

TITLE OF GOVERNMENT SPENDING AND ECONOMIC DISASTER THEORY IN POST ASIAN FINANCIAL CRISIS IN 1997 & GLOBAL FINANCIAL CRISIS 2008 IMPACT ON MALAYSIA

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Abstract

This research intends to investigate the Economic Disaster Theory of the past of recent shocks to Malaysia in the Asian Financial Crisis in 1997 and compare it to the Global Financial Crisis in 2008 by testing the economic disaster theorem. From the historical economic argument from the Classicism school of thought in Adam Smith to the Modern Keynesian model, fiscal policy's importance is vital in controlling and mitigating business cycles effect and economic downturn. The case arises with a focus on investigating Economic Disaster theory and comparing it with two shocks' impact in Malaysian cases. We take the data from 1974 to 2020 and use simple time series, Cholesky decomposition and time series method. As in Economic Disaster Theorem, the theory states that consumption and government will have a positive relationship during shock time. At the same time, investment and net export will negatively impact income. This is because the government is the only institution that can react in an ad hoc period. If the Malaysian cases shock economics disaster theorem hold, this will reflect the rejoice of the Keynesian tenet and support the J-Curve relationship. The output shows that long-run ARDL (Autoregressive Distributed Lags Model) partially supports the economic disaster theorem while the Cholesky impulse shows supported economic disaster theorem. Government Spending is a powerful tool, and this study proves the importance of the New Keynesian tenet.

Keywords: Economic Disaster Theory; J-Curve; Asian Financial Crisis shock; Global Financial Crisis shock; Cholesky decomposition

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Introduction

We always talk about economic growth, progress development and so on. But in times of economic boom, we always forget that economic misery and recession would exist. The studies of economic shocks are pretty old, from classical economic thought to post-modern Keynesian economic schools arguing the vital of the government institution. The primary tenet is Keynesian economics, which states the necessity of expansionary policy such as fiscal as the main engine to mitigate the shock and impact of an economic downturn. Of course, support monetary policy to reduce the impact. But this will directly influence consumption. This is because the government always tries to rejuvenate economics by increasing demand and consumption, consequently impacting fiscal policy.

Nevertheless, the net export and investment hypothesis is that institutions receive a positive impact in the long run. Still, in the short run, the lags from the expansionary fiscal policy may exist.

This impact has also been studied with Bremmer (2007) balanced trade of J-Curve theory (2007). So, this research is trying to investigate the short period if the economics disaster theory is still relevant in Malaysia, especially in recent shock events such as the Asian Financial Crisis in 1997 and the Global Financial Crisis in 2007. These studies hope that only government and consumption have a positive relationship to income while net export and investment have a negative relationship to income. If this economic disaster theory still holds, it's also proven that the J-curve theory also holds. The argument can support and validate the modern Keynesian economics thought; that fiscal is the primary driving tool of economic stability while monetary policy, direct control, and supply-side policy as a support role in mitigating this shock and recession problem. Similarly, in supporting the old Keynesian argument, fast action is compulsory to reduce the impact of economic recession to fight economic turbulence.

This research also parallels and supports the exogenous and endogenous growth and development model with arguments rise from economic growth and development exogenous and endogenous with human capital, technology, and capital as sources of growth by Schumpeter (1942), Harrold (1966) & Domar (1957), Lewis (1949). Solow (1956), Frankel (1962), Arrow (1962), Uzawa (1965), Nelson and Phelps (1966), Mankiw et al. (1992), Lucas (1988), Benhabib & Spiegel (1994) and Romer (1990). Evidence of convergence theory exists from the earlier foundation of economic growth and development school of thought, especially by Solow (1956) coexists as the economic disaster theorem. These tenet shows the greatness of growth and development, convergence, catch up and human capital. Nevertheless, economic activities always receive cycles of shock impact from business cycles. The main argument starts with Mill (1896) with destruction to recovery argument.

Destruction to recovery (Classical)

“What has so often excited wonder, is the great rapidity with which countries recover from a state of devastation, the disappearance in a short time, of all traces of mischief done by earthquakes, floods, hurricanes, and the ravages of war. An enemy lays waste a country by fire and sword, and destroys or carries away nearly all the moveable wealth existing in it: all the inhabitants are ruined, and yet in a few years after, everything is much as it was before.”

— Mill, Principles of Political Economy Book 1 (Production) (Chapter 5) Paragraph I.5.19. (1896)

Sources: Brue & Grant (2012) & Mill (1896)

This statement is among the first argument that describes the economics disaster theorem.

Figure 1 shows Malaysia's inflation rate (light blue line) and economics growth (red maroon line) from 1980 to 2021. Malaysian population stood at 33.36 million in 2021, around 5% of the total ASEAN population but generated around 387.09 billion USD per annum., 11.53% of ASEAN output, and the 4th biggest economy in the ASEAN market. The figures reflect Malaysia's GDP per Capita, which is around 11 600 US per year in 2021 and categorised as an upper middle-income country near the developed country threshold of around 12 535 based on World Bank classification. This indicator shows Malaysian economy is the 3rd highest GDP per Capita in the ASEAN region, just behind Singapore and Brunei. For the HDI Index that measures development, Malaysia has a very high value of 0.810. But when measuring income, Malaysia showed moderate or medium indicators with only 41 GINI Index in 2015. For the unemployment rate, even Malaysian has been struck by the recent economic recession, but the country still managed around a 3.8% unemployment ratio in 2021. The current account surplus also shows a surplus of 14.77 billion USD and a government debt ratio to GDP of around 67% in 2021.

Malaysian main economic activities are electronics & semiconductors, Islamic finance, petroleum & chemical, and light and heavy industries. Hence, it can be described that Malaysia is a pretty diversifying economy. The leading export partner, of course, China, Singapore and the United States and the leading import partner are the same with export with China, Singapore, and United States.

Malaysian economic structure consists of 11.1% agriculture, 36% industry and 53% in the services sector^{1 2}

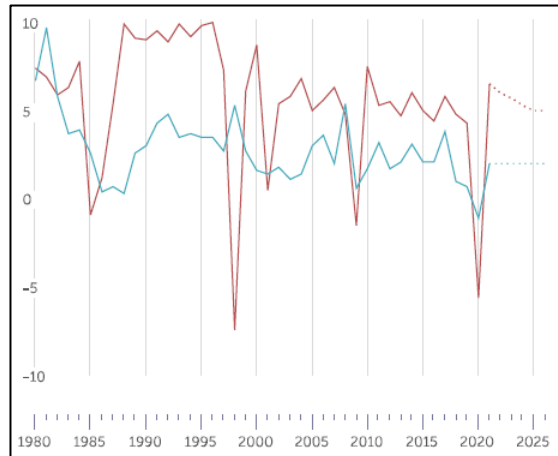


Figure 1. Economics growth and the inflation rate of Malaysia from 1980 to 2021
Sources: Malaysia and the IMF (2021, April 1)

We use real economic growth from the World Economic Outlook from International Monetary Fund (IMF) (2021) data to measure Malaysian economic velocity. Data indicates that Malaysia and Singapore have a similar correlation, with the region always being hit by multiple economic slowdowns and recessions. But all the crises impact in a short time, and both states always recover and show V-shape recovery. Malaysia grew by 0.9% in 1985, caused by the global oil price crisis. Biggest economic slump is recorded in 1998 with -7.4% with 1996 shows +10% and 1997 is +7.3%. This shows an economic decrease of 17.4 % in two years time period. But in 1999, Malaysian economic growth showed a strong recovery with a positive 6.1%, creating a V-Shape recovery. The main cause is, of course, the Asian Financial Crisis. The third recession was caused by the Global Financial Crisis from the mortgage crisis that started in the United States and was contagious to the European Market and, of course, to the World. In Malaysia state 4.8% economic growth in 2008, but -1.5% in 2009, but recovery also showed a strong V-shape again in 2010, which stood at 7.5%. For the recent pandemic and economic crisis caused by COVID-19, history may repeat itself. This is because the data also shows the same pattern with economic growth of 4.3% in 2019, -5.6% in 2020 and around 6.5% in 2021^{1 2}.

We also use the recent World Economic Outlook in IMF (2021) data to measure economic stability. For 40 years, Malaysia has shown a stable value, not exceeding 5%, from 1983 to 2021. The only peak was at 9.7% in 1981. During Asian Financial Crisis, Malaysian inflation also rose but in a controllable manner with 5.3% in 1998. In Global Financial Crisis, Malaysia also showed a price reduction from 5.4% in 2008 to 0.6% in 2009^{1 2}.

Lastly, the recent pandemic and health crisis of COVID-19 shows a -1.1% in 2020 from 0.7% in 2019. Overall, for the stability and velocity of the Malaysian economy, the nation is a very stable country, and the data shows do not exist spike in inflation and deflation volatility exist. The country also suffers from multiple economic slowdowns and recessions. Still, the excellent institution and active policy always make the nation have intense V-shape recovery aftermath of the impact and shock. Malaysia is dynamic, robust, resilient and developed in many areas.

The country also shows good policy control in times of economic impact. It's a good sampling country that the only difficulties are the nation has a wide income gap between rich and poor, resulting in a medium score in its GINI Index. It needs innovation to propel and become a developed nation. Every

¹ International Monetary Fund (2021). *Malaysia and the IMF*. <https://www.imf.org/en/Countries/MYS>. [Access online 1 April 2021].

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developed nation must shift to innovation and high-value products with relatively low and medium export margin-led growth hypothesis^{1 2}. This argument created simple studies gaps that there is a lack of studies mentioning the economic disaster theorem that emphasises recent economic shock, especially in Malaysia.

The general objective of this study is to identify the relationship and measure how much and how long the impact magnitude of the Asian Financial Crisis in 1997 and Global Financial Crisis in 2007 in Malaysian cases.

Two-sub objective:

- 1) To examine the relationship of government spending to economic growth in Malaysia
- 2) To measure how much and how long recent impact magnitude to Malaysian cases

Major Literature

A previous study by Chung (2005) found that American Deposit Receipt (ADR) was contagious when impacted by Asian Financial Crisis in 1997. The findings reflect that the Thai Bhat is a significant source of the impact and influence of all other Asian currencies that led to significant speculation. The findings were also supported by Xianhua et al. (2020), which found the importance of a good relationship between government agencies that try to mitigate the natural disaster impact. The fact is true, especially when government spending is key to the mitigating crisis, upholding the Keynesian theorem, and supporting the economic disaster argument.

Studies on Global Financial Crisis in 2007 to the Asian market also exist. For example, Xiaoyue (2016) studied the capital market using Hurst's exponent approach and found that after seven years of United States mortgages, the impact still impacts the Asian market. This idea was also supported by Chung (2005), who supported Xiaoyue (2016) in that the Asian market, primarily financial, proved resilience to combat economic uncertainty in the 2007 crisis. Recent studies by Choi (2022) compare the spillover impact of the Global Financial Crisis in 2007 and the COVID-19 crisis in 2020 in the United States, Japan, South Korea, and China. The author found that the 2007 crisis influenced more in western countries while COVID-19 Crisis is more severe depending on country conditions, lockdown conditions and virus infection in the nation. Nevertheless, all the authors agree that government intervention, an especially fiscal expansionary policy that increases government expenditure, reduces tax and all other direct control policies to mitigate the economic impact, especially in a downturn.

Simplify, there are many arguments when we talk Asian Financial Crisis in 1997 and the Global Financial Crisis in 2008. This research found that Chung (2005), Xianhua et al. (2020), Joe and Oh (2017) and Kang and Stulz (1997) all agree that government action is vital to mitigate the economic shock impact and all of them support the economics disaster theory hypothesis. Chung (2005), Sang and Paul (2018) and Jeon & Seo (2003) all agree that Asia is ready and stable to combat the crisis, especially by building international reserves. This argument partial contradicts Apostolakis (2016) argument (about contagious impact). But they contradict Gu et al. (2021) finding that not preparing Asia because of the build of the international reserve but unstable financial market are recipes for disaster. Stock and real-estate markets exhibited different impacts of the economic study during the 1997's Asian Financial Crisis, as suggested by Chung (2005), Gerlach et al. (2006). On the other hand, Joe and Oh (2017); Kang and Stulz (1997) proposed that manufacturing sectors have different impact magnitude throughout the crisis.

All of the authors argue that the importance of government spending on economic growth supports the New Keynesian government spending regime and the impact magnitude similar to J-Curve trade imbalanced time, around 18 months of recovery.

Methods

These studies use a simple ARDL approach because of the simplicity of the study. We also use the World Bank and IMF secondary data. The model is written as:

$$\text{Ln GNI} = \text{Bo} + \text{B1 Ln Government Consumption} + \text{B2 Ln Household Consumption} - \text{B3 Ln Investment} - \text{B4 Net Export / GDP} + \mu_{it} + v_{it} \quad (1)$$

The government intends to spend more and cut the tax in terms of economic shocks. The action taken by the government, thus, will reflect the expansionary fiscal policy. Nevertheless, the impact based on the institution in economics differs between economic sectors. The government will try to mitigate the economic reaction in a short period. Still, the impact consequences differ with economic sectors and will have a positive relationship because the government will try to give society stimulus money, especially the household. But the investment and net export will negatively impact economic growth because these sectors need more time to adjust, and the government spending impact lags time to act. The economy will recover based on the J-Curve relationship trade that needs around 18 months. Because of the simplicity of the research, no alteration, composition, or interaction was introduced to the model. The Generalisation Moments Method (GMM) is not applicable because the sample country is only Malaysia. The main hypotheses of this model are given as follows: -

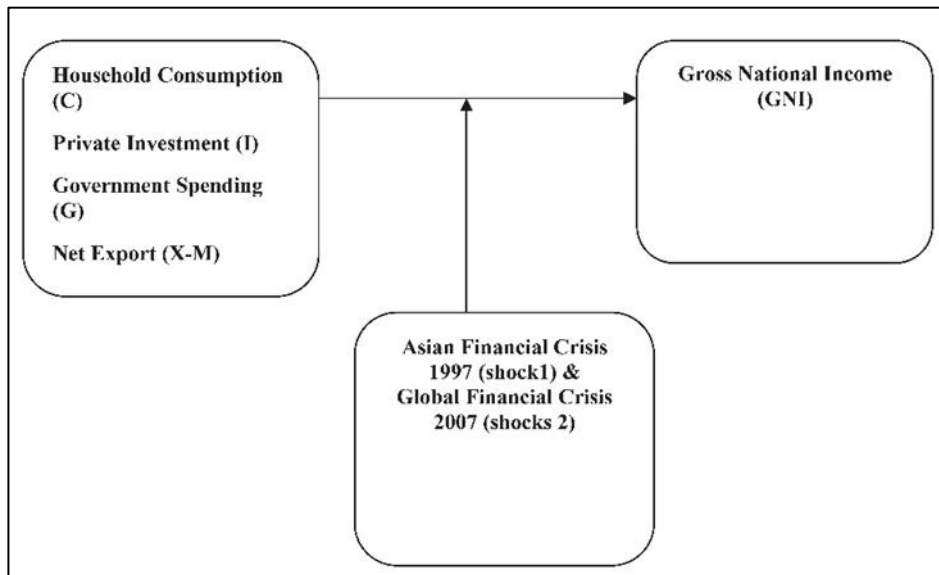


Figure 2. Research Frameworks for Government Spending and Economics Disaster Enveloped Theorem

This research will use the same unit root test to test the stationary of the model with:

$$Y_t = \rho Y_{t-1} + \mu_t,$$

Where $-1 < \rho < 1$, and μ_t is the white noise error term. If the ρ value = 1, then unit roots (non-stationary) exist. To solve this problem, we add the previous lag value and subtract it with Y_{t-1} , yielding

$$Y_t - Y_{t-1} = (\rho - 1) Y_{t-1} + \mu_t, \text{ simplified to}$$

$$Y_t = \delta Y_{t-1} + \mu_t \quad (2)$$

where Δ is the first difference and $\delta = (\rho - 1)$ (δY_{t-1} = stationary, μ_t = non-stationary). This equation indicates that when $\delta = 0$, $\rho = 1$, Y_t is nonstationary.

The hypotheses below can be generated [applied in the augmented Dickey-Fuller (ADF) and Phillips – Perron (PP) tests]:

$$H_0: \text{non-stationary } (\delta=0, \rho=1) \Delta Y_t = \mu_t$$

$$H_1: \text{stationary } (\delta < 0 \text{ or } \delta = -1 \rho = 0), \Delta Y_t + \delta Y_{t-1} = \mu_t$$

This study has a mixed result of I (0) AND I (1) that the cointegration test is necessary.

Second, we test using the Johansen Cointegration Test (JCT). When all data present no problems (i.e., contain no unit root problems), JCT can be carried out. The general idea of this test is to determine the long-term relationship between variables. The cointegration factor in this work indicates the following:

$$\text{Economic Disaster Theorem} = GNI - (GC + HC - I - (X-M)), \tag{3}$$

JCT uses two test statistics: trace statistic and maximum Eigen value. These test statistics require significance at the 1% and 5% levels. The models of JCT are:

Maximum Eigen value:

$$\lambda_{\max}(r, r+1) = -T \sum \ln(1 - \lambda_{t-r}) \tag{4}$$

Trace statistic:

$$\lambda_{\text{TRACE}}(r) = -T \sum \ln(I - \lambda_t) \tag{5}$$

where λ_t = characteristic root estimate value derived from the matrix Π

r = cointegration factor

T = observation

H₀: No cointegration exists (i.e. the model does not exhibit a long-term relationship).

H₁: Cointegration exists (i.e. the model exhibits a long-term relationship).

Lastly, we compare with critical value developed by Pesaran and Smith (2001) and Narayan (2005), which means that:

←		→
Lower Bound I(0)		Upper Bound I(1)
Reject H ₁ (do not exist long run cointegration)	Indecision	Reject H ₀ (exist long run cointegration)

This is because the dependent variable is stationary at first different I (1). For all this model to cointegrate, all the independent variables must be at the first different I (1), so the bound test becomes handy in the analysis.

Result and Discussion

Table 1 indicates the time-series unit root test for Malaysia. The output shows the mixed result of I(0) and I (1). The ARDL is necessary. Table 2 shows the long-run ARDL Bound Test in Malaysia. The output indicated a long-run relationship because the F statistic is 6.9694 > I (1) for trend and no trend. Table 3 indicates the Error correction and short-run models, which depict that the best model is ARDL (2,1,4,1,4). Nevertheless, the model shows weak convergence, only -0.0329 of ECT. The outcome also reveals that Malaysia needs 30 years to correct the shock’s impact. Lastly, Table 4 shows the long-run relationship. The model shows that government consumption will increase national income by 5.9695 while net export will reduce by -5.695 to GNI. These variables support the economics disaster theorem. But the investment has a positive impact of 1.0121 on income, and Household consumption reduced significantly with -7.825 to income level.

Table 1. Unit Root Test for Malaysia

MALAYSIA	AUGMENTED DICKEY-FULLER (ADF)				PHILLIP PERRON (PP)			
	Intercept	Trend and Intercept	Intercept	Trend and Intercept	Intercept	Trend and Intercept	Intercept	Trend and Intercept
	LEVEL		1 ST DIFFERENCE		LEVEL		1 ST DIFFERENCE	
LnGNI	-1.9645	-0.6354	-4.4854*** I (1)	-4.9355*** I (1)	-1.8156	-0.9111	-4.5064*** I (1)	- 4.9932* ** I(1)
LnGC	-1.3597	-1.7553	-5.8735*** I (1)	-6.0396*** I (1)	-1.3544	-1.9340	-5.8738*** I (1)	- 6.0445* ** I(1)
LnHC	-0.5343	-3.3121	-5.0477*** I (1)	-4.0932** I (0)	-0.5343	-2.7474	-5.0477*** I (1)	- 4.1317* ** I (0)
LnI	-1.3597	-1.7553	-5.8735*** I (1)	-6.0396*** I (1)	-1.3544	-1.9340	-5.8738*** I (1)	- 6.0445* ** I(1)
Net Export/GDP	-1.6317	-3.4461	-6.0646*** I (1)	-60559*** I (0)	-1.7359	-1.8083	-6.0659*** I (1)	- 6.0559* ** I(1)
<i>Note: For the ADF test, first is the t-probabilities statistic value. All of the variables using BSC automatic choosing lags from the Eviews computer program. Optimal lags were chosen by Schwer (1987) and Pesaran and Smith (2001).</i>					<i>Note: For the PP test, the first is the t-probabilistic statistic value. All of the variables using BSC automatic choosing lags from the Eviews computer program</i>			

Table 2. Long run ARDL Bound Test for Malaysia

MALAYSIA					
F-statistic	Significance level	Bound Testing (restricted intercept and no trend)		Bound Testing (restricted intercept and trend)	
6.9694 (n=46) This bound test statistic is based on Narayan (2005)		I (0)	I (1)	I (0)	I (1)
	1%	3.892	5.173	4.394	5.914
	5%	2.850	3.905	3.178	4.450
	10%	2.402	3.345	2.638	3.772

Table 3. Error correction model for GNI (short run ARDL)

Malaysia (best model: ARDL (2,1,4,1,4))	
Dependent Variable: d (lnGNI)t	
Independent Variables	Coefficient
Constant	0.200413 (1.0495)
D (lnGNI)t-2	0.3960 (2.4846)(**)
D (lnI)t-1	-0.12359 (-2.7116) (**)
D (lnHC) t-4	-0.0967 (-1.3816)
D (Net export / GDP) t-1	-0.42355 (-3.0276) (***)
D (lnGC) t-4	0.1436 (2.6323) (***)
ECT t-1	-0.0329 (7.0610) (***)

Notes: First is coefficient, t-statistic in parentheses, and * significant at 10% ** significant at 5% *** significant at 1%
Optimal lags = 4 base on AIC criterion

Table 4. Long-run Model

Dependent variables Ln GNI	Independent variables			
MALAYSIA	LnI	LnHC	Net Export / GDP	LnGC
	+ 1.0121 *	-7.825 *	-5.695 *	+5.9666 *

First is the coefficient, t-statistic significance in parentheses, and * significant at 10% ** significant at 5% *** significant at 1%

Figure 3 shows the impact relationship from 1997 to 2020 for Malaysia cases. The prolonged impact shows that Investment and Household Consumption have a similar pattern. Government Consumption shows reduced consumption, and net export showed an increased trade balance in 1980. Figure 4 shows the five years impact of the Asian Financial Crisis in 1997 struct Malaysia.

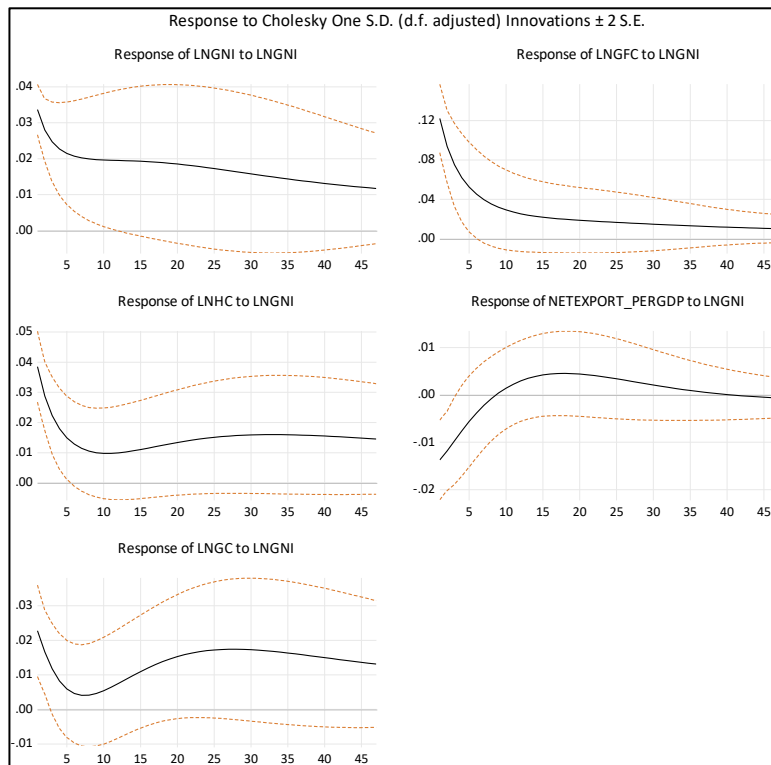


Figure 3. Impact shock for Malaysia - 1974 to 2020

All the Investment, Household and Government Consumption indicate economic disaster's correlation. Also, the Net Export shows a negative correlation, and a rebound after one year shows a V-shape recovery and supports the economic disaster theorem. Lastly, Figure 5 shows Global Financial Crisis in 2007 also indicates a similar pattern for Investment, Government and Household Consumption. Only the trade shows are reducing but still a positive relationship. Figures 4 and 5 indicate that shocks impact correlation in Malaysia cases supported economic disaster theorem.

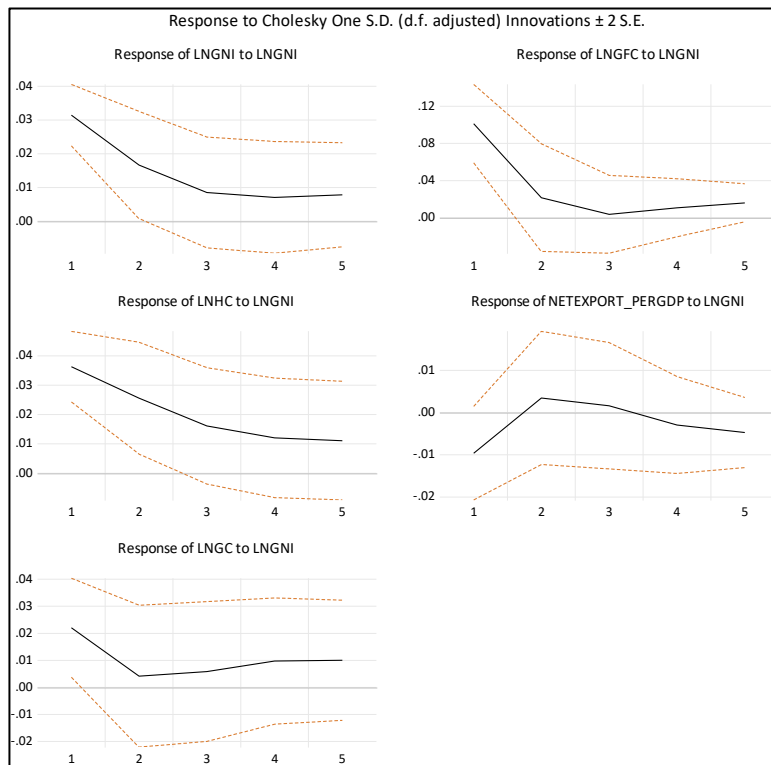


Figure 4. Asian Financial Crisis in 1997 shock impact on Malaysia

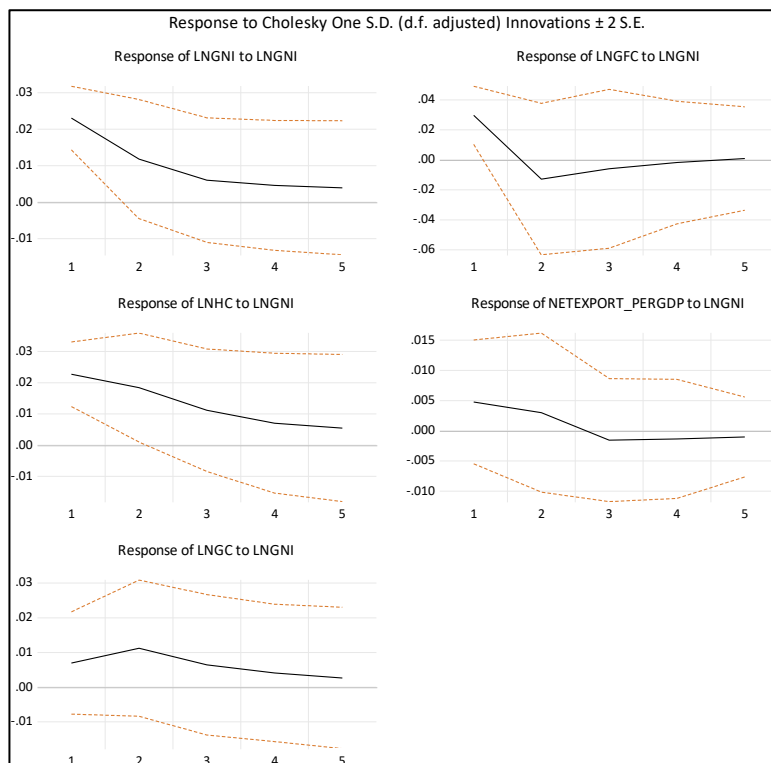


Figure 5. Global Financial Crisis in 2007 shock impact on Malaysia

Conclusion

The output of this study consists of two parts. First, the ARDL model partially supports the economic disaster theorem with only Government Consumption having strong positive and Net Export having a negative relationship to income and supported the economic disaster theorem. But for investment, linear positive and household strong negative relationship and reject the economic disaster theorem. This output is not shown from 1974 to 2020 and cannot represent the shocks because many business cycle shocks exist in Malaysian cases. Nevertheless, it shows what happened logically in Malaysia.

With 46 years of life span, data clearly shows net export / GDP ratio shows weak growth, and Government Spending is significant income growth in Malaysia. Household Consumption shows strong negative that clearly shows Malaysia's wages and income growth is stagnant when the account for inflation that; shows in the long term, consumer have less income to spend, which also correlated with a middle-income trap in Malaysia. Lastly, a physical investment that slowly grows in Malaysia also clearly indicates continuous progress of investment in Malaysia.

The second part is about the Cholesky impulse output. This method indicates the short-run shock and supports the economic disaster theorem. First in Asian Financial Crisis shows all the variable's intent to decrease, especially within two years of the impact, while net export shows a negative and strongly rebound. The output also suggests that Malaysia reduced government spending that did not follow the economic disaster theorem while Investment, Household Consumption and Net export followed the economic disaster theorem. While Global Financial Crisis in 2007 also shows a similar output. With reducing Household Consumption and Investment, Strong Government Consumption growth supported the economic disaster theorem. But the net export shows reducing and not harmful that showing this impact does not impact Malaysia's net export.

The economics disaster theorem state that in term shocks event, the government will increase spending, and the consequences are in ad hoc time-period Household Consumption will increase spending. At the same time, because of the lags, Investment and Net exports will have a negative relationship and a J-curve trade imbalance quickly. But the regression output shows different cases in Malaysia. In the long run, ARDL output suggests that this method cannot capture recent impacts.

Nevertheless, it still partially supports the economic disaster theorem—the best tool to investigate using the Cholesky impulse. The output also shows different outcomes, but nearly all the indicators support the economic disaster theorem. Because each shock differs, government and economic institutions' reactions would also vary. For example in Global Financial Crisis in 2007 did not impact Net export in Malaysia because the impact was more severe in Western Countries. Still, in Asian Financial Crisis in 1997, the impact was more severe to export industries that negatively impacted foreign sectors in Malaysia.

Consequently, the policy implementation is evident. First, the long-run model exhibited that Malaysia's strong positive correlation between Government Spending and Net exports has a strong negative to GNI. So fiscal tools seem essential to mitigate the economic impact of when downturn. While Household Consumption indicates a strong negative correlation, investment has a mild positive relationship with GNI. Clear that Government Consumption and injection take time to impact existing lags. Fundamentally, in Malaysia, the fiscal policy of Government Spending seems to impact Government Consumption, while other variables like Household Consumption seem to need time to react positively. While investment shows positive indicates, Malaysia still has a vital manufacturing hub that positively influences the economy. Lastly, Foreign Sector cannot be helped as Malaysia's position is integrated into the World economy. So, in times of shock, Malaysia must continue to inject Government Consumption. At the same time, the impact must be a catalyst for reducing tax plus other indirect policies to mitigate the economic impact.

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Author Contribution

All the researchers contribute to this article. The researcher from UiTM Johor, especially Mr Khodri and Madam Suzana, contribute more to insight and the conceptual process, while Dr Faridah from UiTM Negeri Sembilan contribute more to the mechanic and technique of this term paper

Conflict of Interest

All the authors declare no conflict of interest in this article.

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