables we can estimate the models using the Newton-Raphson algorithm and maximum likelihood method. Results for each country, Iran and Malaysia are reported in Tables 2 and 3.

Table 2. Results of Model Estimation - Iran

	Coefficient	T-statistic	P-value
Linear Part			
CONST	0.23	2.89	0.01
EG(t-2)	-1.95	-3.45	0.00
EG(t-3)	-2.57	-3.52	0.00
EG(t-4)	-1.65	-3.84	0.00
EDS(t)	-1.23	-3.87	0.00
EDS(t-1)	-0.86	-2.57	0.02
EDS(t-3)	2.26	3.18	0.00
EDS(t-4)	-1.35	-2.63	0.01
Nonlinear Part			
CONST	-0.16	-1.94	0.06
EG(t-2)	1.34	2.33	0.03
EG(t-3)	2.56	3.46	0.00
EG(t-4)	1.58	3.52	0.00
EDS(t)	1.26	3.95	0.00
EDS(t-1)	-0.83	-2.46	0.02
EDS(t-3)	-2.26	-3.18	0.00
EDS(t-4)	1.34	2.60	0.02
	Adjusted R^2: 86.76	AIC: -6.01	
	SC: -5.26	HQ: -5.74	

Note: coefficients, which are not statistically significant, excluded in the final model.
Source: Research finding.

Table 3. Results of Model Estimation - Malaysia

	Coefficient	**T-statistic**	**P-value**
Linear Part			
CONST	0.09	3.69	0.00
EG(t-3)	0.36	3.35	0.00
EDS(t)	-0.21	-2.40	0.02
EDS(t-1)	0.12	1.98	0.05
Nonlinear Part			
CONST	0.07	1.99	0.05
EG(t-3)	-1.20	-5.16	0.00
EDS(t)	-0.29	-2.59	0.01
EDS(t-1)	0.30	3.01	0.00
	Adjusted R2: 76.38 SC: -7.13	AIC: -7.58 HQ: -7.41	

Note: coefficients, which are not statistically significant, excluded in the final model.
Source: Research finding.

In Iran, final estimated values for the slope parameter (γ) and location parameter (c) are 42.16%, and2.96% respectively. Thus, the transition function will be as follows:

$$G\left(\gamma, c, EDS_{t-2}\right) = \left(1+\exp\left\{-42.16\left(EDS_{t-2}-2.96\right)\right\}\right)^{-1} \tag{4}$$

As mentioned above, to get the model for regime 1, we put $g = 0$ and we put $g = 1$ to get the model for the regime 2 as followings:

$$\begin{aligned} EG_t &= 0.23 - 1.95EG_{t-2} - 2.57EG_{t-3} - 1.65EG_{t-4} - 1.23EDS_t \\ &- 0.86EDS_{t-1} + 2.26EDS_{t-3} - 1.35EDS_{t-4} \end{aligned} \quad \text{For regime 1} \tag{5}$$

$$\begin{aligned} EG_t &= 0.07 - 0.61EG_{t-2} - 0.01EG_{t-3} - 0.07EG_{t-4} + 0.03EDS_t \\ &- 1.69EDS_{t-1} - 0.01EDS_{t-4} \end{aligned} \quad \text{For regime 2} \tag{6}$$

In Malaysia, final estimated value for the slope parameter(γ) is 172.32%, and the location parameters(c_1 and c_2) are 24.41% and 55.76%. Therefore, the transition function is as following:

$$G\left(\gamma, c_1, c_2, EDS_t\right) = \left(1+\exp\left\{-172.32\left(EDS_t - 24.41\right)(EDS_t - 55.76)\right\}\right)^{-1} \tag{7}$$

As said before, for $c_1 < s_t < c_2$, we have $G(\gamma, c, s_t) = 0$, and for $s_t < c_1$ and $s_t > c_2$, we have $G(\gamma, c, s_t) = 1$. Thus, in Malaysia, for $24.41 < EDS_t < 55.76$, the estimated regressionists follows:

$$EG_t = 0.09 + 0.36EG_{t-2} - 0.21EDS_t + 0.12EDS_{t-1} \tag{8}$$

In addition, for $EDS_t < 24.41$ and $EDS_t > 55.76$ the estimated regression function is as follows:

$$EG_t = 0.16 - 0.84EG_{t-3} - 0.50EDS_t + 0.42EDS_{t-1} \quad (9)$$

In order to show corresponding years with different regimes, the trend of external debt size and its threshold are presented in Figure 3 for the Iranian economy. As is seen, the first regime covers the years of 1973–1979 and 2011–2017, in which the external-debt/GDP ratio was less than 2.96%. The second regime covers the years of 1980–2010, in which the debt size was larger than 2.96%. In addition, based on nonlinear estimated regression for Iran - equations (5) and (6) -during the first regime, the sum of coefficients for current and lagged EDS is -1.18. This summation for the second regime is-1.67. Therefore, it can be said that external debt had always a negative effect on economic growth in Iranian economy, although in the second regime, as the debt size increases, this negative effect becomes larger.

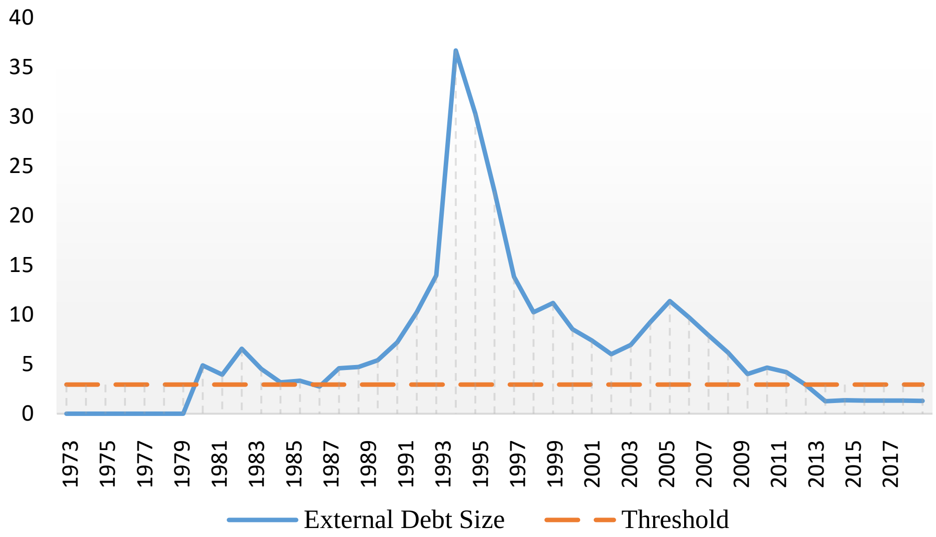

Figure 3. External Debt Size and Its Threshold in the Iran
Source: Research finding.

Figure 4 shows the corresponding years with different regimes based on the nonlinear estimated regression for Malaysian economy. The figure shows that, the first regime includes the year's of1973–1975, in which the debt/GDP ratio was less than 24.41%. The second regime covers the periods 1976–1982, 1988–1997, 2000–2009, and 2011–2012, in which the debt/GDP ratio was larger than 24.41% and smaller than 55.76%, and the third regime includes the periods 1983–1987, 1998–1999, 2010, and 2012–2017, in which the debt/GDP ratio was larger than 55.76%.

Based on equations (8) and (9), during the first and third regimes, the sum of coefficients for current and lagged EDSs is -0.08. This summation for the second regime is -0.09. Therefore, it can be said that, like Iranian economy, external debt in Malaysia had always a negative effect on economic growth, although this negative effect is considerably less severe in Malaysia than Iran.

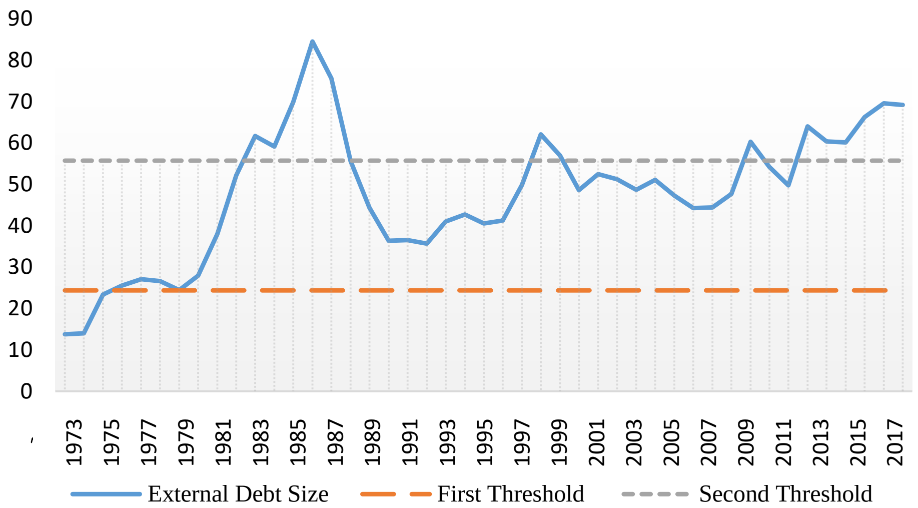

Figure 4. External Debt Size and Its Threshold in the Malaysi**a**
Source: Research finding.

In the next step, the estimated STR model must be evaluated using misspecification and diagnostic tests such as no error-autocorrelation, no additive nonlinearity, parameters stability, ARCH and Jarque-Bera test. Results of diagnostic tests are reported in Table 4. Based on the inference results, the quality of the estimated nonlinear models is acceptable.

Table 4. Diagnostic Tests Results

	Test	**P-Value of F-statistic**
Iran	Test of no error term autocorrelation	0.17<p-value F(lag 1 to 8)<0.82
	Test of no remaining nonlinearity	p-value F=0.52
	Parameter constancy test	p-value F(H1)=0.01
	ARCH-LM test with 8 lags	p-value F=0.82 and p-value (Chi^2)=0.88
	JARQUE-BERA test	p-value (Chi^2)=0.96
Malaysia	Test of no error autocorrelation	0.09<p-value F(lag 1 to 8)<0.87
	Test of no remaining nonlinearity	p-value F=0.44
	Parameter constancy test	p-value F(H1)=0.04
	ARCH-LM test with 8 lags	p-value F=0.84 and p-value (Chi^2)=0.78
	JARQUE-BERA test	p-value (Chi^2)=0.88

Source: Research finding.

Conclusion

The debt-growth relationship has received renewed interest among academics and policy makers alike in the aftermath of the recent decade's financial crisis. This paper empirically compares the nonlinear effect of external debt size on the economic growth between Iran and Malaysia using a Smooth Transition Regression (STR) model.

Our results show: First, there is a nonlinear behavior between the external debt size (the ratio of external debt stocks to GDP) and economic growth in Iran and Malaysia over the period 1973–2017.Second, external debt size affects Iran's economic growth in a two-regime structure with a threshold in 2.96%, So that, this effect is negative in both regimes, but in the second regime, with increasing debt size, this negative effect becomes larger. Third, external debt size has a negative effect on Malaysian economic growth in a three-regime structure with two thresholds in 24.41% and 55.76%, although this negative effect is considerably less severe in Malaysia than Iran.

As a summation based on findings of this research, there have been no evidences for positive effects of external debt on economic growth in Iran and Malaysia. As Ajayi (1991) stated this negative effect could be occurred through two channels:

a) Through the debt overhang effect: a situation when an accumulated debt, discourage and overhang investment, mainly private investment; as private investors expect an increase in tax by government to pay the accumulated debt

b) Through debt crowding out effect, that is a situation when export revenues are used to pay the accumulated debt. This in turn may affects investment.

Also, this negative effect can be attributed to the development economists' critique. They believe that borrowing from abroad basically is not able to provide basis for real development due to provoking corruption and expanding autonomous and costly bureaucracies. Malaysian economy although has experienced a stable high level economic growth, external debt not only had no positive role in this scenario but also with its negative role has decelerated it. Hence, relying on external debt in Malaysia is not the experience that Iran should follow to stimulate its economic growth.

Therefore, based on the findings of this paper, it is recommended that financing by external borrowing, at least for the short-run, as long as there is no proper planning for this type of funds, be excluded from the financing portfolio of the countries under study. This recommendation is more important for Iran, since this negative effect of external debt is considerably more severe than Malaysia.

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