

THE IMPACT OF GOVERNANCE QUALITY ON HEALTH INEQUALITY IN VIETNAM

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Abstract: This study examines the impact of governance quality on health inequality across 63 provinces in Vietnam over a five-year period (2012, 2014, 2016, 2018, and 2020). Using data from the Provincial Governance and Public Administration Performance Index (PAPI), the Provincial Competitiveness Index (PCI), and the Vietnam Household Living Standards Survey (VHLSS), the study measures health inequality through the Gini index based on per capita health expenditure. The Generalized Method of Moments (GMM) estimation results indicate that aspects of governance quality have an inverse relationship with health inequality. Regional analyses reveal that improvements in governance quality have a more pronounced effect on reducing health inequality in rural areas. Based on these findings, the study offers recommendations for enhancing governance quality and addressing health inequality in Vietnam. Despite its valuable insights, the research has certain limitations. Notably, the irregularity in data collection years (2012, 2014, 2016, 2018, and 2020) poses challenges for identifying short-term impacts, particularly during the period of significant influence from the COVID-19 pandemic. Additionally, the reliance on the Gini index, which is based exclusively on per capita health expenditure to evaluate health inequality, fails to consider important elements such as the quality of healthcare services, accessibility, and utilization. This limitation leads to an inadequate evaluation of health disparities. Consequently, it highlights the necessity for more comprehensive research in the future..

Keywords: Governance quality, health inequality, urban, rural.

Code: JHS-231

Received: 20th October 2024

Revised: 10th November 2024

Accepted: 20th November 2024

1. Introduction

Inequality has consistently been viewed as a critical challenge of our era, profoundly influencing both economic development and social cohesion across nations globally (Stewart & Samman, 2013). Previous studies on inequality has predominantly concentrated on income disparities, as scholars have posited that income serves as the primary indicator of welfare and reflects the standard of living of the population (Jenkins, 2017). However, many studies argue that inequality should be reflected in various non-income dimensions such as education, health, housing, etc., in order to fully capture the barriers to development opportunities for different population groups (Rohde & Guest, 2018). Along with this, the emergence and outbreak of the global COVID-19 pandemic have highlighted existing social issues, accelerated changes in others, and introduced new challenges (Lindellee, 2021). Concerns regarding health inequality have long existed; however, they gained heightened visibility for many during the COVID-19 pandemic (McGrail et al., 2022). This situation has led to considerable research focus on issues such as healthcare access, vaccination rates, and mortality statistics among women and children (Tram, 2023). The majority of studies suggest that health inequality is on the rise worldwide, presenting a significant threat to economic and political development efforts as well as social stability in various nations (Ahmed et al., 2022). To mitigate the consequences of health inequality on socio-economic issues, it is essential first to identify the factors that contribute to either the increase or reduction of health inequality (Vo et al., 2019). In fact, there are many factors influencing health inequality, among which governance quality is considered one of the most significant determinants (Klomp & Haan, 2008). Tight control over corruption has created favorable conditions for the effective and transparent use of public funds, thereby supporting investments in healthcare infrastructure, building hospitals in disadvantaged areas, improving the quality of healthcare staff, and expanding health insurance coverage (Gupta et al., 2001). Notably, a democratic political system not only encourages public participation in the policymaking process (World Health Organization, 2022) but also ensures that the essential healthcare needs of the community are reflected and prioritized in policy decisions (Walby, 2021). Thanks to these efforts, the gap in healthcare service quality between urban and rural areas, different regions, and social classes has been significantly reduced, contributing to decreased inequality in healthcare access and improving public health (Potrafke & Roesel, 2020).

According to the 2013 Health Sector Overview Report (JAHR 2013), the overarching goal of the Universal Health Care program pursued by countries, including Vietnam, is to ensure equity in access to

healthcare services, provide basic healthcare services, and protect users from financial risks to realize the principles of public health (Ministry of Health & Health Partners Group, 2014). However, according to Tran et al. (2020), Vietnam's healthcare system still faces many limitations, which calls for experimental research to propose solutions for reducing health inequality in Vietnam. Moreover, while governance quality is considered a significant factor in reducing health inequality, most studies analyzing its impact on health inequality focus mainly on individual aspects such as corruption and public services (Chen et al., 2018; Socoliuc et al., 2022; Bukari et al., 2024). Therefore, to provide a comprehensive view of the role of governance quality in reducing health inequality, this study combines the Provincial Governance and Public Administration Performance Index (PAPI) and the Provincial Competitiveness Index (PCI) over the five years 2012, 2014, 2016, 2018, and 2020 to assess governance quality from various aspects, such as corruption control, democracy, and public services. The expected results of this study will provide a reference basis for making recommendations to improve governance quality and reduce health inequality in Vietnam through the research: ***"The Impact of Governance Quality on Health Inequality in Vietnam"***. This paper consists of five sections: Section 1: Introduction, Section 2: Theoretical Basis, Section 3: Research Methodology, Section 4: Research Results, and Section 5: Conclusions and Recommendations.

2. Literature review

According to Kataeva et al. (2015), inequality is the unequal distribution of opportunities or benefits among individuals within a social group or across multiple social groups. In the context of health, health inequality is defined as the disparity gap in accessing, utilizing, and the quality of healthcare services between individuals, communities, or nations (O'Neill, 2001; Fleurbaey et al., 2009). Towards one of the Sustainable Development Goals (SDG) focused on reducing inequality and ensuring health for all, the authors' group chose to analyze health inequality through the disparity in healthcare spending among individuals, as healthcare expenditure not only reflects the ability to pay for healthcare services but also indicates the level of access to healthcare services for the population (Goroshko et al., 2018). On the other hand, governance quality refers to the measurement of an organization's performance across various governance aspects, specifically corruption control, government effectiveness, political stability and absence of violence/terrorism, regulatory quality, rule of law, voice, and accountability (Global, 2020). Overall, governance quality is one of the core factors influencing health inequality in any country (Klomp & Haan, 2008). To objectively and comprehensively assess the quality of local governance in Vietnam, Nhung and Canh (2020) proposed a new measurement tool that combines the

advantages of both the Provincial Governance and Public Administration Performance Index (PAPI) and the Provincial Competitiveness Index (PCI). Based on this research, the authors' group will evaluate governance quality across five dimensions, including: (1) Democracy, (2) Corruption control, (3) Public services, (4) Policy, and (5) Public administration.

In the race toward achieving healthcare equity, an efficient governance system reflects a relatively positive position of an organization (whether at the national, regional, or local level) in reducing health inequality and improving national health outcomes (World Health Organization, 2024). Through measures such as curbing tobacco consumption and promoting the use of healthy nutrients, public health policies not only encourage disease prevention but also save public healthcare costs (Ferrara & Nistico, 2019). Additionally, applying a democratic model in policy-making ensures that healthcare policies are grounded in reality and adequately address the healthcare needs of all social groups, particularly the disadvantaged (Church, 2002). For example, in Canada, healthcare policies such as universal public health insurance covering 100% of the population and ensuring effective coverage across the entire territory guarantee equal access to basic healthcare services, regardless of socioeconomic status (Dhamanaskar et al., 2024). Especially, the public health insurance system helps prevent "catastrophic health expenditure" from occurring when out-of-pocket payments exceed 40% of a person's ability to pay for healthcare, which is a cause of increasing inequality among population groups (Quintal, 2019). Similarly, Kohler (2011) found that publicly listing the prices of medical supplies combined with regular internal and external audits helps prevent malpractice such as collusion and corruption. This ensures that resources and budgets allocated to healthcare are distributed and spent effectively. In Vietnam, a study by Luong et al. (2024) surveyed 174 patients at Cai Nuoc General Hospital (Ca Mau Province) and found that procedures ensuring fairness and prioritization, modern facilities and medical equipment, and convenient examination and treatment processes significantly improved healthcare services. As a result, people tend to choose public hospitals with lower costs instead of seeking expensive private clinics (Bamfo & Dogbe, 2017), thus reducing financial burdens, especially for low-income groups (Mendoza, 2020).

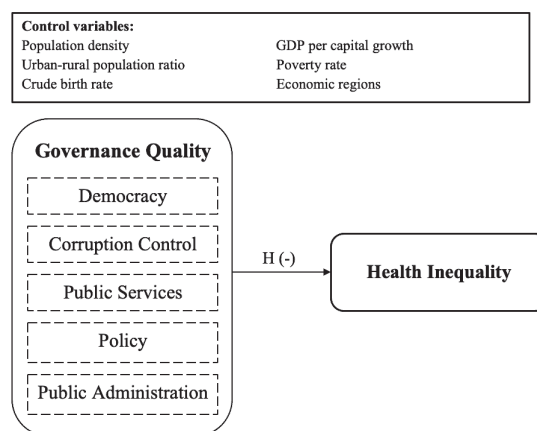
On the other hand, a substantial body of research highlights the negative consequences of weak governance in the healthcare sector. Specifically, deficiencies in governance systems, especially those related to corruption, create significant obstacles for the healthcare system in fulfilling the fundamental healthcare requirements of the population, and widen disparities in healthcare access across different social strata (Frank et al., 2018). Supporting this assertion, Naher et al. (2020) observed

that petty corruption in Bangladesh's healthcare sector eroded public trust in the quality of services provided by public health facilities. This is reflected in the low rates of healthcare utilization at public hospitals (25%) and government-run areas (10%). The study by Matsushima and Yamada (2016) on bribery in the healthcare sector in Vietnam indicated that only 83.5% of patients felt cured after treatment, while 39.1% of patients believed that they needed to bribe in order to receive better services. Furthermore, empirical studies have demonstrated that poor governance, evident in poorly designed and implemented policies, is one of the main drivers of inequality in healthcare access (Gupta et al., 1998; Vega & Irwin, 2004). In Uganda, the lack of policies, regulations, and lax management in policy implementation has led to an estimated drug loss rate of up to 73% from the public healthcare system, severely affecting the supply of treatment medications for patients and forcing people to purchase medicines from "black markets" at high prices that not everyone can afford (Lewis, 2006).

It is evident that previous empirical studies across diverse contexts consistently highlight an inverse relationship between governance quality and health inequality. In Vietnam, the study by Huyen (2022) highlights the positive impact of the correct perspectives, policies, and strategies implemented by state management agencies in reducing social inequality in general and health inequality in particular. Previously, Matsushima and Yamada (2016) indicated that high bribery rates were associated with higher mortality rates and lower health insurance coverage, which indirectly diminished public trust in healthcare activities in Vietnam. It can be said that governance quality and health inequality are also closely correlated, as improving governance quality directly contributes to reducing disparities in healthcare spending and promotes sustainable development in the healthcare sector. Based on this, the authors propose the following hypothesis:

(H): Governance quality has a negative impact on health inequality in Vietnam.

Figure 1. Research Model



Source: Constructed by the authors' group

In the research concerning health disparities in the United States, Lichtenstein (2015) emphasized the impact of socioeconomic and demographic factors on health inequality. Consequently, the authors' team incorporated several additional control variables into their model, including population density, urban-rural ratio, crude birth rate, poverty rate, per capita GDP growth, and economic region.

3. Research Method

3.1. Data

This study utilizes data from three main sources:

First, governance quality in Vietnam is measured using the Provincial Governance and Public Administration Performance Index (PAPI), conducted annually by the United Nations Development Programme (UNDP), the Vietnam Fatherland Front, and the Centre for Community Support Development Studies (CECODES), along with the Provincial Competitiveness Index (PCI), initiated by the Vietnam Chamber of Commerce and Industry (VCCI) with support from the United States Agency for International Development (USAID) and SUNTORY PEPSICO.

Second, the Vietnam Household Living Standards Survey (VHLSS) from the General Statistics Office is used to calculate health inequality in Vietnam.

Finally, data for control variables, such as population density, urban-rural population ratio, crude birth rate, poverty rate, GDP per capita growth, and economic regions, are sourced from the Statistical Yearbook published by the General Statistics Office of Vietnam.

Due to the availability of the VHLSS dataset deployed by the General Statistics Office in even years, the authors measured the variables over the years 2012, 2014, 2016, 2018 and 2020.

After compiling the above data sources, the study conducted statistical analysis and calculated the Gini index for health inequality and the characteristic variables in the research using Stata 14 in a panel data format. The data was aggregated from 63 provinces and cities in Vietnam over the five years 2012, 2014, 2016, 2018, and 2020, resulting in a data table that includes 315 observations.

3.2. Measuring

Measuring health inequality

The study develops a health variable to indirectly measure the medical aspect as proposed by Bui & Erreygers (2020). The health index of an individual h_i is the comparison of this individual's medical costs with their total costs (including total expenditure c_i and medical costs t_i). In this context, medical costs encompass the total amount that an individual pays out of pocket and the amount covered by health insurance for medical services at healthcare facilities. To calculate the health index h_i , the study uses the formula (1) as Bui & Erreygers proposed:

$$h_i = 1 - \frac{t_i}{t_i + c_i} = \frac{c_i}{t_i + c_i} \quad (1)$$

In which:

h_i is the individual health index

t_i is the individual's healthcare expenses

c_i is the individual's total expenditure (excluding healthcare expenditure)

Next, the study measures health inequality through the Gini inequality index developed by Corrado Gini (1912), which is considered the most widely used inequality measure to date. The Gini coefficient was developed based on the theory of the Lorenz curve (Lorenz, 1905), which graphically represents the distribution of a specific factor (usually income) within a certain group of people. The Gini coefficient measures inequality in the form of a numerical scale to facilitate comparisons between groups. The Gini coefficient is calculated by the ratio of the area under the 450 line and above the Lorenz curve to the total area below the 450 line. Therefore, the Gini coefficient will vary between 0 and 1, with Gini = 0 representing perfect equality, and Gini = 1 representing absolute inequality.

Measuring Governance quality

To comprehensively assess governance quality in Vietnam, the study measures governance quality by combining data from PAPI and PCI, as proposed by Do Tuyet Nhung & Le Quang Canh (2020). Specifically, governance quality is measured based on five aspects:

Democracy: Participation, Transparency and Vertical Accountability

Corruption Control: equivalent Control of Corruption in the Public Sector

Public Services: equivalent Efficiency in providing public services

Policy: equivalent Policy quality

Public Administration: equivalent Public Administrative Procedures

The five aspects are calculated and standardized on a scale of 10 according to the method of VCCI & USAID (2018), formula (1) and (2) below:

For the positive indicators:

$$P = 1 + 9 \times \frac{X - \text{Min}}{\text{Max} - \text{Min}} \quad (1)$$

In which:

P is the governance variable value of the province/city after standardization

F is the value of the province

Min is the lowest score among the 63 provinces.

Max is the highest score among the 63 provinces.

For the negative indicators:

$$P = 11 - (9 \times \frac{X - \text{Min}}{\text{Max} - \text{Min}} + 1) \quad (2)$$

In which:

P is the normalized governance variable value of the province/city.

X is the value of the province.
 Min is the lowest score among the 63 provinces.
 Max is the highest score among the 63 provinces.
Next, by using the weights of the aspects based on the

normalized Rotation Sums of Squared Loadings to total 1, Do Tuyet Nhung (2021) proposed calculating the composite governance quality index (PGI - Provincial Governance Index) according to formula (2):

$$PGI = 0,255 * DEM + 0,208 * COR + 0,192 * SER + 0,190 * POL + 0,155 * PUB \quad (3)$$

3.3 Method

Firstly, the study considers the impact of governance quality on inequality through the standard regression equation as proposed by Huang & Ho (2018):

$$Gini_{jt} = \alpha + \beta_1 EG_{jt} + \beta_2 Old_{jt} + \beta_3 Gov_{jt} + \varepsilon_{jt} \quad (4)$$

where
 $Gini_{jt}$ is Gini index for country i in year t ;
 EG_{jt} is economic growth for country i in year t ;
 Old_{jt} is share of elderly population for country i in year t ;

$$Gini_{jt} = \beta_0 + \beta_1 * DEM_{jt} + \beta_2 * COR_{jt} + \beta_3 * SER_{jt} + \beta_4 * POL_{jt} + \beta_5 * PUB_{jt} + \beta_6 * X_{jt} + u_{jt} \quad (4)$$

In which:

$Gini_{jt}$ is the Gini index measuring health inequality in province j in year t ;

DEM_{jt} is the index measuring the Democracy aspect of province j in year t ;

COR_{jt} is the index measuring the Control of Corruption aspect of province j in year t ;

SER_{jt} is the index measuring the Public Services aspect of province j in year t ;

POL_{jt} is the index measuring the Policy aspect of province j in year t ;

PUB_{jt} is the index measuring the Public Administration aspect of province j in year t ;

X_{jt} are the control variables, including: gender ratio, population density, population growth rate, GDP per capita growth, key Economics regions economic

u_{jt} are the unobserved variables.

Finally, to estimate the regression equation, the study uses the Generalized Method of Moments (GMM). Previous studies examining the relationship between various factors and inequality have pointed out the occurrence of endogeneity, as shown by Sağlam (2021). Therefore, the authors perform the Durbin-Wu Hausman test to check for endogeneity in the model. The results in **Tables 1** and **2** show that the models all have a P-value < 0.05, indicating the presence of endogeneity. Thus, the study applies the GMM method to address this issue as proposed by Hansen (1982).

Additionally, the authors use the Hansen test (or Sargan test) to check the validity of the instrumental variables and the Arellano-Bond (AR) test to check for autocorrelation in the variance of the error terms in the GMM model in first-differenced form (AR(2)). The results in **Tables 1** and **2** show that all the instrumental

Gov_{jt} is governance measures for country i in year t ;

ε_{jt} is the error term.

Secondly, the study evaluates the impact of governance quality on health inequality through five aspects: Democracy, Corruption Control, Public Services, Policy, and Public Administration; specifically, the authors' group assesses this impact using the following regression equation:

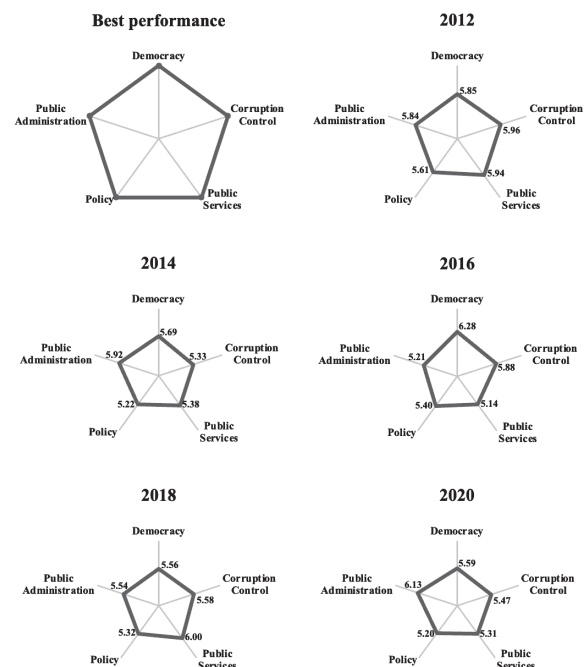
variables used in the model are valid and there is no second-order autocorrelation in the residuals.

4. Study Results

4.1. The State of Governance Quality and Healthcare Inequality in Vietnam

The State of Governance Quality

Figure 2. Radar chart of the component indices of Governance Quality in Vietnam for the period 2012-2020



Source: Calculated by the authors' group

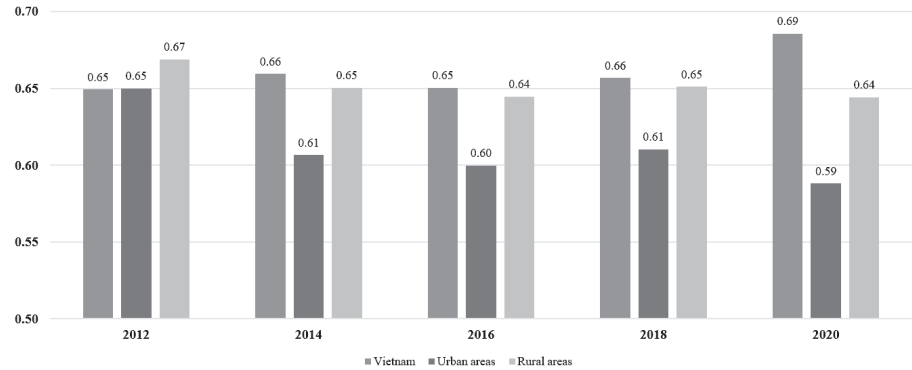
Figure 2 illustrates the changes in Vietnam's Governance Quality Index and its components over

five years: 2012, 2014, 2016, 2018, and 2020. The data is presented in the form of a radar chart, where each axis corresponds to the average score of the five component indices on the 10-point scale that standardizes the aspects of governance quality by VCCI & USAID (2018). Governance quality achieves the “best performance” when all aspects score a perfect 10 and is considered “balanced” when the five aspects have relatively equal scores. In terms of the “balance” across the five aspects, the governance quality in Vietnam exhibited relatively uniform scores in 2012. However, this balance gradually deteriorated over the years as certain aspects received prioritized improvements while others experienced declines. Specifically, in 2014, the Public Administration aspect saw a significant improvement, reaching a score of 5.92. In contrast, the 12th National Congress of the Communist Party of Vietnam in 2016 prioritized improving the aspects of Democracy and Corruption Control, which consequently led to the neglect of Public Services and Public Administration, with their scores respectively being 1.14 and 1.07 points lower, than the highest-scoring aspect - Democracy. Acknowledging these limitations, local governments redirected their priorities in subsequent years to improve the neglected aspects, resulting in Public Services dominating in terms of scores in 2018 and Public Administration taking the lead in 2020. Thus, the significant progress in certain areas may reflect resource prioritization aligned with periodic development strategies. However, the government should also focus on balancing underperforming aspects to ensure harmonious development, sustaining the long-term effectiveness and sustainability of governance quality.

When assessing governance quality across different aspects over time, it is evident that the scores generally remained above average, with each aspect showing distinct fluctuations during the study period. Specifically, the aspects of Democracy and Corruption Control exhibited a downward trend from 2012 to 2020, with score decreases of 0.27 and 0.49, respectively. Explaining this situation, CECODES et al. (2019) noted that although efforts to combat corruption in the public sector had been implemented since 2011, corruption remained an extremely serious social issue, necessitating more decisive measures from all levels of government to address it comprehensively. A similar trend was observed in the aspects of Public Services and Policy, which saw score declines of 0.63 and 0.41, respectively, particularly during the 2018–2020 period amid the outbreak of the COVID-19 pandemic. This phase marked a critical shift in Vietnam’s socio-political stability, as policies—while achieving high effectiveness in disease control—posed significant challenges to safeguarding constitutional rights (Dung, 2022), thereby negatively affecting governance quality across multiple dimensions. In contrast, the Public Administration aspect experienced positive changes, with its quality improving by 4.97% in 2020 compared to 2012. This improvement highlights the efforts of governmental agencies at all levels to support businesses and citizens, fostering an efficient business environment and a more service-oriented public administration. In summary, efforts to enhance governance quality across Vietnam’s 63 provinces and cities still face considerable limitations, underscoring the need for the government to implement timely measures for improvement.

The State of health inequality in Vietnam

Figure 3. Gini index on health inequality averaged across 63 provinces and cities in Vietnam categorized by urban and rural areas for the period 2012-2020



Source: Calculated by the authors’ group

Figure 3 shows the Gini index measuring health inequality through personal healthcare expenditure, averaged across 63 provinces and cities, for both

urban and rural areas in Vietnam during the period 2012-2020. Overall, the gap between the two regions has been increasingly widening over time, with health

inequality in rural areas consistently higher than in urban areas and the national average. Specifically, in 2012, health inequality between the regions was not significantly different, with the rural area index being 0.02 points higher than both the national and urban averages. By 2014, this gap increased, with the Gini index score reflecting national health inequality reaching 0.66 points, 0.05 points higher than urban areas and 0.01 points higher than rural areas. In 2016 and 2018, the gap remained similar, although the health inequality score in 2018 increased by 0.01 points compared to 2016, reflecting a growing trend in health inequality. By 2020, the gap in personal healthcare expenditure between the regions increased significantly, as the Gini index in urban and rural areas decreased to 0.59 and 0.64 points, respectively, but rose sharply to 0.69 points for the entire country. This phenomenon can be attributed to the significant influence of COVID-19 on social inequality, especially regarding health disparities in Vietnam. It is clear that health inequality in urban regions has consistently been less pronounced than in rural areas and the national average, highlighting the deficiencies in infrastructure and the persistent challenges encountered by low-income communities in these locales. The underlying causes of this inequality arise from the

substantial economic opportunity divide between rural and urban settings (Newman & March, 1969), along with lower educational attainment and civic engagement, which lead to restricted access to superior healthcare services (Baker, 1999). In rural regions, a significant portion of the population often depends on conventional practices and has restricted access to information regarding contemporary healthcare. Consequently, they are more inclined to utilize herbal treatments for ailments instead of antibiotics for infections, and prefer acupuncture for pain relief rather than relying on analgesics. Furthermore, families in these areas frequently engage in self-medication at home and seek private healthcare options, such as private clinics and home visits from doctors, rather than utilizing public hospitals that comply with the Ministry of Health's regulations. Conversely, individuals residing in urban settings are more likely to seek care at public healthcare institutions. (Thuan et al., 2008)

4.2. The influence of quality of governance on health inequality in Vietnam

The study uses STATA 14 software to calculate the impact of governance quality on health inequality through equation (4) and the Generalized Method of Moments (GMM). Detailed results are presented in **Tables 1** and **2**.

Table 1. Results of estimating the impact of quality of governance on health inequality in 63 provinces in Vietnam

Independent variable		Regression coefficient	Standard deviation
Health Inequality			
Lagged health inequality		-0.0315***	0.0500
Democracy		-0.0149***	0.0034
Control of corruption		-0.0144***	0.0025
Public services		-0.0097***	0.0026
Policy		-0.0058**	0.0020
Public Administration		-0.0034**	0.0016
Control variables			
Gender Ratio(Reference: Female)	Male	0.0055***	0.0013
Population density		0.000007**	0.000004
Population growth rate		-0.0089***	0.0019
GDP per capita growth		-0.00012**	0.00004
Key Economics Regions (Reference: Non-KERs)	Group of provinces in KERs	-0.0356***	0.0058
Economic region (Reference: Northern Midlands and Highlands)	Red River Delta	-0.0468***	0.0075
	North Central and Central Coast	-0.0317***	0.0089
	Central Highlands	0.0402***	0.0106
	Southeast	-0.0276***	0.0101
	Mekong Delta	0.0235*	0.0166
Constant		0.2531**	0.1337
Wald chi2(14)		743401.94	
Prob>chi2		0.000	
Wu-Hausman F(1,24)		0.0201	
AR(2) (P-value)		0.557	
Hansen J. (P-value)		0.681	
Number of observations		244	
Number of instrumental variables		61	
Statistical significance levels: * p<0.1; ** p<0.05; *** p<0.01			

Source: Compiled by the authors

The results in **Table 1** show that Governance quality has an inverse relationship with health inequality across 63 provinces and cities in Vietnam from 2012 to 2020. It is evident that all five dimensions of governance quality exhibit an inverse relationship with health inequality. Among these dimensions, Democracy and Corruption exert the most substantial influence, followed by Public Services, Policies, and Public Administration. Specifically: At the 1% significance level, when the scores for the Democracy and Corruption aspects increase by 1 point, the Gini index measuring health inequality based on personal healthcare expenditure decreases by 0.0149 and 0.0144 points, respectively. When the Public Services score increases by 1 point, the Gini index score decreases by 0.0097 points (at the 1% level). At the 5% level, with a 1-point increase in the Policy and Public Administration aspects, the Gini index measuring health inequality decreases by 0.0058 and 0.0034 points, respectively.

These results align with the research of Church (2002) and Dhamanaskar et al. (2024), which argue that improving Democracy, as reflected in enhancing citizen participation and transparency in healthcare policies, helps increase public trust in the quality of public healthcare services, thereby promoting the trend of service utilization within the community. In democratic systems, voters often consider implementing comprehensive healthcare policies aimed at narrowing the healthcare gap between different social classes. Specifically, in Vietnam, the “National Health Insurance Program (BHYT)” has been expanded based on feedback from the public, helping millions of low-income workers access and afford high-quality healthcare services. The community’s involvement in disease prevention programs like COVID-19 highlights the importance of citizens’ voices in creating effective healthcare policies.

Improving Corruption and Policies can mitigate the severity of health inequality through better resource allocation. This result is consistent with previous studies, such as those by Gupta et al. (1998), Aleshkina et al. (2016), and Frank et al. (2018), and Donkor (2023). The results of empirical studies indicate that improving the situation of corruption, combined with implementing effective healthcare policies, not only helps allocate the healthcare budget more appropriately but also ensures access to healthcare services for people in rural and remote areas. In Vietnam, the Vietnam Social Insurance has implemented an electronic health insurance information control system to monitor medical examination and treatment

activities, prevent the abuse of health insurance funds, thereby expanding opportunities for access, utilization, and expenditure on healthcare services for the population, especially in rural areas.

Improving *Public Services* and *Public Administration* has been shown to have a positive impact on the effectiveness of healthcare service delivery, especially for vulnerable groups. Ensuring transparency and clarity in public administrative processes not only addresses issues of discrimination and misallocation but also improves citizens’ access to healthcare support policies. This, in turn, encourages greater utilization of public healthcare services, which helps to lessen the financial strain on vulnerable populations. When public services and administration function efficiently, the quality of healthcare at facilities can be significantly improved, leading to enhanced investment in district hospitals and community health stations, thereby reducing the burden on central hospitals. From 2013 to 2020, the Ministry of Health launched the Family Doctor Program to provide basic, comprehensive, and continuous healthcare services for individuals, families, and communities, which helped reduce hospital overload. It can be seen that although the research results show agreement with previous studies on the role of governance quality on health inequality and average health expenditure, this study comprehensively assessed the influence of aspects of governance quality on health inequality instead of individual aspects.

Table 1 also shows that demographic characteristics influence health inequality across provinces. Specifically, *Gender Ratio* and *Population Density* both have a positive impact on health inequality. When the Gender Ratio increases by 1% and Population Density increases by 1 person/km², the Gini index increases by 0.0055 and 0.000007 points, respectively. On the other hand, the *Population Growth Rate* and *GDP per capita growth* have an inverse relationship with health inequality in Vietnam. Specifically, when the Natural Population Growth Rate and GDP per capita growth increase by 1%, the Gini index decreases by 0.0089 and 0.00012 points, respectively.

Additionally, *provinces in key economic regions* tend to experience a reduction in health inequality. Health inequality also varies across the *economic regions of Vietnam*. The results in **Table 1** indicate that health inequality tends to decrease in the Red River Delta, North Central, Central Coast, and Southeast regions, but increases in the Central Highlands and Mekong River Delta regions.

4.3. The influence of quality of governance on health inequality in Vietnam by urban and rural areas

Table 2. Results of estimating the impact of quality of governance on health inequality in Vietnam by urban and rural areas

Independent variable		Urban area	Rural area
		Health Inequality	
Lagged health inequality		-0.2161***	-0.2327***
Democracy		0.0075**	0.0074***
Control of corruption		-0.0247***	-0.0025*
Public services		0.0102**	-0.0049**
Policy		-0.0176***	-0.0143***
Public Administration		0.0064***	-0.0070**
Control variables			
Gender Ratio (Reference: Female)	Male	0.0108***	-0.0054**
Population density		-0.00008***	-0.00001**
Population growth rate		0.0288***	-0.0185**
GDP per capita growth		-0.0003**	-0.0002***
Key Economics Regions(Reference: Non-KERs)	Group of provinces in KERs	-0.0582***	-0.0473***
Economic region (Reference: Northern Midlands and Highlands)	Red River Delta	0.0959***	-0.0012
	North Central and Central Coast	-0.0740***	-0.0627***
	Central Highlands	-0.0197	-0.0040
	Southeast	0.1122**	0.0464***
	Mekong Delta	0.2545***	0.0143
Constant		-0.2462**	1.5562
Wald chi2(14)		129878.75	243235.19
Prob>chi2		0.000	0.000
Wu-Hausman F(1,24)		0.0273	0.0075
AR(2) (P-value)		0.320	0.369
Hansen J. (P-value)		0.336	0.950
Number of observations		246	246
Number of instrumental variables		60	53
Statistical significance levels: * p<0.1; ** p<0.05; ***p<0.01			

Source: Compiled by the authors

The results in **Table 2** highlight the differences in the impact of governance quality on health inequality in urban and rural areas of Vietnam during the period 2012-2020. Specifically.

The aspects of *Democracy, Corruption, and Policy* have an inverse effect on health inequality in both urban and rural areas during the study period. When the scores for Democracy, Corruption, and Policy increase by 1 point, the Gini index reflecting health inequality through personal health expenditure decreases by 0.0075, 0.0247, and 0.0176 points in urban areas and 0.0064, 0.0025, and 0.0143 points in rural areas. It can be seen that improving democracy, reducing corruption, and enhancing health policies have a greater impact on reducing health inequality in urban areas than in rural areas. This is because urban areas have more advantages in infrastructure, human resources, and are allocated most of the resources for implementing reforms. Additionally, urban areas benefit from better education and communication, allowing people to easily access and quickly benefit from health policies (Konadu-Agyemang & Shabaya, 2005).

Improving governance quality in the *Public Services and Public Administration* aspects reduces health inequality in rural areas but increases health inequality in urban areas.

Specifically, when the scores for Public Services and Public Administration increase by 1 point, the Gini index using personal healthcare expenditure to calculate health inequality increases by 0.0102 and 0.0064 points in urban areas, but decreases by 0.0049 and 0.0070 points in rural areas. Enhancements in public services and administration within rural regions can be attributed to their role in mitigating health disparities by addressing fundamental deficiencies and ensuring more equitable access to benefits. In contrast, similar improvements in urban settings may exacerbate inequality, as disparities in access to benefits persist between wealthy and impoverished groups (Guo et al., 2020). Compared with previous research results of scholars, the results of the group of authors both demonstrate the inheritance and the new insights. They not only provide a thorough evaluation of the impact of governance quality on health inequality but also highlight and compare the differing trends observed in urban and rural settings. This approach aims to enhance health equity in both regions comprehensively..

Table 2 also shows that demographic characteristics affect health inequality in both urban and rural areas. Specifically, *Population Density* and *GDP per capita growth* have an inverse effect on health inequality in both urban

and rural areas. Meanwhile, the *Gender Ratio* and *Population Growth Rate* have a positive impact on health inequality in urban areas but have an inverse effect in rural areas.

Additionally, both urban and rural areas in the economic regions of Vietnam show a trend of decreasing health inequality. Furthermore, the level of health inequality in urban and rural areas varies across the economic regions of Vietnam. The results in **Table 2** indicate that health inequality tends to increase in urban areas of the Red River Delta but decreases in rural areas. In both areas, health inequality decreases in the North Central and Central Coastal regions but increases in the Southeast and Mekong River Delta regions.

5. Conclusion

Using data from 63 provinces over five years (2012, 2014, 2016, 2018, and 2020), this study analyzes the relationship between governance quality and health inequality in Vietnam. The study shows that improving governance quality can help reduce health inequality in the country.

The authors present a series of recommendations aimed at improving governance quality, drawing from the findings. These suggestions include enhancing indicators related to public administrative procedures and service delivery, combating corruption within the public sector, ensuring transparency, fostering citizen engagement at the local level, and reinforcing governmental accountability to the populace.

First, the government should expand access to and improve the quality of public services and public administration in the health sector. A crucial element in mitigating health disparities is guaranteeing that every citizen has equitable access to healthcare services. Enhancing online public services and adopting telemedicine can facilitate easier access to healthcare information for citizens, thereby lowering obstacles to service utilization. This is particularly vital for vulnerable groups such as ethnic minorities, the elderly, and people with disabilities. On November 21, 2024, Vietnam's Ministry of Health, in cooperation with the United Nations Development Program (UNDP) and the Korea Foundation for International Healthcare (KOFIH), officially launched the "Telemedicine Application Project to Enhance Healthcare Access for Vulnerable Groups in Vietnam." The project aims to improve the health of vulnerable groups by increasing digital transformation, expanding access, and improving the quality of healthcare services. The "Doctor for Every Household" program under the project has connected over 1.3 million people with healthcare facilities and trained more than 3,000 healthcare workers, enabling people, especially those in remote areas, to access healthcare services without traveling to large healthcare centers. Furthermore, expanding access must be accompanied

by improving the quality of public services and public administration. This can be achieved through the training of healthcare personnel and the investment in essential infrastructure, both of which are critical to the delivery of healthcare services. The government should also persist in its efforts to research and develop mechanisms for gathering feedback on public services and administration, thereby fostering long-term improvements in quality.

Second, the government needs to tighten control over corruption in the health sector and ensure transparency in spending. All expenditures in this sector should be justified, made public, and transparent so that citizens can monitor and report them. This includes publishing investment projects, operational costs of healthcare facilities, and health support programs. A positive signal in this regard is the improvement in Vietnam's budget transparency scores. According to the 2023 Open Budget Survey (OBS 2023), conducted by the International Budget Partnership in collaboration with the Center for Development and Integration (CDI), Vietnam's rankings in transparency, public participation, and budget oversight have all increased compared to OBS 2021. The budget transparency score reached 51/100, higher than the global average of 45/100, marking a 7-point increase and an 11-place rise compared to OBI 2021. In addition to promoting budget transparency, it is essential to review pricing regulations and establish suitable mechanisms that elucidate the pricing framework for healthcare services. This framework should be consistent with local living standards and should actively prevent corruption and discrimination. Furthermore, to guarantee consistent and systematic inspections and monitoring, independent agencies dedicated to healthcare oversight should be created to ensure that resources are utilized efficiently and for their designated objectives.

Third, the government should build, supplement, and improve policies related to health, ensuring access for all segments of society. Before introducing new policies, the government needs to review current policies to ensure their effective utilization and improvement where necessary. One often-discussed policy is healthcare socialization. Globally, socialization involves encouraging private investment in high-quality healthcare services, with public healthcare systems focusing on vulnerable groups such as low-income individuals and people in remote areas. However, in Vietnam, socialization operates through public-private partnerships in the healthcare sector, where private enterprises collaborate with public hospitals. On the positive side, this model allows local hospitals to adopt many high-level techniques, offering affordable access to quality healthcare for local residents, especially vulnerable groups with limited financial resources, thereby reducing pressure on higher-tier hospitals. However, the model

is not clearly defined, leading public hospitals to focus on profit-making, which results in higher service fees, preventing vulnerable groups from benefiting as expected. Therefore, it is crucial to formulate and enhance policies prior to their implementation to guarantee their successful functioning. Furthermore, the healthcare insurance policy requires careful consideration. Increasing participation in health insurance will ensure that all individuals, especially vulnerable groups such as the economically disadvantaged and ethnic minorities, have access to necessary healthcare coverage. On October 19, 2023, the government issued Decree No. 75/2023/ND-CP, amending and supplementing several provisions of Decree No. 146/2018/ND-CP, which regulates the implementation of health insurance laws. One of the key updates in this decree is the inclusion of more groups eligible for state-supported health insurance premiums, particularly ethnic minorities in disadvantaged areas.

In addition to the recommendations provided, the study acknowledges certain limitations, as follows:

First, due to data constraints, the study uses data from 2012, 2014, 2016, 2018, and 2020, resulting in temporal

discontinuities. This makes it challenging to identify short-term impacts, particularly in the context of the rapidly changing factors during the COVID-19 pandemic.

Second, the research, due to constraints in the available dataset, computes the Gini index using per capita health expenditure as a means to assess health inequality. Nonetheless, this approach overlooks essential elements such as the quality of healthcare services and their accessibility to the population. Consequently, the assessment of health inequality in this study lacks comprehensiveness, potentially resulting in incomplete insights regarding the overall state of health inequality. Future research endeavors should integrate supplementary indices to facilitate a more thorough evaluation and employ a variety of data sources to offer a more complete perspective on health inequality.

Third, all social interactions are bidirectional; however, the current study does not analyze the impact of health inequality on governance quality due to the scope limitations. Therefore, future research should undertake more in-depth studies on these aspects and related influencing factors.

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