Inflationary threshold effect on the nexus between economic growth and public debt: The case of Asian countries

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ABSTRACT

Our study is carried out in an attempt to investigate the causal relationship between economic growth and public debt under the influence of inflation in Asia. To achieve our research objectives, we used a threshold regression model and data collected from Asian countries from 2010 to 2021. The study results show that there is an inflation threshold of 10.4907% at which the influence of inflation changes and the increase in public debt harms the growth rate. Additionally, regression results on the relationship between public debt and economic growth show different results between developed and developing countries. The research results confirm previous researchers' theories and empirical findings on the relationship between inflation and economic growth. In addition, government spending negatively impacts economic growth, while population growth, capital stock, and trade scale positively impact economic growth. Studying the relationship between economic growth and public debt can provide a helpful reference for Asian policymakers. Accordingly, governments should pay special attention to maintaining moderate inflation and limiting public debt to promote economic growth.

Contribution/ Originality: In this study, we make significant contributions to the existing literature by investigating the impact of public debt on economic growth with a sample of Asian nations from 2010 to 2021 and the inflationary threshold effect on that causal relationship. Our research result is meaningful to policymakers and researchers.

1. INTRODUCTION

The causal link between public debt and economic growth has been studied by a lot of economists, but it is the complexity of the nexus between public debt and economic growth that leads to successive debates on the direction and level of impact of the explanatory variable. Currently, there are some different theoretical viewpoints on the influence of public debt, including negative, positive, and nonlinear. The adverse effect of this factor is supported by the debt overhang theory, which was laid out by Myers (1977) and then continued to be proved by numerous researchers (Bowen, Davis, & Kopf, 1960; Buchanan, 1958; Diamond, 1965; Meade, 1958; Modigliani, 1961). Although many researchers gave arguments to pinpoint the negative impact of public debt, the Keynesian view states that the effect of this factor is positive. That viewpoint is agreed upon by economists like (DeLong & Summers, 1991; Elmendorf & Mankiw, 1999; Krugman, 1988; Sachs, 1989). Beside evidence on the significant influence of public debt, many researchers believe the neutrality of this factor on the ratio of economic development. This concept was first

introduced by Ricardo (1817) and is approved by some other economists, like (Barro, 1989; Buchanan, 1976; Churchman, 2001). In conclusion, theoretically, the causal relationship between public debt and economic growth is still debatable, and it is necessary to continue digging deeper into this issue to find a reasonable answer. In addition, the link between these two factors should be examined under the influence of inflation for the following reasons: Firstly, the instability of the inflation level can lead to a fluctuation in the exchange rate, which affects import and export activities, leading to changes in economic growth. Moreover, almost all countries rely on both domestic and foreign debt, so the modification in the exchange rate will change the value of foreign debt and create elements influencing economic growth. Secondly, in order to achieve the inflation target, each government has its own policies, resulting in impacts on public debt and economic growth. Apart from the matters mentioned above, there is another problem that is evoking the concern of many researchers: the possibility of modifying public debt and the economic growth nexus of inflation if there exist threshold points for this factor.

For Asian countries, the period between 2010 and 2021 saw complex fluctuations in three problems, including economic growth, public debt, and inflation.
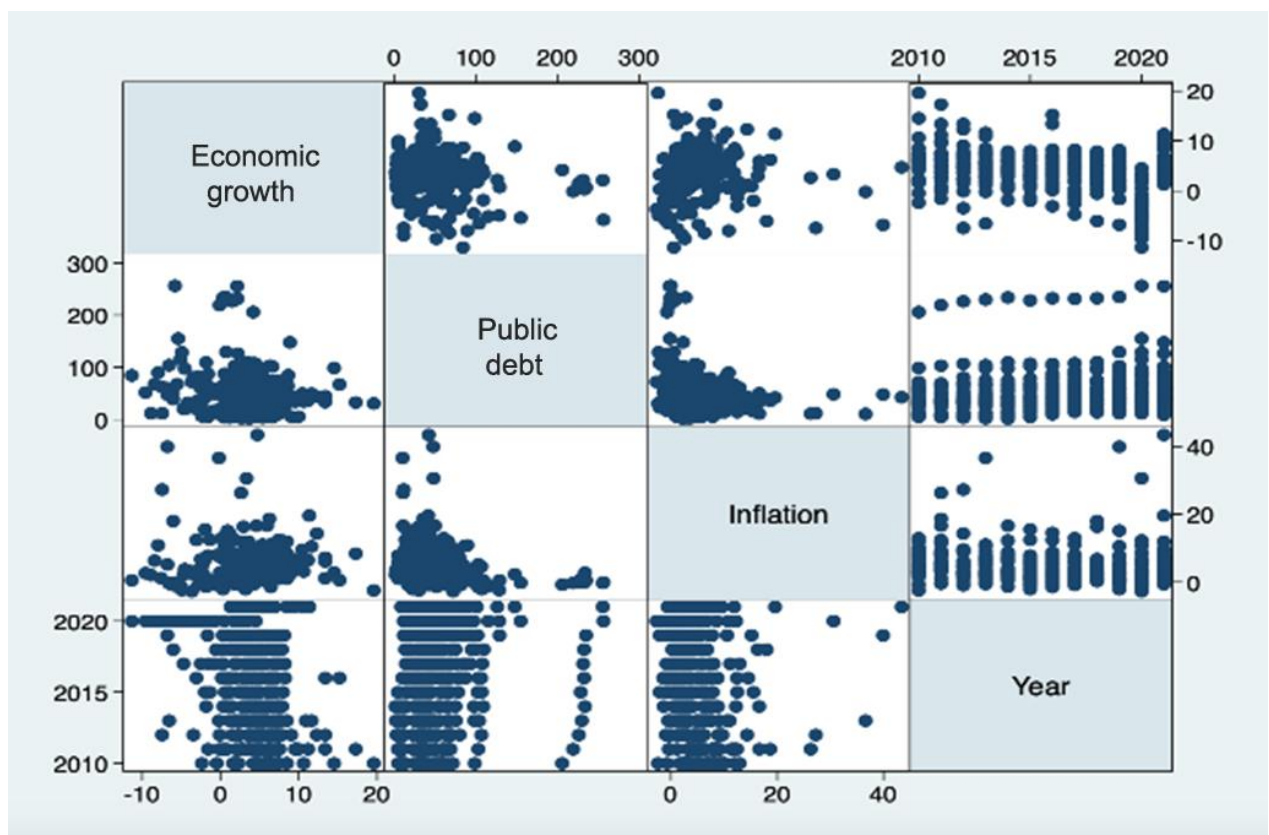

Figure 1. Graph matrix of relationship among economic growth, public debt, inflation from 2010 to 2021.

As can be seen from Figure 1, the four-year period from 2010 to 2013 was the time of accumulating strength for many nations, thus their economic growth rate rose gradually and stably. Thanks to that, in the following six years, the world witnessed the strong development of the Asian economy with the significant economic growth of numerous countries. However, in 2020, that momentum was abruptly broken because of the epidemic of COVID-19, when a range of nations used lockdown and social distancing policies, which dramatically negatively impacted the operations of companies and the income of individuals. The effect of that detrimental situation was immediately reflected in the strong decrease in the national growth rate. After one year of struggling with the epidemic, the economies of those countries became more stable, and economic growth was slightly improved. In that complex context, public debt experienced successive increases in order to meet the needs of the government, resulting in a headache that many

countries are trying to address. It is their dependence on debt that can lead them to a sovereign crisis. In addition, continuous changes in political and economic policies and the appearance of unrest problems created pressure on the consumer price index, which makes inflation control more difficult. In reality, three issues, including economic growth, public debt, and inflation, always have a relationship with each other. Therefore, studying their link can be meaningful to adjusting policies in order to find out the right way to cope with the challenging current situation.

In light of the current research situation, our study is carried out with the aim of making some contributions. First, we try to add existing literature on debt-growth linkage by digging deeper into that relationship under the impact of inflation. Second, we use the result of an empirical study to prove the inflationary threshold impact on the relationship between public debt and the economy in Asia, which might give a more comprehensive conclusion about this matter.

In order to complete the above research objectives, some questions are posed as follows:

(1) Does the causal relationship between public debt and economic growth exist in Asia between 2010 and 2021?

(2) Does that debt-growth linkage suffer from the impact of inflation?

(3) What changes are there in that causal nexus when the inflation rate surpasses the turning points?

2. LITERATURE REVIEW

Similar to the theoretical viewpoints, empirical studies show various conclusions on the nexus between those two variables. This difference becomes clearer when researchers change the temporal or spatial collected data, but we classify these studies into two groups. For the studies of the first group, authors proved the significant influence of public debt, which could be negative, positive, or nonlinear. Meanwhile, other researchers did not uncover this causality.

The debt overhang theory has highlighted the negative effect of government debt. That theory points that there are three channels leading to the negative impacts of public debt, consisting of the rational expectation theory, crowding out theory and fiscal illusion hypothesis which are explained in a range of studies of Kremers (1989); Plosser (1982); Seater (1993); Barro (1989); Barro (1981); Feldstein (1988); Feldstein (1982); Domar (1994); Evans (1985); Patinkin (1965) and Burbridge (1983). In order to demonstrate that effect, a lot of recent studies have been carried out. For example, Kourtellos, Stengos, and Tan (2013) by using a structural threshold regression method, studied the impact of public debt on the economic growth of 82 countries in 1980-1989, 1990-1999, and 2000-2009. The result shows that growth rates decrease when debts rate rise in the Low-Democracy regime. In that article, the authors examine the effect of inflation, but it is not a threshold variable. Similarly, Woo and Kumar (2015) analyze this relationship on the basis of data for 38 developed and emerging economies from 1970 to 2008. They conclude that an increasing initial public debt is significantly linked with decreasing growth. They also consider the initial inflation as a variable, and it has a significant impact on the dependent variable. Eberhardt and Presbitero (2015) investigate the debt–growth nexus. With the data collected from 118 countries in the period from 1969 to 2012, they find some evidence supporting the adverse impact of public debt on long–run growth. In their research, the influence of the inflation rate is not examined. The study by Asteriou, Pilbeam, and Pratiwi (2021) also shows a negative correlation between government debt and both short- and long-term economic growth.

The study of De Soyres, Kawai, and Wang (2022) has an analogous result of that relationship when they investigate the impact of a change in the debt to Gross Domestic Product (GDP) ratio on real GDP. With the data collected from 178 countries between 1995 and 2020, they find the negative influence of public debt on the real GDP level. Aloulou, Kalai, and Helali (2023) also indicate that positive external debt variation has a negative impact and negative external debt variation has a positive impact.

With regard to the positive influence of public debt, Keynesian economists give a range of arguments to protect their viewpoint. To specify, if public debt rises because of decreasing capital tax rates or increasing public sector capital investments, in this case, a growth in public debt resulting in higher expenditure on public sector could

improve domestic economic activity and boost private investment (Elmendorf & Mankiw, 1999). That theoretical view is also proved by some empirical research. For instance, Abbas and Christensen (2010) collected information from 93 low-income nations and emerging markets between 1975 and 2004 to examine the impact of public domestic debt (DD). Their investigation indicates that moderate levels of non-inflationary DD have a positive influence on economic growth. Owusu-Nantwi and Erickson (2016) investigate the link between public debt and economic growth in Ghana between 1970 and 2012. They find a positive long-run effect of public debt on economic growth. Besides, in the short run, there is also a bidirectional Granger causality relationship between these two variables. Yusuf and Mohd (2023) proved that external debt has a significant positive and symmetric impact on economic growth in the long and short run.

Meanwhile, many studies show a nonlinear relationship between these two variables. The threshold effect theory supporting that viewpoint argues that the direction of influence of financial leverage on economic growth changes when explanatory variables pass through turning points (Krugman, 1988; Sachs, 1989). Some economists conducted studies to investigate this relationship, supporting this point of view. Checcherita-Westphal and Rother (2012) used the information of twelve nations in the Euro area over a 40-year period in order to investigate the influence of government debt on economic growth. Their study shows a non-linear effect of the explanatory factor on per capital GDP, with a turning point at around 90-100% of GDP, beyond which the government debt negatively affects the dependent factor in the long term. For the research of Spilioti and Vamvoukas (2015) with the Greek data in the period of around 40 years starting in 1990, despite the initial hypothesis of the positive impact of government debt on economic growth, the result shows that the link between these two variables is statistically significant, and the relationship seems to be positive until the debt-to-GDP ratio of about 110% and becomes negative for higher debt-to-GDP levels. The study does not explore the influence of inflation.

Butkus and Seputiene (2018) investigate the debt-growth nexus, and based on information from 152 countries over the period of 1996-2016, they found a significant U-shaped relationship. When the inflation rate is considered an independent factor, it is shown to have a significant effect on growth. Liu and Lyu (2021) also arrive at a similar conclusions when they investigate 102 countries with different development levels from 1980 to 2016. Beside public debt, researchers focus on some other factors like real GDP per capita, government consumption, total import and export of GDP, age dependency ratio, and growth rate of population, but they do not study the impact of inflation on the debt-growth nexus. By using the information of 14 Middle Eastern and North African countries over the period 1980-2021, Alsamara, Mrabet, and Mimouni (2024) show the difference in that relationship between oil and non-oil countries. Specifically, the debt threshold hovers around 46%-69% for oil countries and 74%-81% for non-oil countries, depending on the specification employed. When the level of surveyed nations' public debt surpasses threshold points, the influence of debt on economic growth changes.

In contrast to the view of the significant influence of public debt on economic growth, many economists give consent to the opinion of Ricardo (1817) who was the first person to suggest the viewpoint of public debt neutrality. He believes that the development of the economy does not depend on the government's way of increasing capital. In other words, the government can choose either taxes or debt, and its decision does not significantly affect the growth of the nation. This government can choose either taxes or debt, and its decision does not significantly affect national growth. This scientific thought is approved by Buchanan (1976); Barro (1989) and Churchman (2001). Puente-Ajovín and Sanso-Navarro (2015) also focused on studying this causal relationship in 16 Organization for Economic Cooperation and Development (OECD) countries between 1980 and 2009. The result of this research allows the authors to state that there is no evidence found to prove the influence of government debt on real GDP growth in the studied nations. Greiner (2013) develops an endogenous growth model to analyze the effects of public debt on economic growth. The research shows that public debt does not affect long-run growth.

In conclusion, the influence of public debt on economic growth is still debatable. Additionally, despite the clear impact of inflation on the link between economic growth and public debt, there have been few studies concentrating

on this issue, especially on the influence of the influence of inflationary thresholds on the link between two factors. These mentioned research gaps show that studying this matter deeper is meaningful to many subjects, such as policymakers and researchers.

3. METHODOLOGY

3.1. Econometric Model

Based on the research objectives and hypotheses, we chose the threshold model for this study. Threshold regression models are a diverse set of non-regular regression models that are dependent on the change points or thresholds. For some types of nonlinear relationships between the outcome and the predictor, they provide a simple but elegant and understandable way to model them. Although some previous studies have used inflation as a threshold variable, no previous research has investigated the relationship between public debt and economic growth in the presence of an inflation threshold. Therefore, applying this model to research is a new research direction. We constructed the following research model:

$$EG_{it} = \begin{cases} \mu_{it} + \lambda_1 INF_{it} + \alpha X_{it} + \varepsilon_{it} & if\ INF_{it} \leq \gamma \\ \mu_{it} + \lambda_2 INF_{it} + \alpha X_{it} + \varepsilon_{it} & if\ INF_{it} > \gamma \end{cases}$$

In this equation, economic growth is the response variable, representing the annual GDP growth rate, and subscripts i and t represent the nation and year, respectively. Inflation is a threshold variable. Control variables include Population growth (PG), Capital stock (CS), Public debt (PD), Trade and General government expenditure (GOE). The model includes these variables based on theories and previous empirical research results. Table 1 displays the research model's variables.

Table 1. Variables.

Types of variable	Variable	Measurement
Dependent	Economic growth	GDP growth annual (%)
Threshold	Inflation	Consumer prices (Annual %)
Control	Population growth	Population growth (Annual %)
	Capital stock	Cost of adding fixed assets to the economy plus net change in inventory level/GDP (%)
	Public debt	National public debt/GDP
	Trade	Exports and imports of goods and services amounted to a share of the GDP
	Government expenditure	General government expenditure (% of GDP)

These models are distinguished by a threshold value of γ. Accordingly, different regression slopes are determined with values of λ_1 and λ_2, respectively. Testing whether these regression slopes are different determines the existence of a threshold in the model. In the case of appearance of two thresholds, our model is rewritten as follows:

$$EG_{it} = \begin{cases} \mu_{it} + \lambda_1 INF_{it} + \alpha X_{it} + \varepsilon_{it} & if\ INF_{it} \leq \gamma_1 \\ \mu_{it} + \lambda_2 INF_{it} + \alpha X_{it} + \varepsilon_{it} & if\ \gamma_1 < INF_{it} \leq \gamma_2 \\ \mu_{it} + \lambda_3 INF_{it} + \alpha X_{it} + \varepsilon_{it} & if\ INF_{it} > \gamma_2 \end{cases}$$

If more than 2 thresholds exist, the other thresholds and the corresponding regression slopes are determined by the same method.

3.2. Data Source

The World Bank database is the main source that helps us have data on economic growth, general government expenditure, capital stock, population growth, trade, and inflation in 36 Asian countries. The website

http://countryeconomy.com serves as our primary source of information regarding public debt. We clean the data and remove any missing information. The data were taken during the period 2010–2021 in the study.

Table 2. Panel unit root test results.

Variable	Statistics	P-value	Status
Economic growth	-12.726	0.000	Level
General government expenditure	-3.855	0.000	1st difference
National public debt	-11.187	0.000	Level
Capital stock	-5.847	0.000	Level
Population growth	-11.613	0.000	Level
Inflation	-6.472	0.000	Level
Trade	-3.536	0.000	Level

4. EMPIRICAL RESULTS

4.1. Panel Unit Root Test Results and Descriptive Statistics

We use panel unit root tests of Levin-Lin-Chu to verify the stationary property. According to the test result in Table 2, the variables Economic growth, National public debt, Capital stock, Population growth, inflation and Trade all have P value <1%, so these variables are stationary. The general government expenditure variable is not stable. However, the first difference in this variable is that it is stationary. Therefore, the threshold model uses the variables that satisfy the stationarity condition.

Table 3. Descriptive statistics result.

Variables	Unit of measurement	Mean	Standard deviation	Minimum	Maximum
Economic growth	Annual %	3.835	4.020	-11.324	19.592
General government expenditure	%/GDP	14.471	4.766	4.807	29.322
National public debt	%/GDP	51.362	41.330	1.560	256.220
Capital stock	% of GDP	27.451	7.839	12.835	58.151
Population growth	Annual %	1.493	1.544	-4.170	11.483
Inflation	Annual %	4.560	5.313	-2.720	43.389
Trade GDP	% of GDP	88.841	57.956	24.701	379.099

According to Table 3, the average value of GDP growth is 3.835, with the highest being 19.592 and the minimum at -111.324. Statistics show that economic performance differs tremendously among countries in this region. Despite high economic growth rates for some countries, such as Singapore, Turkey, and Georgia, there are other countries with low or negative GDP growth over time, like Iraq, the Philippines, Kuwait, and the Kyrgyz Republic.

All current public expenditures relating to purchasing goods and services, the majority of which relate to national defense and security, shall be classified as government consumption. This variable has a mean value of 14.472 and a standard deviation of 4.766. Government spending is defined as $4,807 to $29.322. Bangladesh and Cambodia have the lowest values, while Saudi Arabia and Oman have the highest.

In Asian countries, the average value of public debt to GDP levels is 51.362, with a high standard deviation of 41.330. This figure shows that there are large differences in public debt ratios among countries in the region. Saudi Arabia's public debt to GDP level was only 1.56 in 2014, while Japan's public debt was nearly 3 times higher than the country's GDP in 2020.

The capital stock variable measures the cost of adding fixed assets to the economy, plus the net change in inventory level relative to GDP. The mean value of this variable is 27.451, with a standard deviation of 7.839. The value of this variable fluctuates in a fairly wide range (from 12.835 to 58.151), with the highest and lowest levels for the two countries, Mongolia and Iraq.

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Population growth reflects the scale of labor force growth in countries. The mean value of this variable is 1.493, and the standard deviation is 1.544. Some countries have high population growth, such as Oman and Bahrain. On the contrary, some countries in the region have had very low, even negative, population growth in recent years, such as Japan, Singapore, Qatar, and Kuwait.

The average inflation of the countries in the research sample reached 4.560, and the standard deviation was 5.313. Most countries in the region maintain moderate inflation levels, while some countries have very high inflation. For example, Iran has an average value of up to 40% from 2019 to 2021.

Trade is a variable representing the percentage of trade in GDP. This variable has an average value of 88.842. The trade value fluctuates between 24.702 and 379.097. Among countries in the Asia region, Singapore's trade-to-GDP ratio is the highest in the region, with Pakistan ranking as the worst.

Table 4. Correlation matrix.

Pearson correlation	EG	PD	CS	PG	INF	GOE	Trade
EG	1.000						
PD	-0.186*	1.000					
CS	0.218*	-0.148*	1.000				
PG	0.165*	-0.246*	-0.067	1.000			
INF	0.035	-0.251*	0.254*	-0.063	1.000		
GOE	-0.355*	0.168*	-0.116*	0.123*	-0.246*	1.000	
Trade	0.021	0.170*	-0.094	0.023	-0.234*	-0.074	1.000

Note: * Correlation is significant at the 0.05 level (2-tailed).

Table 4 presents the Pearson correlation between variables in the research model. Based on the Pearson correlation coefficient, the EG variable has a statistically significant positive relationship with CS and PG and a negative relationship with the PD and GOE variables.

4.2. Threshold Estimations Result

For the overall sample of Asian countries, first we will estimate the single-threshold model. The estimation results show that the model's threshold value is 10.491 with a 95% confidence interval of (9.023, 10.578). Furthermore, the F statistic is highly significant, so we reject the model as linear and continue to test cases of 2 or 3 threshold models. The test results strongly support the existence of one threshold in the model. Therefore, for this sample, we performed linear regression to understand the relationship between variables in the model.
Regarding the sample of developed countries, the threshold test shows that no threshold exists.

In the sample of developing countries, the single-threshold model results show that the model's threshold value is 10.491 with a 95% confidence interval of (8.776, 10.578). Furthermore, the F statistic is highly significant, so we reject the model as linear and continue to test cases of 2 or 3 threshold models. The test results strongly support the existence of 1 threshold in the model. The following tables summarize the estimated results.

Table 5. Results of static panel threshold estimations for Asian countries.

Variables	Coef.	Std. err.	T	P>|t|	[95% conf. interval]	
Threshold estimated						
γ_1	10.491					
95% confidence interval	[9.023-10.578]					
Impact of threshold variable						
λ_1	0.175	0.087	2.02	0.044	0.004	0.345
λ_2	-0.098	0.049	-2.00	0.046	-0.194	-0.002
Impact of control variables						
d_PD	-0.186	0.027	-6.81	0.000	-0.240	-0.132

Variables	Coef.	Std. err.	T	P>|t|	[95% conf. interval]	
Trade	0.021	0.016	1.35	0.177	-0.010	0.053
GOE	-0.563	0.125	-4.49	0.000	-0.810	-0.317
PG	0.569	0.181	3.14	0.002	0.212	0.926
CS	0.213	0.040	5.38	0.000	0.135	0.291
μ_i	3.257	2.464	1.32	0.187	-1.591	8.104
Observation	396					
N	36					

Table 6. Results of fixed effect model estimations for developed Asian countries.

Variables	Coef.	Std. err.	T	P>|t|	[95% conf. interval]	
Inflation	0.451	0.166	2.71	0.008	0.120	0.781
d_PD	-0.231	0.036	-6.46	0.000	-0.301	-0.160
Trade	-0.001	0.0197	-0.07	0.947	-0.040	0.038
GOE	-0.172	0.153	-1.12	0.265	-0.475	0.132
PG	0.675	0.159	4.25	0.000	0.360	0.991
CS	0.032	0.078	0.41	0.683	-0.123	0.187
cons	3.678	3.461	1.06	0.291	-3.194	10.551
Observation	110					
N	10					

Table 7. Results of static panel threshold estimations for developing Asian countries.

Variables	Coef.	Std. err.	T	P>|t|	[95% conf. interval]	
Threshold estimates						
γ_1	10.491					
95% confidence interval	[9.023-10.578]					
Impact of threshold variable						
λ_1	0.132	0.103	1.29	0.199	-0.070	0.335
λ_2	-0.119	0.055	-2.16	0.032	-0.227	-0.010
Impact of control variables						
d_PD	-0.155	0.037	-4.14	0.000	-0.229	-0.081
Trade	0.039	0.023	1.69	0.093	-0.006	0.084
GOE	-0.857	0.224	-3.82	0.000	-1.299	-0.415
PG	0.433	0.740	0.59	0.559	-1.025	1.891
CS	0.221	0.051	4.37	0.000	0.121	0.321
cons	5.489	3.681	1.49	0.137	-1.766	12.743
Observation	286					
N	26					

The estimates given in Table 5 show that the inflation threshold of 10.4907 with a 95% confidence interval is set across all sample countries in Asia. Along with the existence of the threshold, there are two coefficients, 1 and 2, corresponding to inflation levels below and above the threshold. Specifically, when inflation is less than 10.491%, it positively impacts the economic growth of Asian countries. On the contrary, when inflation exceeds this threshold, it harms this area's economic development. According to Table 6, inflation positively impacts the economic growth of developed countries in the region. This result could be explained by the fact that developed countries in the region have always maintained moderate inflation rates over the past 11 years; thus, inflation has a stimulating effect on production, consumption, and economic growth. Table 7 shows that for 26 developing countries in Asia, an inflation threshold of 10.491% exists with a 95% confidence interval. When inflation is less than 10.4907%, it does not impact economic growth. However, when inflation is higher than this threshold, it harms the economic development of these countries.

According to Ahmed and Mortaza (2005) a moderate and stable inflation rate can promote economic growth because it offers profits to savers, improves investments, and finally boosts the national growth rate of economy. Nonetheless, when inflation is high, it negatively impacts the economy's development (De Gregorio, 1993). This

research result is consistent with both the theory and the results of previous empirical studies on the nexus between inflation and economic growth (Blanchard & Quah, 1989; Rousseau & Wachtel, 2001).

The variable of public debt significantly negatively influences the response variable in all three research samples. This result is consistent with the conclusions of researchers such as Kremers (1989); Plosser (1982); Seater (1993); Barro (1989); Barro (1981); Feldstein (1988); Feldstein (1982); Domar (1994); Evans (1985); Patinkin (1965) and Burbridge (1983).

Public spending has a positive role in infrastructure creation, education, growth of capital, research and development, essential and critical industries, … (Bhatia, 2002). However, the allocation of these expenditures to different sectors of the economy determines the level of impact on the economy (Devarajan, Swaroop, & Heng-fu, 1993). Empirical results in 36 Asian countries and developing countries in the period 2010-2021 show that government spending harms economic growth. This research result is consistent with those of Landau (1983) and Landau (1986).

Economic growth is positively associated with capital stocks in all three research samples, and this research result once again confirms the previous research results of Munnel and Cook (1990) and Garcia-Milà and McGuire (1992). Accordingly, investment in infrastructure contributes to increasing total output, production productivity, and ultimately promoting the development of the national economy.

Although the impact of population growth on economic growth is debatable, our experimental results for the period 2010 - 2021 in 36 Asian countries and developed Asian countries show that Population growth has a positive impact on economic growth. This research result can be interpreted according to the "Population optimists" perspective of some researchers, such as Boserup (1965); Kuznets (1967), Seater (1993), Simon (1989) and Simon (1998). Accordingly, population growth helps countries take advantage of economies of scale and promote technological and institutional innovation, stimulating growth rates.

The economic theory supports that trade can positively affect economic growth because it promotes efficient resource allocation, promotes technological progress, encourages competition, and optimizes processes. Interestingly, for developing countries, trade expansion has driven the shift of production of many goods previously produced by developed countries to developing countries. This change is also accompanied by the diffusion of more modern manufacturing technology. It then has a positive impact on economic growth. A lot of empirical research has confirmed the positive influence of trade on economic growth in developing countries (Rodriguez & Rodrik, 2001; Rodríguez, 2007). The empirical results of this study also prove that the Trade variable positively impacts the economic growth of developing countries in Asia in the period 2010-2021.

5. CONCLUSION

Our article studies the impact of public debt on economic growth with the existence of inflation thresholds in Asian countries in the period 2010−2021. Experimental results show that there exists an inflation threshold of 10.4907% at which the effect of inflation on the growth rate reverses and the increase in the debt rate harms the national growth rate for the economy. The research findings reaffirm previous researchers' theories and empirical results on the relationship between inflation and economic growth. In addition, government spending negatively impacts economic growth, while population growth, capital stock, and trade scale positively impact economic growth. Overall, this study expands our understanding of the impact of public debt on economic growth in the presence of an inflation threshold. Research results indicate that governments should pay attention to maintaining moderate inflation and limiting public debt to promote economic growth. Possible solutions include using effective monetary and fiscal policies, reducing budget expenditures, improving the efficiency of public investment to reduce total investment, and increasing sustainable budget revenue.

Some limitations of this study need to be addressed. First, our study's scope only includes Asian countries. If the research scale expands globally, the results will be more comprehensive. Second, during the research period, the

global COVID-19 event occurred, which had a powerful impact on the macroeconomic variables of countries. However, we have not included this variable in the study due to the lack of published macro data post-pandemic. These limitations offer room for follow-up research.

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