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Article

Relationship between government quality, economic growth and income inequality: Evidence from Vietnam

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BANKING & FINANCE | RESEARCH ARTICLE

Relationship between government quality, economic growth and income inequality: Evidence from Vietnam

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Abstract: Government quality, economic growth and income inequality are topics that are of interest to many researchers, especially in Vietnam—a country with high economic growth and income inequality, and the quality of government is not fully transparent. Moreover, these three topics are only experimentally conducted separately and have not been explored simultaneously. This study analyzed the concurrent relationship between government quality, economic growth and income inequality within Vietnam in the period 2006–2017 with Stata tool with 3-stage regression model. The results show that higher government quality will boost economic growth and reduce inequality among provinces. On the other hand, economic growth can improve government quality but increase income inequality among provinces. This implies that the government and public administration executives will have a full perspective to assess and predict macro policies and make reference for further studies.



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PUBLIC INTEREST STATEMENT

This study has improved the previous study by exploring the reality of the simultaneous relationship between three factors: government quality, economic growth and income inequality in Vietnam. The results of the study support the government and public sector managers to fully assess and predict the impact of macro policies: Policies that increase economic growth may improve government quality but increase income inequality across provinces, while improving the quality of government will not only promote economic growth but also reduce the inequality between provinces. The study implies that the government needs institutional reforms to achieve sustainable economic growth through transparency of the governance system, reducing corruption, giving people equal access to resources to improve living standards, thereby promoting economic development.









Subjects: Economics and Development; Public Finance; Business, Management and Accounting

Keywords: Government quality; public administration; economic growth; income inequality

1. Introduction

Poverty, slow economic growth and inequality of income distribution are inherent problems of poor and developing countries. Besides poor economic performance, corruption is a common problem in these countries. The objective of economic development is to increase living standards and welfare as well as expand opportunities to access production resources for all citizens in the country. Any factor that hinders the opportunity to improve the living standards of any population group, especially the poor, will slowdown the process of economic development. In addition, it will promote increased inequality among population groups. In other words, corruption has a negative impact on economic growth and increases income inequality, which damages the economic development process (Gyimah-Brempong, 2002).

While economists have shown the role of corruption in economic development and inequality, however, previous research experience shows that the relationship between economic growth and income inequality needs to be considered in a separate socio-economic context and appropriate background theory (Kuznets, 1955; A. Alesina & Rodrick, 1994; Persson & Tabellini, 1994; Galor & Zeira, 1993; P. Aghion & Bolton, 1997; Aghion et al., 1999; Benabou, 1996;; Alesina and Perotti., 1994; Knell, 1998).

In Vietnam, in 2018, the national GDP increased by 7.08%, the highest increase since 2008, exceeding the target set by the National Assembly of Vietnam to 6.7% (General Statistics Office of Vietnam, 2018). The quality of Vietnam's economic growth has improved markedly while the overall growth of the world economy has tended to slowdown after having high growth steps in 2017. Along with Vietnam's growth is an increase in the gap in income inequality. This increase does not occur evenly but according to different trends in each region, territory, region and the country. During the survey period, there is a big gap in income per capita between the province with the highest and lowest average income. In 2017, Ba Ria—Vung Tau is the province with the highest average income per capita in the country with an income of over 460 million VND while Ha Giang is the province with the lowest average income in the country with only 3.38 million VND. Moreover, Vietnam does not have a transparent data system as in developed countries to be able to calculate the income of this target group (Pincus & Sender, 2008). Therefore, the actual level of inequality may be higher than the official statistics reflected.

From the perspective of economic growth and income inequality, the socio-economic characteristics of each locality in Vietnam are different. This creates a difference in macro policies as well as management quality of the Government of Vietnam for each region. According to the Vietnam Chamber of Commerce and Industry (VCCI) and PAPI data set of the Center for Development Research—Community Support (CECODES) under the Vietnam Union of Science and Technology Associations and the United Nations Development Program (UNDP) in Vietnam during the period from 2006 to 2017, shows that the South East and the Mekong Delta are the two regions with the highest level of transparency and unofficial expenses in the country. These indicators represent the quality of government (according to UNDP classification), which has tended to decrease in the last two years.

Currently, studies of the relationship between economic growth, income inequality in the region and the quality of government have not been explored simultaneously, the viewpoint is often studied individually. Especially in the context of Vietnam—the country does not have relevant research published on this issue.

Derived from theoretical and practical urgency, research on the simultaneous relationship between government quality, economic growth and income inequality is really necessary. The objective of the research is going into studying the interaction and influence mutual support between corruption and economic growth, income distribution. Specifically, the thesis will focus on clarifying the questions (i) How does corruption affect economic growth and income inequality? (ii) Does rapid economic growth promote government transparency, and reduce corruption? and (iii) Does rapid economic growth reduce income inequality?

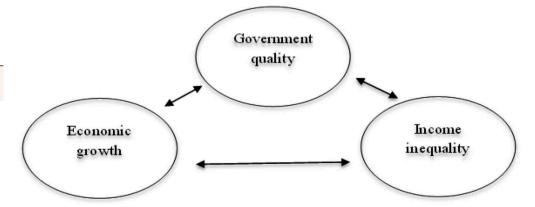
1.1. Theoretical background

Kuznets' inverted-U hypothesis (Kuznets, 1955) is recognized as the first study to examine the relationship between economic growth and income inequality. According to this theory, in the early stages of economic growth will increase with income inequality, due to a large amount of low-income workers in the agricultural sector to move into the industrial sector with a higher income, but redistribution is unfair. When a significant amount of labor has moved to urban areas, there is an increase in the average income until the peak in the inverted U pattern, creating a differentiation of income between urban and rural areas. Until strong government intervention in the implementation of macro policies, the overall income inequality in the economy decreases in the later stages of development. In the early stages of economic growth leading to more income inequality, poverty reduction will take longer in developing countries (Kuznets, 1955). The effective market is only available under certain conditions (J. E. Stiglitz, 2000). The hypothesis of the relationship between economic growth and income inequality under conditions is always regulated by the Government. The level of government quality optimization is achieved when the state protects ownership, corruption and public goods in a cost-effective manner (La Porta et al., 1999). Improving the quality of public management has a positive impact on economic growth, reducing the gap in income disparities between localities (Valeriani & Peluso, 2011). Empirical research shows that when public administration efficiency is high, economic growth reduces income inequality in developed countries (Lessmann, 2009; Gil et al., 2004). In contrast, in developing countries, this result has increased again (Lessmann, 2012; Rodríguez-Pose & Ezcurra, 2010).

The relationship between economic growth, regional income inequality and government quality is often studied individually, categorized into three main research lines: the relationship between (i) economic growth and income inequality (A. Alesina & Rodrick, 1994; Chiou, 1998; J. E. Stiglitz, 1969; Makiw, 2004; P. Aghion & Bolton, 1997; Persson & Tabellini, 1994), (ii) government quality and economic growth (Evans & Rauch, 1999; Fayissa & Nsiah, 2013; Knack & Keefer, 1995; Olson et al., 2000; Wilson, 2016), (iii) government quality and income inequality (D. Kaufmann et al., 1999a, 1999b, 2002; Kyriacou et al., 2015; Uslaner, 2005) (see Figure 1).

Figure 1. The relationship between economic growth, income inequality and government quality.

Source: The authors synthesized





2. Research methodology

The article approaches the mixed research method of Creswell and Clark (2007), by using a method of studying documents to interpret the relationship between government quality, economic growth and income inequality.

This simultaneous relationship is expressed through the simultaneous equation system SEM (Simultaneous Equation Model) with the general form as follows:

$$\begin{cases} RI_{it} = \mu_0 + \mu_1 GR_{it} + \mu_2 GQ_{it} + \mu_3 X_{it} + u_{1,it} \\ GR_{it} = \eta_0 + \eta_1 RI_{it} + \eta_2 GQ_{it} + \eta_3 X_{it} + u_{2,it} \\ GQ_{it} = \lambda_0 + \lambda_1 RI_{it} + \lambda_2 GR_{it} + \lambda_3 X_{it} + u_{3,it} \end{cases}$$

Inside:

- Indicators under i represent provinces/cities, t is time.
- GR is a variable representing the economic growth of province i at time t.
- RI is a regional inequality variable, represented by the PW_CV index, which is the difference in average income per capita of province i compared to the average per capita income of the country at time t (Cowell, 1999).
- GQ is the quality of government, represented by the index of transparency and corruption control
 in the PAPI dataset; or represented by lack of transparency and corruption index in PCI data set.
- X is a set of control variables included in equations based on economic growth theories.
- u₁, u₂, u₃ are the error components of the equations in the system that are correlated simultaneously with each other.

With the dependent variable characteristics of this regression equation, the explanatory variables are in turn for the other two equations in the system of three simultaneous equations (referred to as SEM). This shows that there is a potential interaction between variables to be studied in the model. These variables are in turn considered to be endogenous variables in each equation that act as explanatory variables, which in turn leads to the possibility that the remainder of each equation is correlated. Therefore, it is necessary to apply an estimation method that may consider mutual interplay to avoid bias problems during the analysis process. In addition, in case the residual variance of the equations is not uniform between provinces or in other words the system has variance changes, then it is necessary to consider this issue in SEM. In the SEM system these problems can be done by estimating GMM in two ways, namely 3-step regression estimation (3SLS-GMM) and estimating GMM-HAC to overcome the problem of variance change and simultaneous correlation of residuals in the system (Kyriacou et al., 2015). A statistically significant 5% level was used to analyze the estimated results in this study.

In research, government quality is assessed and compared through: (i) Provincial competitiveness data set (PCI) in the period 2006–2019 of Vietnam Chamber of Commerce and Industry (VCCI) and (ii) data set on provincial Governance and Public Administration Performance Index (PAPI) in the period 2011–2017 of the Center for Development Research—Community Support (CECODES) under the Vietnam Union of Science and Technology Associations and the United Nations Development Program (UNDP) in Vietnam. First, the PCI dataset is used to measure the simultaneous relationship between the three components. Next, the estimation results will be verified on the PAPI data set to ensure consistency in the estimated results. In each data set, government quality is represented by two components: transparency and corruption, however, the meaning of the indicators in the two datasets is contrasting.

(i) PCI data sets show that the greater the transparency and corruption, the poorer the quality of government. In which: (a) Transparency is assessed through the perception of enterprises about transparency (PCIT) in accessing legal documents such as the need to have



- documents or very important; (b) Corruption (PCIC) is expressed through informal expenses such as businesses in the same industry often have to pay extra informal costs.
- (ii) In contrast, the higher the transparency and ability to control corruption in the public sector, the better the people's recognition of government quality. In which: (a) Transparency is expressed through people's opinions on publicity and transparency (PAPIT) in accessing public services at provincial level; and (b) Corruption is expressed by people's perception of the ability to control corruption in the public sector (PAPIC).

In addition, data on macro-economic indicators in the period of 2006–2017 were collected from the General Statistics Office of Vietnam. In addition, the study also uses the national level indexes of the World Bank (WB) such as the official publication rate, Consumer Price Index (CPI) and GDP of Vietnam.

3. Research results

3.1. Statistics describing variables

Statistics of variables in the model are completely balanced with the maximum number of observations of 656 observations for 63 provinces/cities during the 10-year survey period from 2006 to 2017 (Table 1).

On a maximum scale of 10 for each evaluation item, the composite index of variables representing government quality in the two datasets will have a value between 0 and 10. In the survey dataset, transparency and anti-corruption in the PAPI data set are at the average level of 5.94 and 5.69 out of 10. In the PCI dataset, the lack of transparency and corruption is quite negative when the values of these two variables are 5.84 and 6.20, respectively, with a relatively wide range from neighboring 2 to 9.

3.2. Estimated results according to 3SLS-GMM and GMM-HAC methods

We perform estimation using 3SLS-GMM and GMM-HAC method in case of using PCI data set with two variables representing government quality, PCIC and PCIT. Estimated results (Tables 2 and 3) show that there is no significant difference between the 3SLS-GMM and GMM-HAC methods. The suitability of each estimation method will be checked through J-Hansen statistics showing that the instrument variables used are appropriate in both methods. According to this result, when the index of corruption increases, it increases inequality and reduces per capita income. That means, corruption has a negative impact on economic growth and inequality.

Similar to the criterion of corruption, less transparent information criteria also have a negative impact on economic growth and inequality, however, with a stronger influence. The model satisfies suitability

| Table 1. Data statistics of variables in the research model | | | | | | |
|---|-----|-------|-----------|------|--------|--|
| Variable | Obs | Mean | Std. Dev. | Min | Max | |
| PCIC | 756 | 6.20 | 1.01 | 2.81 | 8.94 | |
| PCIT | 756 | 5.84 | 0.87 | 2.15 | 8.85 | |
| PAPIC | 439 | 5.94 | 0.63 | 4.05 | 7.60 | |
| PAPIT | 439 | 5.69 | 0.54 | 4.44 | 7.24 | |
| PW_CV | 756 | 0.06 | 0.12 | 0.00 | 1.08 | |
| gdp | 756 | 26.19 | 35.80 | 3.38 | 431.36 | |
| dmtm | 756 | 0.82 | 1.22 | 0.00 | 8.94 | |
| cdt | 756 | 0.07 | 0.06 | 0.01 | 0.35 | |
| ctx | 756 | 0.15 | 0.11 | 0.01 | 0.70 | |
| fdi | 756 | 0.06 | 0.13 | 0.00 | 0.78 | |

Source: The authors calculated from the data collected on Stata software.



| Table 2. Estimated results on PCI data set for PCIC index | | | | | | |
|---|-----------|------------|-----------|-----------|------------|-----------|
| | 3SLS-GMM | | | GMM-HAC | | |
| | RI | GR | GQ | RI | GR | GQ |
| PCIC | 0.034*** | -0.867*** | | 0.033*** | -0.856*** | |
| LGDP | 0.039*** | | -1.151*** | 0.039*** | | -1.176*** |
| PW_CV | | 25.660*** | 29.566*** | | 1.411*** | 30.005*** |
| dmtm | 0.0000 | 0.0001 | 0.0001 | -0.0009 | 0.022 | 0.025 |
| _cons | -0.266*** | 6.820*** | 7.860*** | -0.263*** | 6.736*** | 7.884*** |
| J-test | | p = 0.9972 | | | P = 0.9978 | |

Source: The authors calculated from the data collected on Stata software.

Notes: Symbols ***, **, * correspond to statistical significance of 1%, 5% and 10%, respectively. GR is represented by $\overline{\text{LGDP}}$; RI is measured in turn by PW_CV; GQ is represented by PCIC.

| Table 3. Estimated results on PCI data set for PCIT index | | | | | | | |
|---|-----------|------------|-----------|-----------|------------|-----------|--|
| | | 3SLS-GMM | | | GMM-HAC | | |
| | RI | GR | GQ | RI | GR | GQ | |
| PCIT | 0.070*** | -0.852*** | | 0.071*** | -0.977*** | | |
| LGDP | 0.074*** | | -0.885*** | 0.064*** | | -0.687*** | |
| PW_CV | | 13.064*** | 13.014*** | | 15.345*** | 12.282*** | |
| dmtm | -0.019*** | 0.249*** | 0.248*** | -0.017*** | 0.245*** | 0.210*** | |
| _cons | -0.554*** | 6.960*** | 7.488*** | -0.528*** | 7.516*** | 6.924*** | |
| J-test | | p = 0.0977 | | | p = 0.5901 | | |

Source: The authors calculated from the data collected on Stata software.

Notes: Symbols *, **, *** correspond to statistical significance of 1%, 5% and 10%, respectively. GR is represented by LGDP; RI is measured in turn by PW_CV; GQ is represented by PCIT.

through J-Hansen testing, as well as giving similar results to the corruption criterion of the relationship between economic growth—inequality and government quality. Corruption has a negative effect on economic growth. This impact trend is similar but has a much greater impact level than previous studies (Gupta et al., 1998; Gyimah-Brempong, 2002; Li et al., 2000; Rose-Ackerman, 1997; V. Tanzi, 1998; V. Tanzi & Davoodi, 1997). This discrepancy may be due to differences in research subjects and research contexts.

The estimation results show that corruption increases income inequality in both ways. This problem has also been found in studies (Gyimah-Brempong, 2002; Hendriks et al., 1998; Li et al., 2000). Accordingly, there are three reasons for increasing income inequality of corruption. Firstly, inequality reduces economic growth—the main factor that increases the income of the poor. Secondly, corruption deflects the tax system towards favoring the rich and ultimately corrupting the number and effectiveness of social programs that support the poor. Gyimah-Brempong (2002) argues that corruption reduces direct economic growth by reducing the productivity of available resources as well as reducing investment in physical capital.

The estimation results show the opposite effect of economic growth and corruption. Accordingly, the results of rapid economic growth will contribute to promoting government transparency, and reduce corruption.

Vietnam's economic growth in the period of 2000–2019 in general and 63 provinces/cities of Vietnam in particular has marked a fastest growing step since the renovation. However, in



| Table 4. Estimated results on PAPI data set for PAPIC index | | | | | | |
|---|-----------|------------|-----------|-----------|------------|-----------|
| | 3SLS-GMM | | | GMM-HAC | | |
| | RI | GR | GQ | RI | GR | GQ |
| PAPIC | -0.104*** | 0.606*** | | 0.029*** | 246* | |
| LGDP | 0.172*** | | 1.649*** | 0.092*** | | -1.410 |
| PW_CV | | 5.824*** | -9.603*** | | 10.272*** | 20.892*** |
| dmtm | -0.022*** | 0.129*** | -0.213*** | -0.006* | 0.077** | 0.045 |
| _cons | 0.102 | -0.594* | 0.982** | -0.419*** | 4.194*** | 9.455*** |
| J-test | | p = 0.9983 | | | p = 0.0872 | |

Source: The authors calculated from the data collected on Stata software.

Notes: Symbols ***, **) * correspond to statistical significance of 1%, 5% and 10%, respectively. GR is represented by LGDP; RI is measured in turn by PW_CV; GQ is represented by PAPIC.

| Table 5. Estimated results on PAPI data set for PAPIT index | | | | | | |
|---|-----------|------------|---------|-----------|------------|------------|
| | 3SLS-GMM | | | GMM-HAC | | |
| | RI | GR | GQ | RI | GR | GQ |
| PAPIT | -0.102*** | 1.119*** | | -0.041*** | 0.462*** | |
| LGDP | 0.091*** | | 0.550 | 0.088*** | | 1.533*** |
| PW_CV | | 11.039*** | -6.366 | | 11.309*** | -17.413*** |
| dmtm | 006 | 0.065 | -0.031 | 006* | 0.063* | -0.094 |
| _cons | 0.329 | -3.620 | 4.192** | -0.006*** | 0.111 | 1.507 |
| J-test | | p = 0.0222 | | | p = 0.4696 | |

Source: The authors calculated from the data collected on Stata software.

Notes: Symbols ***, **, * correspond to statistical significance of 1%, 5% and 10%, respectively. GR is represented by LGDP; RI is measured in turn by PW_CV; GQ is represented by PAPIC.

exchange for this level of rapid development is a low level of inequality. This is also in accordance with Kuznets' theory of income curve. Accordingly, at the stage of rapid economic growth will trade with a level of inequality in income distribution.

3.3. The control results on the PAPI data set with two variables represent the quality of government are PAPIC and PAPIT

The simultaneous relationship between economic growth—inequality and government quality in the PCI dataset is verified through the PAPI dataset in the period 2011–2017 corresponding to two indicators of corruption control and transparency representing government quality are PAPIC and PAPIT, respectively (Tables 4 and 5).

Variables of transparency and corruption are sensitive and difficult to measure accurately in any data set. In order to assess the objectivity and to verify the robustness of the estimation results, the study performed estimates with the PAPI control sample data set. The results show a high consistency with the PCI sample data set. Whereby, in the period of economic development with an increase in per capita income, inequality will increase but reduce corruption. In other words, economic growth will improve the quality of government and increase inequality in per capita income between provinces. On the other hand, inequality will boost economic growth, while also increasing corruption.

4. Conclusions, recommendations and limitations

Corruption hurts the poor, who is a vulnerable in society. Therefore, it is necessary to raise some ethical issues of equity, giving the poor the opportunity to raise the standard of living as the rich.



From the estimation results, there exists a simultaneous relationship between economic growth—inequality and government quality. Thus, improving the quality of government will boost economic growth and reduce income inequality among provinces. On the other hand, economic growth promotes improving the quality of government but there is a trade-off between economic growth and inequality. At the same time, the existence of inequality will reduce the motivation to improve government quality. The mutual interaction between these factors is the basis for the Government to consider, evaluate and predict the impact when implementing policies appropriate to each specific time and context.

Corruption is a core issue to resolve its concurrent relationship with economic development and inequality of income distribution. Although reducing corruption is easy to say, the study proposes a few policies. In order to reduce corruption, it is necessary to have policies to reduce the role of bureaucracy in the allocation of resources, especially price control, excessive indirect taxation and reduced subsidies. Next, governments can increase the transparency of their operations by explaining policies and reducing the discretion of officials. Finally, increasing responsibility and leaders should set themselves an example of honesty.

With the goals set forth in Resolution No. 23-NQ/TW of the Vietnamese Politburo on the orientation to formulate national industrial development policies by 2030, with a vision to 2045, if Vietnam becomes a modern-industrialized country, Vietnam needs to accept an appropriate level of inequality to promote economic growth. Rapid economic development will contribute to clean and transparent management apparatus, fight against corruption. As a result, the poor are more equal in accessing opportunities to improve living standards, improve incomes and reduce inequalities in society.

Vietnam has set a goal of becoming a modern industrial country by 2020, so as not to miss the modern industrial train again, institutional reforms, the policy must be implemented more drastically. Institutional reform will lead to sustainable growth through transparent management. Reducing corruption helps all people have equal opportunities to access resources to improve living standards, thereby promoting economic development.

The simultaneous relationship between economic growth—inequality and proven government quality provides organizations with a comprehensive perspective when assessing the impact of relevant macro policies. In addition, the results of this study are also a reference basis for studies with related topics and a deeper approach.

The results of this study should be used with the note that the corruption index we use in the study is based on perceptions of corruption among citizens and businesses. Perceptions may be wrong or incorrect.

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