第 49 卷 第 8 期
2022 年 8 月

湖南大学学报（自然科学版）
Journal of Hunan University（Natural Sciences）

Vol. 49 No. 8
August 2022

Open Access Article https://doi.org/10.55463/issn.1674-2974.49.8.6

Effects of Monetary Policy and Government Effectiveness on Economic Growth: Evidence from 49 Countries Worldwide

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Abstract: Increasing economic growth is always a big concern for all countries over the world. The paper applied the 2SLS model for the secondary panel data of 49 high-, middle-, and low-income countries for 20 years (2000 – 2019) to investigate the influence of monetary policy, government effectiveness, and other control proxies on economic growth. In this study, the authors measure the monetary policy by two variables, named "Interest expense" (IE) and "Compensation of employee expense" (CE). This research evaluates the government effectiveness by two factors, specifically "Tax revenue" (TR) and "Control of corruption" (CC). The research also uses two control variables: "Rural population" (RP) and "Trade openness" (TD). The findings confirm that monetary policy, trade openness, and control of corruption are three significantly beneficial factors that promote income per capita. However, rural population rate, and tax revenue are harmful factors for economic growth. Additionally, the GMM model also supports the same results as the 2SLS model. By investigating the monetary policy via interest and compensation of the employee expense and the role of the Government for economic growth, the study contributes to the monetary policy seen as follows. Firstly, this study confirms that monetary policy has the positive effects on economic growth. Secondly, this research also confirms that government effectiveness has complex impacts on an economy based on the type of measurement of government effectiveness.

Keywords: monetary policies, government effectiveness, trade openness, economic growth.

货币政策和政府效率对经济增长的影响：来自全球 49 个国家的证据

摘要：促进经济增长始终是世界各国的一大关切。论文将 2SLS 模型应用于 49 个高、中、低收入国家 20 年（2000-2019）的二级面板数据，研究货币政策、政府有效性和其他控制指标对经济增长的影响.在这项研究中，作者通过两个变量来衡量货币政策，分别称为"利息费用"（即）和"员工费用补偿"（行政长官）。本研究通过两个因素来评估政府的有效性，特别是"税收收入"（TR）和"腐败控制"（CC）。该研究还使用了两个控制变量："农村人口"（RP）和"贸易开放度"（运输署）。研究结果证实，货币政策、贸易开放和腐败控制是促进人均收入的三个显着有利因素。但是，农村人口比例和税收收入是经济增长的不利因素。此外，GMM 模型也支持与 2SLS 模型相同的结果。通过研究通过利息和雇员费用补偿的货币政策以及政府对经济增长的作用，该研究有助于形成如下货币政策。首先，本研究证实了货币政策对经济增长的积极作用。其次，本研究还证实，基于政府效能的衡量类型，政府效能对经济具有复杂的影响。

关键词：货币政策、政府效能、贸易开放、经济增长。

Received: May 26, 2022 / Revised: June 20, 2022 / Accepted: July 18, 2022 / Published: August 30, 2022

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1. Introduction

In the context of the COVID-19 epidemic continuing to ravage, the economy remains gloomy. Many companies have difficulty doing business and controlling their cost for the operation. The question here: whether falling interest is an appropriate method to boost up economic growth. This question is in dire need of clarification. Some researchers argued that interest expense is a dangerous factor for promoting economies. As noted in [1], the income of a country depends on its nominal interest and policy. Additionally, it was) confirmed in [2] that increasing the interest rate reduces the success of the monetary policy. The other researcher was informed that the defense of interest rates has either success or failure in the history of economies. A few scholars have discussed that the interest rate or interest expense has a complex effect on the growth of an economy, depending on the other proxies of the economic context. Evidence that interest expense can increase tax savings was also provided in [3]. Additionally, as noted in [4], the deduction of interest expense affects differently on tax liability in the U.S. depends on the ratio of the foreign tax rate. The rising interest rate under certain conditions may delay the financial crisis. Defining the threshold of interest rate as well as for deciding the appropriate welfare policy is the most important thing of the governments over the world due to the close linkage between monetary policy and income per head [5]. It was also noted in [6] that increasing the domestic currency interest rate makes domestic assets more attractive. In developed countries, a high-interest rate can increase the return on assets in the short term [7]. As found in [8], if a government maintains a safe interest rate, it should get a less rate of growth in an economy.

Rare studies shed light on how the compensation of employee expenses affects economic growth. The previous studies argue that corruption is also a highly controversial debate. Regarding the impact of trade, most of the prefixes have a positive effect on the economy. Almost all previous researchers noted that the variable "population, who live in rural areas" is always the factor that holds back the economy.

This research intends to investigate the effect of monetary policy, government effectiveness, and control factors on economic growth during the 20 years from 2000 to 2019 for 49 high-, middle-, and low-income economies.

The structure of this research is presented as follows. The next section supplies an overview of the empirical literature. The third section discusses the research methodology and source of data. The fourth section presents and discusses the empirical findings. The final section summarizes the conclusions.

2. Literature Review

2.1. Impact of Monetary Policy on Economic Growth

Economic growth translates to "well-being" and "societal benefits." Growth is defined as the total market value of all finished items in a given year per capita, the average production of a country, and business statistics determined by dividing GDP by the country's total population. According to [9], any country's top priority is to achieve a stable and optimal economy. Human capital, exports, financial development, and learning by doing business are all factors that influence a country's economic success. Whereby, monetary policy is a component and tool of macroeconomic policy, and it has a strong stabilizing effect on economic growth. Monetary policy's principal objectives can impact job creation, economic development, interest rate stability, price stability, finance market stability, and stock market stability [10]. As a result, to modify and manage their economies, each central bank may examine certain crucial tools such as the needed reserve ratio, open market operations, and lending discounts. Furthermore, such instruments have specific effects on investment, interest rates, and real GDP because of their use of transmission channels. The country's economic growth was mostly influenced by monetary policy. If the government develops a favorable monetary policy, it has a positive impact on the country's economic growth; if the government develops an unfavorable monetary policy, it has a negative impact on the country's economic growth. In theory, the impact of government monetary policy on economic growth is influenced by a number of elements, including interest rate flexibility, employment rate, and the political system.

2.1.1. Influence of Interest Expense on the Economy

Based on cost-side theories, it was confirmed that raising interest rates decreases future economic outcomes [11] and explained that reducing the interest rate made the US taxation be less than raising the US tax rate [4]. Some previous findings reveal a link between monetary policy, renewable energy, and the country's economic growth. The country' currency rate, in particular, has no effect on its economic growth, although interest rates have a negative impact, and money supply and renewable energy, in particular, have a positive impact on the same direction and have a significant impact on economic growth.

Regardless of the proxy used to measure monetary policy, such as money supply and interest rate, the empirical previous research's findings indicated long-run monetary policy neutrality. The short-run results, on the other hand, only confirm the existence of monetary policy when the interest rate is employed as a proxy for monetary policy.

2.1.2. Impact of Employee Expense Compensation on Economic Growth

Over the last 30 years or more, income inequality has risen due to three dynamics opponents: rising labor income disparity (wages and compensation), rising capital income inequality, and an increasing share of income going to capital income rather than labor income. Understanding the difference in pay and productivity is crucial to comprehending the rise in income inequality and the disappointing increases in worker's earnings and compensation, as well as middle class incomes. Previous studies have explored the importance of compensation of employee in the context of stock options [12] or the impact of income taxes on compensation of employees, or the inequality income issue [13] but it has been rare to find any attempts tried exploring the impact of compensation of employee expense with economic growth. We may have known that employees prefer benefits that are never taxed to benefits on which the tax is deferred. Simultaneously, wages and compensation have a strong relationship with productivity because these issues are considered a substantial construct of the quality of living for employees and of the distribution of income considering labor and capital. Because this variable is a motivation factor and an engine element of employee's compensation increasing firm's capacity and government revenue, it impacts both company productivity and tax revenue [14].

2.2. Impact of Government Effectiveness on Economic Growth

As indicated in [15], the government is concerned with all economic activities; it devises and maintains a legal framework that covers all transactions within an economy. Capital, labor, and productivity are the proximate factors of growth in a standard growth model. Numerous fundamental economic factors, such as geography, commerce, population, culture, government, and institutions, have been depicted as creating disparities in economic growth among countries. Whereby, governments and institutions are human – made limitations that shape human interactions and influence economic incentives. Especially, good governance leads to higher economic growth by supporting more efficient labor divisions, more productive investment, and faster implementation of social and economic programs [16]. Some previous articles discovered that government effectiveness has a strong positive impact on economic growth. This attempt showed the significantly positive effect between government effectiveness and economic growth. Especially, many multilateral development banks, for instance, the World Bank and the Asian Development Bank and many countries such as the United States, consider the role of governance in allocating foreign aid. The economic environment in which individuals acquire skills and enterprises collect capital and produce output is determined by institutions and government policies [17]. Whereas a good government can boost economic growth by efficiently providing social infrastructure that prevents diversion, bad government can stifle it through expropriation, confiscatory taxation and faulty rules and laws.

2.2.1. Impact of Tax Revenue on the Economy

Every single change in government policy can have a huge impact on economic growth [14]. Tax revenue is one of the most important sources of government revenue and it contributes to an economy. Numerous studies have been conducted in recent decades to explore the relationship between governmental spending or tax revenue and economic growth. The previous finding showed the bi-directional and casual relationship between tax revenue with government expenditure and economic growth. In particular, governments in both developed and developing regions should hardly concentrate on the substantial role of tax revenue and government expenditure in boosting appropriate fiscal synchronization in these types of economy. Tax revenue includes both general revenue and money from foreign trade taxes, as well as customs and other import charges. Institutional quality, government spending, tax revenue and economic growth all have endogenous relationships, however the results are not always consistent thorough all samples in the context of low-income countries (LICs) and lower middle-income countries (LMICs) for the term of 2005 – 2019 [18]. For the sustainable long-term economic growth, they should have the co-development of stronger institutions and more effective fiscal policies in terms of taxes and government expenditure.

2.2.2. Impact of Control of Corruption on the Economy

Corruption is an issue that many rising economies face and it is widely seen as a major impediment to economic development. In the context of corruption control and growth, the mainstream results have shown that corruption is negative with economic growth [19]. Especially, when the corruption and ratio of non-performing loans are positive, it deteriorates the soundness of the banking system, as consequence, it reduces the economic growth. Whereby, corruption has a major negative influence on investment, public expenditure efficiency, human capital accumulation, foreign direct investment inflow, the effectiveness of international aid and other factors that all of these proxies have a negative impact on economic growth. GMM methods were adopted for a sample of 142 countries for the period 1994 to 2014 [19]. The study found that corruption is completely negative with the stock of international investment in the host country. Simultaneously, this attempt suggested that richer regions with ease access to international financing tend

to grow faster and less prone compared with emerging regions. As also noted in [20] and [21], taxes can hurt the economy, which depends on the economic level, while control of corruption is a beneficial factor that promotes economic growth.

Corruption has different impacts depending on variety of time and places; the existence of corruption and its disadvantageous sequences are complicated [22]. This factor also has direct and indirect economic repercussions. According to [23], corruption not only has a direct and beneficial impact on economies, but it also has an indirect impact depending on the way of government expenditure. 2SLS estimation was used for an unbalanced data set of 25 rich and poor countries in two years, 1998 and 2000, and it was found that governments in poor countries should minimize corruption to increase tax effort, which can improve economic growth [24]. A few previous researchers argued that corruption control is one of the most important factors influencing tax collection outcomes.

Considering the relationship between governance quality and economic growth, there are some attempts to discuss this issue. A few previous researchers found a strong and statistical relationship in the context of governance quality and economic growth. Specifically, good governance can accelerate positively affect real GDP per capita because good governance defers to good public service, marketization, rule of law. A GMM method was applied for 50 countries, of which 21 have developed and 29 are emerging during the periods 1996 to 2012 [25]. The result finding showed that while governance plays a little role in explaining economic growth, exchange rate flexibility destabilizes emerging economies while accelerating economic growth in established ones.

2.3. Impact of Rural Population on Economic Growth

Many countries are concerned about rural depopulation, and numerous legislative efforts have been implemented to fight this issue. There have been numerous studies aimed to explore the urban agglomeration and rural population growth for years. A survey of 2600 respondents was conducted during May to August in 2005 [26]. The empirical findings showed that rural living preferences (as expressed by 30.5% of survey respondents) were higher than the actual number of migrants who migrate to rural areas (accounted for 23.6% according to register data). This disparity implies that there is a clear potential for rural population expansion. Forty-eight countries in sub-Saharan Africa were explored in the period 1970 to 2017 [27]. The finding showed that there was a statistically significant and positive influence between economic growth and urban agglomeration, however it was witnessed a negative effect in the terms of urban agglomeration with economic growth. The positive effect between rural population growth and economic growth was also confirmed in [28]. However, that study was conducted via survey process during the winter of 2010/2011, covering 5 provinces, 121 countries, 203 villages, 7.317 households and 28.021 persons. This was explained by the fact that the growth of the labor force will increase labor participation, and rural urban immigration all have contributed to fast economic growth in China. Certainly, these components do not contribute individually, but also affect together without additional investment accompanied.

2.4. Impact of Trade Openness on Economic Growth

The link between trade openness and economic growth has been studied extensively, but the conclusions are mixed and inconclusive. This could be due to the importance of capital stock and labor in the trade – growth nexus being overlooked. A few previous findings demonstrated that trade openness has a positive effect on economic growth in both the short run and long run, simultaneously, the attempt showed a positive and strong correlation in the context of trade openness and capital formation in boosting economic growth. The same result was also confirmed in the number of attempts [29-30]. This resulted from the demand of globalization, countries should open to trade. Meanwhile, governments and firms should establish appropriate policies to capture more capital flows.

Table 1 Summary of the impact on economic growth

Impacts on Economic growth				
Authors	**Variables**	**Positive impact**	**Negative impact**	**Neutral**
Law and Singh [9]	Human capital	X		
Azman-Saini et al. [10]	Monetary policy	X	X	
Aghion et al. [11]	Interest expense		X	
Stiglitz [15] UNDP [16] Hall and Jones [18]	Governance effectiveness	X		
Holley [14]	Tax revenue	X		

Continuation of Table 1			
Arvin, Pradhan, and Nair [19]	Tax revenue	X	X
Barro [21] and Azam et al. [22]	Tax revenue		X
Cieślik & Goczek [20] Cintra et al. [23] D'Agostino et al. [24]	Corruption		X
Barro [21] and Azam et al. [22]	Control of Corruption	X	
Niedomysl and Amcoff [27] Nkalu et al. [28], Zhong et al. [29]	Rural population	X	
Kong et al. [30], Oloyede et al. [31]	Trade openness	X	
Impacts on Firm Performance			
Wang et al. [27]	Interest expense	X	
Mehran and Tracy [12], Feldstein [13]	Compensation	X	

3. Research Methods and Data

3.1. Development of a Research Model and Hypotheses

Firstly, based on the argument stated in [4], the tax rate of a country depends on income tax and interest expense, as in the equation given below:

$$TR_t = \frac{TAX_t}{I_t}, \quad (1)$$

where TR_t denotes the tax rate at time *t* and TAX_t represents the tax income at time *t*, I_t stands for Interest expense at time *t*.

From equation (1), we can expand the model to determine the Tax revenue (TRV):

$$TRV_{i,t} = TR_{i,t}\, x\, I_{i,t,}, \quad (2)$$

Secondly, [1] presented a popular model to measure the income of a country, where confirmed the role of the interest rate seen as bellow equation (3):

$$y_t = A(L,g)y_t + B(L,g)I_t + \mu_t, \quad (3)$$

Through this equation, both the income of a country (y_t) and the nominal interest rate (I_t) depend on government policy (g).

Following both [1] and [4], this paper defines the basic equation to measure the income per capita (see equation 4):

$$IP_{i,t} = \beta_0 + \beta_{1i,t}MP_{i,t} + \beta_{2i,t}GE_{i,t} + \beta_{3i,t}X'_{i,t} + \varepsilon_{i,t}, \quad (4)$$

In equation (4), *IPi, t* denotes the Income per capita of a country *i* at time *t*, *MPi, t* represents the monetary policy of a country *i* at time *t*, *GEi, t* represents the government effectiveness of a country *i* at time *t*, and $X'_{i,t}$ stands for the control variables such as Rural population (RP) and Trade openness (TD). The reason for choosing the rural population for the control variable is that the growth equation always depends on the labor force. One more reason for selecting this variable is that the "rural population" can represent both characteristics of labor: demographic and technological specification of human capital. Trade openness can help this research identify the role of the capacity of a country in trading that presents the trading competencies, physical, and human capital of an economy. In this study, we measure the income per capita of a country by the logarithm of GDP per capita (*LnIP*). Per capita income is a common true indicator of economic growth. The monetary policy (MP) is evaluated by two variables: "Interest expense" (IE) and "Compensation of employee expense" (CE). Interest rate-based theories, on the other hand, may provide useful guidance in determining optimal monetary policy. This rate is likewise unreliable as a substitute [31]. The reason we use "CE" to measure monetary policy is that it impacts both household income and company tax payments, which in turn impact the state budget [14]. We may know that tax revenue is the primary source of revenue for the government budget. This research also computes by two factors: "Tax revenue" (TR) and "Control of corruption" (CC), which indicate the effectiveness of a government in collecting taxes as well as allocating Government budget.

Based on equation (4) and the previous argument, the study develops four hypotheses:

Hypothesis 1: Monetary policy has a positive effect on economic growth.

Hypothesis 2: Government effectiveness diversely affects the growth of economies according to each measurement of government effectiveness.

Hypothesis 3: Rural population negatively impacts economic growth.

Hypothesis 4: Trade openness has a positive influence on economies.

Based on equation (4), this study develops the empirical model having the following form:

$$LnIP_{i,t} = \beta_0 + \beta_{1i,t}IE_{i,t} + \beta_{2i,t}CE_{i,t} + \beta_{3i,t}TR_{i,t} + \beta_{4i,t}CC_{i,t} + \beta_{5i,t}TD_{i,t} + \beta_{6i,t}RP_{i,t} + \varepsilon_{i,t}, \quad (5)$$

3.2. The Research Method

As mentioned in [1], the economic growth model always exists the endogenous phenomena, so this study decides to apply the GMM and 2SLS method to

estimate the effect of independent and control variables that impact the growth of an economy. According to numerous previous researchers, both these techniques can help the study get a more consistent endogenous growth model than the fixed effects method [32-33]. The generalized method of moments (GMM) is also an instrumental method, which handles the bias of inefficiency in the presence of heteroscedasticity [34]. Additionally, [33] revealed that the 2SLS and GMM procedures obtain consistent and efficient coefficients of estimation. This study, therefore, applies 2SLS and GMM to the dynamic panel data of 49 developed and developing countries in 20 years from 2000 to 2019 (the research countries include Australia; Austria; Bangladesh; Belarus; Belgium; Bulgaria; Canada; Costa Rica; Croatia; the Czech Rep.; Cyprus; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Iceland; India; Ireland; Israel; Italy; Korea; Latvia; ; Luxembourg; Malta; Mauritius; Moldova; Mongolia; the Netherland; New Zealand; Norway; Pakistan; Philippines; Poland; Russia; Salvador; Singapore; Slovak Rep.; Slovenia; South Africa; Sweden; Switzerland; Thailand; Ukraine; the United Kingdom; the United States; Uruguay). These countries can represent the high-, middle-, and low-income economies worldwide. Furthermore, the 20-year period from 2000 to 2019 witnessed two recovery periods of all economies after two financial crises: 1997 and 2007.

For the less bias from cross-country data, this study takes the logarithm of almost all variables except for only two indicators of the WGI database. We do not take the logarithm for two variables: control of corruption and government effectiveness since these indicators range from –2.5 to 2.5.

To achieve the research objectives, firstly, the study conducted the VIF test to check the multicollinearity among independent and dependent variables for dealing with the increasing regression coefficient if the predictors are linked. The rule is that if VIF is higher than 10, there is multicollinearity [35]. The test in this study confirms that all regresses are smaller than 3, and the mean weighted is 3.01, so the research data do not face the multi-collinearity phenomenon (see appendix Table A1). Secondly, before running 2SLS and GMM models, this paper implements the correlation matrix to investigate the relationship between independent and dependent variables and to check the linkage among independent variables to avoid the bias from multi-correlation (see Table 2). Thirdly, the research applies the 2SLS and GMM to collect the estimation of coefficient regresses to provide the evidence that can prove the three above hypotheses.

3.3. The Research Data and Its Source

The study collects the secondary dynamic panel data for the following variables: GDP per capita (IP), tax revenue (TR), trade openness (TD), and rural population (RP) from the world development indicator (WDI) through the World Bank database. The two factors remain: the government effectiveness indicator (GI) and the Control of corruption indicator (CC) are two variables that we extracted from the worldwide government indicator (WGI). For the variable "Tax revenue", there is a lack of tax revenue data for Pakistan from 2000 to 2019 in the WDI database, so we collected these data via the Asian Development Bank (ADB) database through the Key indicator of Pakistan's report in 2020 (see Table 1). The two factors, which represent monetary policy: Interest expense (IE) and Compensation of employee expense (CE) were collected from the IMF database. The research countries are 49 high-income, middle, and low-income countries that belong to the Asian, European, and American regions, so these countries can be represented the cross-countries worldwide**.**

Table 2 Description of research data (World Bank and ADB databases [37, 38])

Variable	Code	Obs	Mean	Std. Dev.	Min	Max
Income per capita (PPP (constant 2017 international $)	IP	980	33,416.360	21,283.200	1.937.73 Bangladesh (2000)	114,889.2 Luxemburg (2007)
Interest expenses (% of GDP)	IE	976	4.161	4.000	0.052 Estonia (2019)	94.063 Salvador (2000)
Compensation to employees (% of GDP)	CE	973	3.425	2.815	0.000 Singapore (2010-2019)	13.9252 Cyprus (2009)
Rural population (% of total population)	RP	980	29.438	17.510	0.000 Singapore (2010-2019)	76.41 Bangladesh (2000)
Tax revenue (% of GDP)	TR	976	19.571	7.065	6.611 Bangladesh (2000)	62.5028 Malta (2007)
Trade (% of GDP)	TD	979	104.307	68.764	22.154 United States (2002)	437.327 Singapore (2008)
Control of Corruption: Estimate (range: from –2.5 to +2.5)	CC	980	0.803	1.065	-1.497 Bangladesh (2000)	2.469991 Denmark (2006)

According to Table 1, the finding shows that Luxembourg is a top country, which attained the highest index of income per capita. Singapore is a country that has the highest trade openness while

Denmark is reported with highest anti-corruption index. Nevertheless, Singapore also gets at the bottom of the table for rural population and compensation of the employee expense. Salvador, Cyprus and Malta are three countries that gained three maximized indicators of monetary policy, consecutively in particular interest and benefits of employee expense and tax revenue. From Table 1, we may know that Bangladesh is the poorest country that gained the lowest income per capita, and two indicators, which measure government effectiveness. However, Bangladesh has the vast majority people in countryside compared to the rest. The United States has the lowest ratio of trade openness to GDP. Estonia is an economy that maintains the lowest rate of interest expense.

4. Research Findings and Discussion

According to Table 2, "Rural population" and "Compensation of employee expense" are two variables that have a negative linkage with income per capita with and without significance. The other independent and control variables positively affect the dependent variable significant at one percent. According to the results, we identify that we can continuously apply the regression for the predicting estimation of the research model.

After running the 2SLS and GMM models for estimation, the research obtained the findings below (Table 3):

Table 3 Correlation matrix

	LnIP	**LnIE**	**LnCE**	**LnRP**	**LnTR**	**LnTD**	**CC**
LnIP	1						
LnIE	–0.11	1					
	(0.00***)						
LnCE	–0.05	–0.22	1				
	0.14	(0.00***)					
LnRP	–0.48	–0.08	–0.15	1			
	(0.00***)	(0.01***)	(0.00**)				
LnTR	0.47	0.20	0.25	–0.61	1		
	(0.00***)	(0.00***)	(0.00***)	(0.00***)			
LnTD	0.36	0.05	–0.16	–0.60	0.30	1	
	(0.00***)	(0.09*)	(0.00***)	(0.00***)	(0.00***)		
CC	0.83	–0.13	–0.08	–0.46	0.41	0.18	1
	(0.00***)	(0.00***)	(0.00***)	(0.00***)	(0.00***)	(0.00***)	

First off, both variables in terms of monetary policy: "Interest expense" and "Compensation of employee expense" have a statistically positive impact on economic growth. Specifically, the interest expense enhances the economic output. In particular, when the government increases one percent of interest expense per GDP, the income per capita can be higher than (X + 1.61) US Dollars. This research finding is similar to the previous scholars: [6] and [8]. Furthermore, when the government agrees to lift the compensation of employee expenses to 1 percent, so that an economy tends to increase to (X+ 0.7) US dollars for income per head. These findings completely support the hypothesis 1 stating *Monetary policy has a positive effect on economic growth depending on the kind of policy.*

Secondly, government effectiveness affects economic growth through the two following ways. On the one hand, the collection of taxation can interpret an effective tax system of the government. It is clear to witness that Table 3 confirms a negative influence of the tax revenue on growth with the significance of one percent. In particular, if the government collects one more percent of the taxation on GDP, the income per capita should be lower than (X – 1.57) US dollars. The results provide evidence that agrees with the argument of [20], and [21]. However, the control of corruption keeps a supportive role for economic growth. Controlling of corruption is beneficial. This is explained by the fact that, in the appearance of low corruption, every single party in the economy has an incentive to manufacture and operate to boost economic development. This finding also supports idea from [19] and [21]. If the government increases one point of controlling corruption indicator, the income per head of an economy could accelerate (X+1.16) US dollars. In short, this result absolutely promotes *Hypothesis 2: Government effectiveness diversely affects the growth of an economy in accordance with each measurement of government effectiveness.*

Table 4 Research results: dependent variable: logarithm of income per capita (LnIP)

Variables	**2SLS**		**GMM**	
	Coeff, Std Err.	**Z P > z**	**Coeff, Std Err.**	**Z P > z**
LnIE	1.61 (0.47)	3.41 (0.01)***	1.61 (0.57)	2.83 (0.01)***
LnCE	0.70 (0.21)	3.32 (0.00)***	0.70 (0.24)	2.94 (0.00)***
LnRP	-0.02 (0.01)	-2.86 (0.00)***	-0.02 (0.01)	-2.63 (0.00)***
LnTR	-1.75 (0.57)	-2.76 (0.00)***	-1.75 (0.67)	-2.34 (0.02)**
LnTD	0.86 (0.19)	4.52 (0.00)***	0.86 (0.20)	5.52 (0.00)***
CC	1.16 (0.17)	6.78 (0.00)***	1.16 (0.21)	5.52 (0.00)***
_cons	5.47 (1.20)	4.57 (0.00)***	5.47 (1.06)	5.18 (0.00)***
Number of obs	952			952
Wald chi2(6)	230.44 (0.00***)			224.90 (0.00***)
Root MSE	1.47			1.47

Thirdly, the control variable "rural population" harms economic growth, for instance, a country increases by one person, who lives in a rural area, its income per capita should down (X−0.02). This variable represents the knowledge and capability of the human resources of a country. The result suggests that Governments should improve the policy and your concern to increase life for people who live in the rural area. Thus, it is necessary to narrow the gap between rural and urban areas. The finding also supports *Hypothesis 3: Rural population negatively impacts economic growth.*

At the same time, this research has found opposite results referring to the rural population, compared to the previous studies [28]; therefore, every single government in global scale should establish reasonable policies to encourage firms and urban citizens.

Last but not least, trade openness is one of the positive factors promoting economic growth. For example, a country enhances the one percent of the ratio between trade and GDP, the economy rises (X + 0.86) US dollars. This finding provides a proof of *Hypothesis 4: Trade openness has a positive influence on an economy*. The results also support the previous researchers: [29] and [30].

5. Conclusion

The researchers have conducted a monetary theory model to investigate the influence of monetary policy, government effectiveness, and two control variables: trade openness and rural population on economic growth for dynamic panel data of 49 high-income, middle, and low-income economies over all regions. This study adopted both methods 2SLS and GMM of linear dynamic estimation to the balanced panel data. The empirical results have yielded several outstanding features as follows.

Firstly, the study found that monetary policy has a positive effect on economic growth. For instance, when the government raises the interest expenses, or compensation of employee expenses, the economy can gain a higher income per capita. This finding also proposes to government how to focus on the costs of improving the compensation of employee expense and interest expense.

Secondly, Government effectiveness was measured by tax revenue and control of corruption indicators. These variables hurt or promote an economy following each type of measurement. On the one hand, tax revenue is a harmful factor for an economy. Specifically, when tax revenue increases, this issue indicates that corporations and individuals must pay much. However, controlling of corruption is beneficial.

Thirdly, trade openness always increases income per head, while the rural population has an opposite impact. This is explained by the fact that foreign capital funds enhance the capacity of expertise, technology, vast capital to boost the domestic economy.

In short, this study is subjected to fulfill a few previous limitations. An outstanding feature is that this attempt can determine the monetary policies such as compensation of employee expense. Moreover, the authors recognize the limitation of extracting the appropriate secondary data for experimental research to explore the theory. Last but not least, adopting data from two main sources such as the World Bank, IMF and Asian Development Bank is considered an appropriate method to investigate the phenomenon.

The report has not performed statistical analysis for each economic group to clarify the different impacts of variables: "monetary policy" and "effectiveness of governance" on economic growth. In the future, this study will continue to expand the research to clarify the role of these variables according to each economic group to propose more appropriate policies for government to enhance their economic growth.

Acknowledgment

The authors express their gratitude to the organizers of the 2021 Vietnam Symposium in Banking and Finance on 28–30 Oct. 2021 and the helpful comments from the workshop participants to help us have a better opportunity to complete our article.

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Appendix

Table A1 The result of VIF test

Variable	**VIF**	**1/VIF**
LnRP	4.7	0.212711
LnTR	3.93	0.254262
CC	3.81	0.262536
LnTD	2.35	0.426251
LnCE	2.12	0.471982
LnIE	1.14	0.880152
Mean VIF	3.01	