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The Influence of Quality of Provincial Governance on Multidimensional Inequality in Vietnam

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Abstract

The study examines the influence of the quality of governance on multidimensional inequality in 63 Vietnamese provinces through the Viet Nam Provincial Governance and Public Administration Performance Index (PAPI) and the Vietnam Household Living Standard Survey (VHLSS) over 5 years (2012, 2014, 2016, 2018, and 2020). The article measures multidimensional inequality by the Atkinson inequality index through 4 dimensions: consumption, health, education, and housing, as suggested by Tsui (1995, 1999). Applying the Generalized Method of Moments (GMM), the result shows that the quality of governance has a negative effect on multidimensional inequality. From there, the study proposes recommendations to improve the quality of governance and reduce multidimensional inequality in Vietnam.

Keywords: Atkinson inequality index, GMM, multidimensional inequality, quality of governance
JEL Classifications: D63, G38

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1. Introduction

Inequality is considered a major political issue of the era, having a strong impact on the economic growth and social stability goals of many countries around the world. When looking at inequality, most studies focus on analyzing income inequality (unidimensional). Because scholars believe that income is the most basic measure of happiness (Dalton, 1920). However, this view has faced opposition from many researchers, who argue that income inequality cannot reflect an overview of social injustice, especially with regard to human capital development (Atkinson & Bourguignon, 1982; Sen, 1997). Since then, many scholars have suggested a number of multidimensional concepts, specifically inequality assessed through many aspects, typically such as spending, education, health care, and housing (Sen, 1997).

Especially in Vietnam, researchers point out the increasing rate of inequality between individuals, households, target groups, and economic regions in society. According to scholars, the economic, political, social, and climate situations in Vietnam are all contributing to inequality in many aspects (Bui et al., 2014). For example, people in areas that often suffer from the consequences of natural disasters will tend to save and cut spending to prevent risks, causing spending inequality between regions (Yusuf et al., 2014). Or households in higher social classes with good economic conditions often have the opportunity to access health services (Kien et al., 2014), education (Tran & Pasquier-Doumer, 2019) and better housing ownership than disadvantaged households (Gough & Tran, 2009). This is increasing pressure on health, education, and housing inequality.

Besides, the quality of governance is considered one of the factors that have a strong and direct impact on multidimensional inequality (Ghura, 1998; Gallego, 2010). Scholars say corruption causes a decline in tax revenue, puts pressure on government spending, limits investments in education and health, and causes inequality in educational and medical opportunities (Gupta et al., 2000). In addition, corruption causes the risk of unemployment, reduces income levels, causing people to be cautious, and cuts spending, increases spending inequality between households (Dang, 2016). However, the quality of governance is not only expressed through the level of corruption but also includes the level of public investment by the government, management skills, and related legal policies (Mingat & Tan, 1998; Gallego, 2010). Therefore, to be able to make accurate and general judgments about the impact of governance quality on multidimensional inequality, studies need to fully consider all aspects of governance quality.

It can be seen that studies on multidimensional inequality in Vietnam have actively analyzed in-depth the non-income aspects of inequality, such as spending, healthcare, education, housing, etc., which have contributed greatly to the country's socio-economic development. However, gaps still exist as most studies only focus on a single aspect without analyzing and evaluating the overall multidimensional inequality through aggregated aspects (Gupta et al., 2000). This may limit the ability to provide adequate recommendations to improve inequality and increase human capital. Similarly, when considering the quality of governance, researchers are paying a lot of attention to the corruption factor, while the factors of legal policy, participation, influence, and voice also greatly impact socio-economic issues, especially inequality (Gallego, 2010). Therefore, a more complete view is needed to explain clearly and objectively the role of governance quality on multidimensional inequality (Nguyen et al., 2017). With the desire to partially fill the previous research gap, the authors chose to comprehensively learn about different aspects of inequality, such as spending, health, education, and housing, combining Vietnam Public Administration and Governance Performance Index (PAPI)

surveys to measure the quality of governance institutions through many aggregate factors. Thereby, providing a more objective and comprehensive view of the impact of governance quality on multidimensional inequality and social injustice in Vietnam.

The research results are expected to be a reference basis to make appropriate recommendations, with the aim of reducing the rate of multidimensional inequality in Vietnam through improved policies and enhancing the quality of governance. The article includes 5 main sections: Section 1 presents the problem, Section 2 presents an overview of the theoretical basis, Section 3 presents the research methods, and Section 4 analyzes the research results. Finally, conclusions and recommendations are given in Section 5.

2. Literature Review

2.1. Quality of governance

The World Bank (1989) defines governance as "the exercise of political power to manage the affairs of a country" or "the way power is exercised in the management of economic and social resources of a country for development" (World Bank, 1992). Based on the World Bank's definition of governance, Huther & Shah (1996) developed the definition of quality of governance as the exercise of power with the quality of life that people enjoy. More specifically, UNDP (1997) believes that quality of governance is the effort of rule of law, transparency, fairness, effectiveness, accountability, and strategic vision in the exercise of political power, economic, and administrative. In addition, IGI Global (2020) also affirms that quality of governance is the measurement of an organization's level of performance in governance aspects including corruption control, government effectiveness, political stability, governance, and freedom from violence/terrorism, regulatory quality, and rule of law, voice, and accountability.

In this article, the authors use the definition of IGI Global (2020) because this definition does not stop at measuring the level of performance of governance quality according to a comprehensive approach but also refers to all aspects of administration. This is completely consistent with the group's research goal of examining the impact of governance quality on multidimensional inequality in Vietnam.

2.2. Multidimensional inequality

According to Kataeva et al. (2015), inequality is the inequality of opportunities or benefits of individuals in a social group or in many social groups. Previously, inequality was discussed as a unidimensional phenomenon, and only income was used to measure inequality (Sen, 1973; Lambert, 2001). However, researchers have shown that people can still face inequality in employment conditions, inequality in opportunities to access housing, use of health care, education and other services, social services, crime, security, and violence (Sen, 1985, 1997; Narayan, 2000). Since then, multidimensional inequality has received the attention of many researchers, such as Atkinson & Bourguignon (1982) and Muller & Trannoy (2012).

In Vietnam, Mekong Development Research Institute identify multidimensional inequality as a situation where people feel concerned about increasing inequality on many different levels (MDRI, 2020). The new approach of MDRI (2020) aims to limit the omission of subjects who are not unequal in income but are unequal in other aspects. The authors argue that, instead of only considering income inequality, those who do not have the ability, do not have the right to access quality education, the right to a healthy life, the ability to access facilities and health care services were also identified as inequitable.

The authors chose to approach and analyze multidimensional inequality according to MDRI (2020) because this definition not only refers to income inequality but also

many other aspects of inequality. This is completely consistent with the goals and context of research in Vietnam. Therefore, in this study, the authors examine the impact of quality of governance on multidimensional inequality through the aspects of consumption, education, health, and housing as proposed by Decancq & Lugo (2009) and Bui & Erreygers (2020).

2.3. The influence of quality of governance on multidimensional inequality

Instead of examining the impact of the quality of governance on multidimensional inequality in an overview, most studies focus on analyzing individual dimensions of inequality, such as consumption (Bahmani-Oskooee & Xi, 2011), education, health (Gupta et al., 2000), and housing (Brenner & Theodore, 2002).

In terms of consumption, quality of governance plays an important role in the consumption decisions of individuals and households. Specifically, from a negative perspective, poor governance leads to high corruption rates, creating incentives to invest in less feasible and effective projects (Rose-Ackerman, 1997). This threatens people's jobs and income (Dang, 2016), so they will tend to increase savings to prevent risks and reduce consumption in conditions of poor governance quality and political instability (Bahmani-Oskooee & Xi, 2011). Empirical research in the UK shows that poor quality of governance leads to increased unemployment risk, reducing household spending by 1.6% (González-Benito, & González-Benito, 2006). In particular, poor households and low-income workers often react more strongly to this change (Gupta et al., 2000). This increases the consumption inequality gap between groups in the economy. On the contrary, from a positive perspective, good governance quality will encourage businesses to expand investment, creating job opportunities for workers to help them ensure a stable source of income (Dang, 2016), spending more on essential needs in life (Frey & Stutzer, 2000). Research in G7 countries shows that stable and effective governance policies will encourage people to spend more on consumer goods and invest in education and health (Bahmani-Oskooee & Maki-Nayeri, 2019). It can be seen that improving governance quality will contribute to reducing consumption inequality.

Similarly, in terms of health, good governance and strong health policies have a positive impact on health inequality and population health (Ferrara & Nistico, 2019). Therefore, improving the quality of governance will increase the effectiveness of public investment in health, improving national health status (Klomp & Haan, 2008). On the contrary, many research documents reflect the negative consequences of poor governance quality in the health sector. Specifically, Gupta et al. (2000) found a strong association between corruption and child and infant mortality. In addition, studies have repeatedly shown that poor quality of governance affects public health spending (Gupta et al., 1998). Higher levels of corruption are positively correlated with lower levels of investment in human capital development as measured by life expectancy, educational attainment, and living standards (Akçay, 2006).

In terms of education, poor quality of governance can reduce the effectiveness of the government's public investment and increase educational inequality. First, corruption can weaken tax administration, leading to tax evasion and inappropriate tax exemptions. Therefore, the higher the rate of corruption, the lower the tax revenue, and the lower the resources available to finance education (Gupta et al., 2000). Second, poor quality of governance leads to budget cuts for upgrading the educational system and supporting tuition exemption and reduction for poor children, increasing the gap between poor and well-off households children (Gupta et al., 2000). On the contrary, good governance is the starting point for reducing educational inequality (Rajkumar & Swaroop, 2008). Specifically, in countries with low levels of corruption, public spending on education is promoted, which plays an important role in reducing the rate of illiteracy and school

dropout among children (Gupta et al., 2000). At the same time, a good governance environment can encourage businesses to invest in education when they realize that profits from education may increase in the future (Ferrara & Nistico, 2019). Thereby, poor children have the opportunity to access better quality of education, minimizing educational inequality.

Finally, in terms of housing, poor governance qualities will become a driver of housing inequality. The case of China is an example, according to Lee & Zhu (2006) the application of Neo-liberalism brought the country a rapid urbanization process. However, it also causes uneven distribution of resources, especially social divisions related to housing. Most of the land and housing benefits are concentrated on people in the upper class and high-income earners (Brenner & Theodore, 2002). On the contrary, good quality of governance is a prerequisite for reducing local housing inequality. Specifically, reforms in governance quality such as enforcement of housing and building codes, improved sanitation, effective investment controls and preferential lending schemes have a positive impact. to the proportion of low-income workers who have the opportunity to own housing (Aluko, 2011).

In summary, most previous studies have shown that quality of governance is negatively correlated with multidimensional inequality. This is also consistent with the economic and social context in Vietnam. Therefore, the authors propose the hypothesis: *Quality governance has a negative impact on multidimensional inequality in Vietnam.*

3. Research Methodology

3.1. Data

The article uses data from the following main sources:

Firstly, the Viet Nam Provincial Governance and Public Administration Performance Index (PAPI) is conducted annually by the United Nations Development Programme (UNDP), the Centre for Theory Work of the Viet Nam Fatherland Front, and the Centre for Community Support Development Studies (CECODES) to measure the quality of provincial governance in Vietnam.

Secondly, the Vietnam Household Living Standard Survey (VHLSS) over 5 years (2012, 2014, 2016, 2018, and 2020) to calculate multidimensional inequality.

Thirdly, data from the Statistical Yearbook of the General Statistics Office of Vietnam for each locality, for example, Proportion of the urban population, Population density, Crude birth rate, Multidimensional poverty rate, and GDP per capita growth.

3.2. Measure

3.2.1) Measuring quality of governance

The study uses the Viet Nam Provincial Governance and Public Administration Performance Index (PAPI) as proposed by Giang et al. (2020). After two years of testing, PAPI was deployed nationwide in 2011 with 6 field indicators, including:

(1) Participation at Local Levels
(2) Transparency
(3) Vertical Accountability
(4) Control of Corruption
(5) Public Administrative Procedures
(6) Public Service Delivery

By 2018, the data set was supplemented with two additional field indicators: Environmental Governance and E-Governance. However, due to conducting research in 2012, 2014, 2016, 2018, and 2020, the authors only used 6 field indexes to synchronize

the index between years. In addition, Giang et al. (2020) believe that the above 6 field indicators are closely correlated with each other, and this can lead to multicollinearity in regression. Therefore, the study divided the 6 indicators into 3 aspects as proposed by Giang et al. (2020) and then synchronized the aspects to a 10-point scale. Specifically, the 3 aspects include:

(1) Democracy (Participation at Local Levels; Transparency and Vertical Accountability)
(2) Corruption (Control of Corruption)
(3) Public services (Public Administrative Procedures and Public Service Delivery)

3.2.2) Measuring multidimensional inequality

Measuring aspects of multidimensional inequality

The study measures multidimensional inequality through four aspects: consumption, education, health, and housing, similar to the research of Decancq & Lugo (2009) and Bui & Erreygers (2020).

Regarding the consumption aspect, the authors calculate personal expenditure c_i through real per capita expenditure (excluding health expenditure) as proposed by Bui & Erreygers (2020). Excluding health-related factors avoids endogeneity as well as the double use of the same individual health-related information. Suppose individual i is a member of household k consisting of n_k members. If the total expenditure of the household is equal to C_k, then the average consumption per capita of each member of this household is determined by the following formula:

$$c_i = \frac{c_k}{(n_k)^2} \quad (1)$$

Regarding the health aspect, although the VHLSS data set includes questions that provide useful information on issues such as medical costs, number of visits to health facilities, etc., they do not provide results. direct information about the health status of individuals. Therefore, the study constructs a health index to measure the health aspect indirectly as proposed by Bui & Erreygers (2020). The individual health index h_i is a comparison of this individual's medical expenses with their total expenses (including average total expenditures and medical expenses); the formula is below:

$$h_i = 1 - \frac{t_i}{t_i + c_i} = \frac{c_i}{t_i + c_i} \quad (2)$$

Regarding the educational aspect, as proposed by Bui & Erreygers (2020), the education variable e_i is measured by educational level through nine educational levels (i= 1,2, . . . ,9). The nine educational levels correspond to the number of completed years of education, respectively [0,1], [2,3], [4,5], [6,7], [8,9], [10,12], [13,15], [16,17] and [18,22]. Of which, the first 3 levels are elementary school, the next two levels are secondary school (including middle school and high school), and the last three levels are bachelor, master, and doctorate, respectively. Therefore, the value of the education variable e_i is in the range [1, 9].

Regarding the housing aspect, the study uses data from the 2020 VHLSS survey to estimate regression coefficients affecting housing characteristics as proposed by Decancq & Lugo (2012). Housing characteristics, such as area per capita, house type, sanitary conditions, durable assets, etc., that households live in or own. After calculating the regression coefficients of housing characteristics variables, the study estimates

predicted house prices d_i for the remaining years based on these coefficients. Finally, each household's predicted house price is assigned to each individual.

Because the dimensions of multidimensional inequality are being measured using different scales, as suggested by Decancq & Lugo (2009), the authors divide all measurement indices of the dimensions by their average value in 2012. From there, the aspects are normalized on the same unit of measure located on the interval (0, +∞). Finally, the authors calculated the aggregate multidimensional inequality index according to the steps in the next section.

3.2.3) Composite multidimensional inequality measurement index

The study measures multidimensional inequality according to the method of Tsui (1995, 1999) through the Atkinson index with 4 aspects of multidimensional inequality, including spending, health care, education, and housing according to the proposal by Decancq & Lugo (2009) and Bui & Erreygers (2020).

Step one, measure each aspect of multidimensional inequality based on the level of well-being achieved by each individual in society. According to the proposal of Decancq et al. (2009), the formula for the aggregate welfare function of individuals on g aspects is presented as Formula (3):

$$W_\beta(x_i) = \left[\sum_{j=1}^{g} w_j x_{ij}^{\beta}\right]^{\frac{1}{\beta}} \quad (3)$$

In there,

x_{ij} is individual I's welfare achieved in dimension j

β a parameter that represents the marginal degree of substitution of aspects

w_j is the weight of aspect j (the sum of the weights w_j is 1)

Step two, calculate the weights w_j between the dimensions of multidimensional inequality. As proposed by Bui & Erreygers (2020), the study assumes that all aspects of inequality play an equally important role, and therefore in Formula (3), the study takes w_j= 1/g = ¼ (where g is the number of aspects in the welfare function).

Step three, measure multidimensional inequality through the Atkinson index as proposed by Tsui (1995, 1999). First of all, the study presents how to calculate the unidimensional Atkinson index to measure the degree of inequality of the x distribution on n individuals with Formula (4) below:

$$I = 1 - \left[\frac{1}{n}\sum_{i=1}^{n}\left(\frac{x_i}{\mu(x)}\right)^{1-\epsilon}\right]^{\frac{1}{1-\epsilon}} \quad (4)$$

Where x_i is the level of welfare achieved by an individual i, μ(x) is the average level of welfare achieved by individuals and ϵ is a parameter expressing society's sensitivity to inequality. Next, the study constructs a multidimensional Atkinson inequality index similar to the Atkinson unidimensional index (Formula (2)) using the aggregate individual welfare function $W_\beta(x_i)$. The formula is presented as:

$$I = 1 - \left[\frac{1}{n}\sum_{i=1}^{n}\left(\frac{W_\beta(x_i)}{W_\beta(\mu)}\right)^{1-\epsilon}\right]^{\frac{1}{1-\epsilon}} \quad (5)$$

With $\mu = [\mu(x_{(1)}), \mu(x_{(2)}), \dots, \mu(x_{(g)})]$ và $\mu(x_{(j)})$ is the average individual welfare level achieved on aspect j. $W_\beta(\mu)$ is equal to the average level of individual well-

being achieved in all dimensions. Alternatively, the Atkinson multidimensional inequality index can be written as:

$$I = 1 - \left[\frac{1}{n} \sum_{i=1}^{n} \left(\frac{\sum_{j=1}^{g} w_j x_{ij}^{\beta}}{\sum_{j=1}^{g} w_j (x_{(i)})^{\beta}} \right)^{\frac{1-\epsilon}{\beta}} \right]^{\frac{1}{1-\epsilon}} \quad (6)$$

According to Bui & Erreygers (2020), when conducting research, for each different standard, it is necessary to choose the values of the parameters and be appropriate. When choosing, it is necessary to note the conditions $\epsilon > 0$ and $\beta < 1$ (Kolm, 1977). The condition $\epsilon > 0$ ensures that society is averse to inequality, and the condition $\beta < 1$ ensures that the different dimensions are not perfect substitutes for each other. To fit the context of multidimensional inequality research in Vietnam, the study uses $\epsilon = 2$ and $\beta = 0$ to calculate the Atkinson index as proposed by Decancq & Lugo (2009) and Bui & Erreygers (2020).

3.3. Empirical methodology

Firstly, the authors evaluate the impact of governance quality on each-dimensional inequality and multidimensional inequality through regression (Equations (7) and (8)):

$$DI_{gjt} = \beta_0 + \beta_1 * DE_{jt} + \beta_2 * CO_{jt} + \beta_3 * PS_{jt} + \beta_4 X_{jt} + u_{jt} \quad (7)$$

$$MI_{jt} = \beta_0 + \beta_1 * DE_{jt} + \beta_2 * CO_{jt} + \beta_3 * PS_{jt} + \beta_4 X_{jt} + u_{jt} \quad (8)$$

In there:

DI_{gjt} is an index measuring the level of inequality in aspect g of province j in year t, with g being consumption, health, education, and housing, respectively.

MI_{jt} is an index measuring the level of aggregate multidimensional inequality in province j in year t

DE_{jt} is an index measuring the quality of governance of province j in year t through the aspect of Democracy;

CO_{jt} is an index measuring the quality of governance of province j in year t through the aspect of Corruption;

PS_{jt} is an index measuring the quality of governance of province j in year t through the aspect of public services;

X_{jt} are control variables, including the proportion of the urban population, Population density, Crude birth rate, Multidimensional poverty rate, GDP per capita growth, and Socio-economic Zone.

u_{jt} are unobservable variables

Secondly, to estimate the regression equation, the study uses the Generalized Method of Moments (GMM). Many previous studies examining the relationship between factors and inequality have pointed out typical endogeneity phenomena, such as Baloch et al. (2017) and Sağlam (2021). Therefore, to avoid endogeneity in the model, the study uses the GMM method to overcome it.

Thirdly, to test the suitability of the GMM method, the study performed the Durbin-Wu Hausman endogeneity test. The model has endogeneity with a significance level of P-value <0.05 and vice versa. The results in Tables 1, 2, and 3 show that all models have a P-value <0.05, so there is an endogenous phenomenon in the models.

Endogeneity causes normal estimation results to be unstable and biased, so the model's regression coefficient results will not be reliable. However, using the GMM method can eliminate this phenomenon.

Fourthly, the Hansen test (or Sargan test) is used to check the appropriateness of the instrumental variable in the GMM model. With P-value=>0.1, the results in Tables 1, 2, and 3 show that all instrumental variables used in the model are reasonable.

Finally, the study uses the Arellano - Bond (AR) test to test the autocorrelation of the error variance of the GMM model in the form of second-order differences (AR(2)). With the condition that P-value >0.05 shows that there is no second-order autocorrelation for the residuals. The results in Tables 1,2, and 3 show that P-value >0.05, in other words there is no second-order autocorrelation phenomenon for the residuals in the estimated model.

4. Research Results

4.1. The current state of the quality of governance and the multidimensional inequality in Vietnam

4.1.1) The current state of the quality of governance in Vietnam

Scores for the aspects of democracy, corruption, and public services had different changes during the period 2012-2020. Specifically:

In terms of democracy

As stated above, the democracy aspect in this study is the synthesis of three groups of areas of the PAPI index: Participation at Local Levels, Transparency, Vertical Accountability. Appendix 1 shows that the average value of the democracy aspect of 63 provinces decreased in the period from 2012 to 2020 (down 0.18 points). This shows that the quality of the democratic aspects of the provinces is decreasing in quality. In addition, the variation of democracy aspect scores increased in the period 2012-2016, showing that the difference between provinces is increasing, but by the period 2016-2020, this difference has decreased. down demonstrates the increasing uniformity of Vietnam's provinces and cities in terms of democracy.

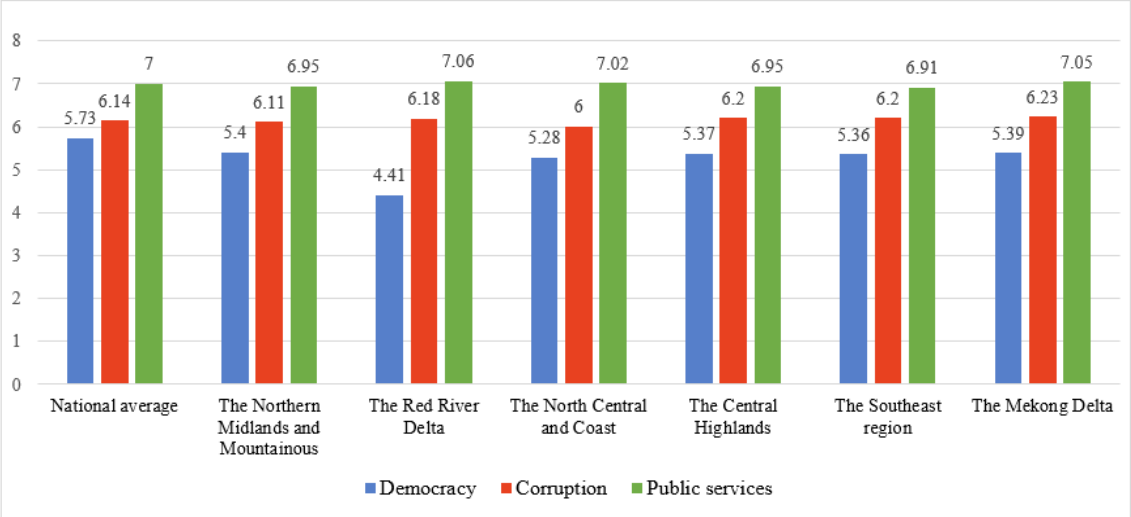
In terms of corruption

The corruption aspect is compiled from the control of corruption in the PAPI index. Appendix 2 shows that the average value of the index measuring this aspect increased by 0.87 points in the period from 2012 to 2020. In other words, provinces and cities are increasingly controlling local corruption. In addition, the variation in corruption aspects over the years tends to increase, showing that the gap in corruption control between provinces is increasing.

In terms of public service

The public service aspect in the research includes the fields of public administrative procedures and public service delivery. According to Appendix 3, the average value of the index measuring the public service aspect increased by 0.14 points in the period from 2012 to 2020, reflecting improvements in service delivery and public administration in 63 provinces. Besides, the variation in the public service aspect in the period 2012-2020 is relatively small, showing that the improvement in administration and public services of the provinces is gradually progressing and becoming more uniform.

Figure 1: Quality of Governance of 6 Socio-Economic Zones of Vietnam in the Period 2012-2020



Source: Author's calculation

Figure 1 shows the PAPI index of 3 aspects of the whole country and 6 socio-economic zones of Vietnam in the period 2012-2020. Specifically, for the democracy aspect and corruption aspect, the North Central and Coastal region has the lowest scores and are 0.09 and 0.14 points lower than the national average, respectively. In contrast, the Red River Delta region has the highest score in the democracy aspect group and is 0.04 points higher than the national average; the Central Highlands region and the Red River Delta region have the highest corruption scores and are both 0.09 points higher than the national average. For the democracy aspect group, in the period 2012-2020, the Southeast region had the lowest score and was 0.09 points lower than the national average; on the contrary, the Red River Delta region had the highest score. and 0.06 points higher than the national average. In general, in all regions and the country, the democracy aspect has the lowest score, followed by the corruption aspect and the public service aspect highest. The scores of all three aspects have differences between regions, but the difference is insignificant, showing that the governance quality of Vietnamese regions in the period 2012-2020 is relatively uniform.

4.1.2) The current state of the multidimensional inequality in Vietnam

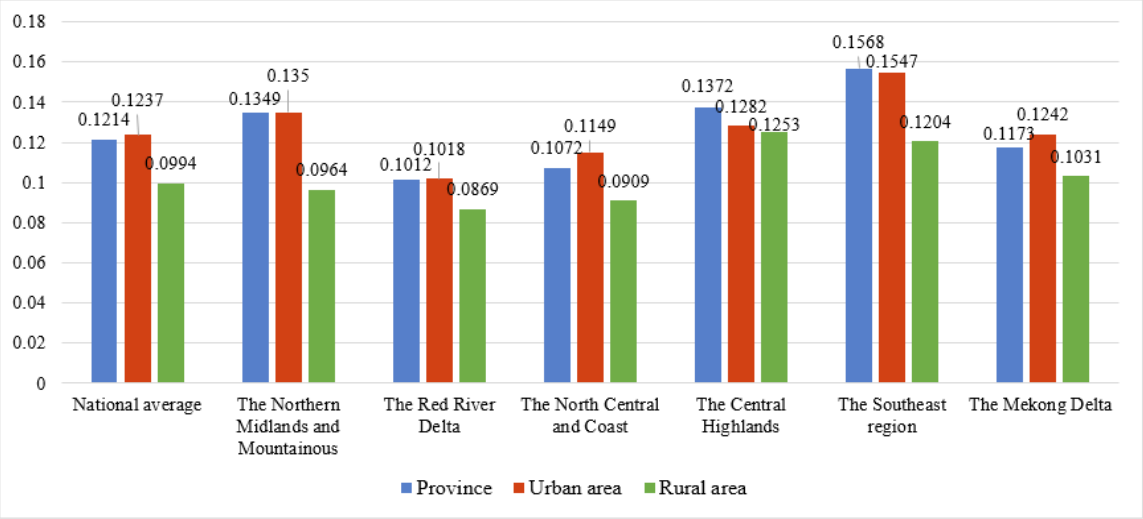
The reality of unidimensional inequality in Vietnam

Appendix 4 presents the Atkinson inequality index in 4 aspects: consumption, health, education, and housing of 63 Vietnamese provinces and cities in the period 2012-2020. In particular, inequality gradually decreases in each aspect of housing, spending, education, and health. In addition, the variation of these aspects is relatively large, demonstrating the high disparity in inequality in Vietnam's provinces during the research period.

The reality of multidimensional inequality in Vietnam

Appendix 5 shows that multidimensional inequality of 63 provinces and cities in Vietnam continuously increased from 0.1098 points in 2012 to 0.1378 points in 2020, an increase of 0.028 points. In other words, multidimensional inequality is increasing in Vietnam's provinces and cities. In addition, the variation range of the Atkinson index at the beginning of the period is relatively large, showing a large difference between the inequality status of provinces. However, the variation tends to decrease in the period 2012-2020, showing an improvement in inequality between provinces.

Figure 2: The Multidimensional Inequality Index of the Whole Country and 6 Socio-Economic Zones of Vietnam in the Period 2012-2020



Source: Author's calculation

Figure 2 shows the multidimensional inequality index of the whole country and 6 socio-economic zones of Vietnam in the period 2012-2020. In general, the multidimensional inequality of the whole country and 6 socio-economic zones of Vietnam in terms of both provincial and urban areas is more serious than in rural areas.

In addition, the multidimensional inequality index between regions in the period 2012-2020 has not too significant differences. The Red River Delta region, the North Central and Coastal region have a multidimensional inequality index smaller than the national average, whereas the Southeast region has a larger multidimensional inequality index. In addition, multidimensional inequality in the Northern Midlands and Mountainous region, Central Highlands region, and Mekong Delta region is quite similar to the average income inequality in the country.

More specifically, the Red River Delta region has the lowest multidimensional inequality index; specifically, the average multidimensional inequality index by province, urban area, and rural area is lower than the national average is 0.0202, 0.0219, and 0.0125 points, respectively. In contrast, the Southeast region has the highest multidimensional inequality index in terms of both provincial and urban areas, 0.0354 and 0.0310 points higher than the national average, respectively. The Central Highlands region has the highest multidimensional inequality index in terms of rural areas and is 0.0259 points higher than the national average.

4.2. The influence of quality of governance on aspects of multidimensional inequality in Vietnam

Table 1: Results of Estimating the Influence of Quality of Governance on Aspects of Multidimensional Inequality in Vietnam

Independent variable	Consumption Inequality	Health Inequality	Education Inequality	Housing Inequality
Lagged of Dependent variable	0.2686***	-0.1498***	0.5855***	-0.4744***
Democracy	-0.0079***	0.0047***	-0.0049***	-0.0702***
Corruption	-0.0107***	-0.0010*	-0.0034***	-0.0914***
Public services	-0.0119*	-0.0071***	-0.0268***	-0.0380***
Control variable				
Population density	-0.00001**	-0.0164***	-0.0099**	0.0001***
Proportion of urban population	0.0005***	-0.0002***	0.0002***	-0.0015***

Independent variable		Consumption Inequality	Health Inequality	Education Inequality	Housing Inequality
(Collate: Proportion of Rural population)					
Crude birth rate		0.00211***	-0.0130***	0.0142***	0.0309***
Multidimensional poverty rate		0.0032***	0.0010***	0.0028***	0.0029***
GDP per capita growth		-0.0051*	0.00007***	-000001***	-0.0001**
Socio-economic Zone	The Red river delta	-0.0216**	-0.0056*	0.0039**	-0.0535***
(Collate: The northern midlands and mountainous region)	The North central and Coastal	-0.0191**	-0.0191***	0.0147***	0.0310**
	The Central Highlands	0.0264**	-0.0099**	-0.0031	0.0903***
	The Southeast region	0.0048	-0.0190***	0.0345***	-0.0061
	The Mekong Delta region	-0.0178**	-0.0140***	0.0327***	0.0195*
Constant		0,1133**	0,1046***	0,1876***	1,8286***
Wald chi2(14)		393740,17	286193,34	3263.73	1101,36
Prob>chi2		0,000	0,000	0,000	0,000
Wu-Hausman F(1,24)		0,0001	0,0241	0,0017	0,0038
AR(2) (P-value)		0,295	0,296	0,681	0,923
Hansen J. (P-value)		0,344	0,320	0,306	0,146
Number of observation		250	250	250	250
Number of instruments		62	61	60	62

*Note: *Significant at 10%, **Significant al 5%, ***Significant at 1%*
Source: Author's calculation

The results in Table 1 show that governance quality has a negative effect on each aspect of multidimensional inequality, specifically:

In terms of consumption inequality

Governance quality has a negative effect on expenditure inequality. Specifically, when the index measuring democracy, corruption, and public services increases by 1 point, the consumption inequality index decreases by 0.0079,0.0107, and 0.0119 at 1% and 10%. This result agrees with the research of Varlamova & Larionova (2015). The reason is that good governance quality will create conditions for the economy to develop. Areas with stable politics, low corruption rates, and open and transparent management mechanisms are often attractive to investors, encouraging businesses to expand production, promote trade liberalization, increase labor productivity, and create job opportunities for people (Sudsawasd & Charoensedtasin, 2015). Therefore, improving the quality of governance will help individuals and households overcome economic difficulties with a stable source of income. This, in turn, allows personal spending to increase, especially for low-income groups and disadvantaged groups in society (Frey & Stutzer, 2000), thereby reducing spending inequality.

In terms of health inequality

The corruption and public service aspects have a negative impact on health inequality. When increasing by 1 point, the expenditure inequality index decreases by 0.0010 and 0.0071 at the 1% and 10% levels, respectively. On the contrary, when the democracy dimension increases by 1 unit, the multidimensional inequality measurement index increases by 0.0047 points. This can be explained by good control of corruption and public services combined with strict health policies that can improve health care services and increase public investment in health (Gupta et al., 2000). From there,

increasing access and treatment rates for people, especially low-income groups in society, helps improve people's health and reduce health inequality (Klomp & Haan, 2008).

In terms of education inequality

Improving governance quality can reduce education inequality in Vietnam. Specifically, when the index measuring democracy, corruption, and public services decreased by 1 point, the index measuring multidimensional inequality decreased by 0.0049, 0.0034 and 0.0268 points at 1%. Similar to the health sector, improving the quality of governance will contribute to improving the quantity and quality of education, reducing the rate of illiterate children and school dropouts (Rajkumar & Swaroop, 2008). In particular, with good implementation of educational policies such as support policies and tuition exemptions and reductions, it will be a motivation for poor children, ethnic minorities, and remote areas to access education and, at the same time, narrow the inequality gap in education between rich and poor populations.

In terms of housing inequality

Improving the quality of governance, especially corruption, will reduce housing inequality. Specifically, at the 1% level, the multidimensional inequality measurement index decreases by 0.0702, 0.0914, and 0.0380 points when the index measuring democracy, corruption, and public services decreased by 1 point. Lee & Zhu (2006) believed that countries and regions with a stable political environment, low levels of corruption, and the voice of the people placed first will be the basis for forming reasonable legal policies. effective management of construction and land and housing planning, especially in urban areas. In addition, the well-controlled level of corruption also helps the government have more budget to support poor people in owning good quality social housing. This has made a major contribution to closing the gap in housing inequality, especially in urban areas with many low-income migrant workers (Aluko, 2011).

In addition, Table 1 also shows that socio-economic characteristics also have different effects on the province's inequality situation. Specifically, Population density, Proportion of the urban population, and GDP per capita growth tend to have a negative impact on provincial inequality. On the contrary, Crude Birth Rate and Multidimensional poverty rate have the same impact on inequality. In addition, inequality in consumption, health, education, and housing in the province also differs between socio-economic zones.

4.3. The influence of quality of governance on multidimensional inequality in Vietnam

Table 2: Results of Estimating the Influence of Quality of Governance on Multidimensional Inequality in Vietnam

Independent variable	**Multidimensional Inequality**	
	Coeff.	**S.D.**
Lagged of Dependent variable	-0,1699***	0,0167
Democracy	-0,0042**	0,0020
Corruption	-0,0096***	0,0027
Public services	-0,0186**	0,0059
Control variable		
Population density	0,00002***	0,00002
Proportion of urban population	0,0007***	0,00008
(Collate: Proportion of Rural population)		
Crude birth rate	0,0132***	0,0028
Multidimensional poverty rate	0,0018***	0,0002
GDP per capita growth	-0,0029***	0,00002

Independent variable		Multidimensional Inequality	
		Coeff.	**S.D.**
Socio-economic Zone	The Red river delta	0,0052	0,0057
(Collate: The northern midlands and mountainous region)	The North central and Coastal	-0,0099*	0,0056
	The Central Highlands	0,0228***	0,0060
	The Southeast region	0,0208**	0,0071
	The Mekong Delta region	0,0116*	0,0055
Constant		0,1960***	0,0374
Wald chi2(14)		18132,78	
Prob>chi2		0,000	
Wu-Hausman F(1,24)		0,0001	
AR(2) (P-value)		0,173	
Hansen J. (P-value)		0,115	
Number of observations		250	
Number of instruments		52	

*Note: *Significant at 10%, **Significant al 5%, ***Significant at 1%*
Source: Author's calculation

The results of estimating the impact of governance quality on multidimensional inequality are presented in Table 2. The results show that governance quality has a negative impact on multidimensional inequality in Vietnam during the periodof the study.,.

The democratic aspect has a negative effect on multidimensional inequality. When the index measuring the democratic aspect increases by 1 point, the multidimensional inequality index decreases by 0.0042 points at the 5% level. Improving democracy will contribute to improving the quality of material and spiritual life; solve pressing problems well; ensure social security and human security; improve social welfare; and promote the people's right to mastery. Besides, the level of democracy and democratic accountability has a lasting impact on promoting economic performance (Garedow, 2022). At the same time, democratic freedom and good governance quality will contribute to promoting economic growth and effective use of resources (capital, labor) in the long term (Nifo et al., 2014). Besides, the quality of effective governance through democracy and economic freedom will encourage investment in education and health by promoting the activities of the credit market (Mohammed, 2022). From there, it reduces disparities between groups of people in society and multidimensional inequality.

Placed in the Vietnamese context, improving democratic aspects will create a safe and healthy business environment, encourage investment, and lead to effective economic activities. From there, creating many job opportunities with stable income for workers, especially low-income groups in society.

Similarly, **the corruption aspect** also has a negative effect on multidimensional inequality. At the 1% level, when corruption improves (the index measuring the corruption dimension increases by 1 point), the multidimensional inequality index decreases by 0.0096 points. The reason is that political stability, especially reduced corruption rates, contributes to promoting development and attracting investment capital in economic and social activities. From there, it helps improve people's income and living standards, allowing them to spend more on essential needs in life such as food, consumer

goods, educational activities, healthcare, and housing. (Bahmani-Oskooee & Maki-Nayeri, 2019). In addition, political stability and good control of corruption will reduce social security problems such as crime, social evil, poverty, etc. (Caruso & Baronchelli, 2013). From there, the government can increase investment and development in fields, such as health, education etc., especially for difficult and disadvantaged groups in society.

The public service aspect has a negative impact on multidimensional inequality and has the strongest impact among the three aspects. Specifically, the multidimensional inequality index decreased by 0.0186 points when the index measuring the democracy dimension increased by 1 point (at 5%). This can be explained by improving the quality of administration and public services, especially services related to health, education, etc., contributing to improving people's lives. Combined with the reasonable implementation of social security policies and reasonable use of budget resources, it will improve the efficiency of providing public services and people's access to these services. Especially activities aimed at low-income and disadvantaged people in society, thereby reducing disparities between target groups and reducing multidimensional inequality (Rajkumar & Swaroop, 2008).

Table 2 also shows that the characteristics of provinces have an impact on multidimensional inequality.

Population density, urban-rural ratio (rural reference), crude birth rate, and poverty rate have the same impact on the province's multidimensional inequality. However, the impact of population density and urban rate is insignificant. On the contrary, GDP growth per capita has a positive impact on multidimensional inequality, showing that a low growth rate will contribute to reducing multidimensional inequality in the province. Besides, multidimensional inequality also has differences in different economic regions. Inequality decreased in the North Central and Central Coast but tended to decrease and increase in the Central Highlands, Southeast, and Mekong Delta.

4.4. The influence of quality of governance on multidimensional inequality in Vietnam by urban and rural areas

Table 3: Results of estimating the influence of Quality of Governance on Multidimensional Inequality in Vietnam by Urban and Rural Areas

Independent variable		**Multidimensional Inequality**	
		Urban areas	**Rural areas**
Lagged of Dependent variable		-0.0444**	-0.0654***
Democracy		-0.0323***	-0.0284***
Corruption		-0.0071***	-0.0065***
Public services		0.0423***	-0.0187**
Control variable			
Population density		0.0037	0.0122***
Crude birth rate		-0.0102	0.0079**
Multidimensional poverty rate		-0.0004**	0.0005***
GDP per capita growth		-0.0001**	0.0001***
Socio-economic Zone	The Red river delta	-0.006	0.0052
(Collate: The northern midlands and mountainous region)	The North central and Coastal	0.0094	0.005
	The Central Highlands	0.0180**	0.0470***
	The Southeast region	0.0198**	0.0329***
	The Mekong Delta region	0.0258**	0.0104**

Independent variable	Multidimensional Inequality	
	Urban areas	**Rural areas**
Constant	0.088	0.1586***
Wald chi2(15)	11754.2	56273.77
Prob>chi2	0	0
Wu-Hausman F(1,24)	0,0037	0,0041
AR(2) (P-value)	0.663	0.66
Hansen J. (P-value)	0.521	0.3
Number of observation	250	250
Number of instrument	57	61

*Note: *Significant at 10%, **Significant al 5%, ***Significant at 1%*
Source: Author's calculation

The results show that governance quality has different effects in urban and rural areas of the province.

The democracy aspect and **the corruption aspect** have a negative influence on the multidimensional inequality measurement index in both urban and rural areas. At the 1% level, when the index measuring the quality of democracy aspect increases by 1 point, the index measuring multidimensional inequality in urban and rural areas decreases by 0.0323 and 0.0284 points, respectively. Similarly, when the index measuring the quality of the corruption aspect increases by 1 point, the index measuring multidimensional inequality in urban and rural areas decreases by 0.0071 and 0.0065 points, respectively. In addition, the aspects of democracy and corruption have a greater impact on multidimensional inequality in urban areas than in rural areas. The reason is that these two aspects have a greater influence on the economic development activities of urban areas than rural areas. Therefore, improving democracy and corruption in urban areas can promote economic growth, create more job opportunities, and raise people's income and living standards, especially for the wealthy and low-income. From there, it will reduce the difference in living standards in urban areas and reduce multidimensional inequality.

The public service aspect has a positive impact on multidimensional inequality in urban areas but has a negative impact on rural areas. Specifically, when the index measuring the quality of public services increases by 1 point, the index measuring multidimensional inequality in urban areas increases by 0.0432 points, but in rural areas it decreases by 0.0187 points. The reason is that people in rural areas often have fewer opportunities to access high-quality health care, education, housing, and employment services like urban areas. Therefore, improving public services in rural areas will be a significant step forward to help people enjoy the most complete welfare policies from the state, thereby narrowing the welfare gap in this area (Van Phan & O'Brien, 2019).

In addition, when considering the characteristics of the province, we also see that the influence of these factors on multidimensional inequality in the two regions is different. Population density has a positive effect on multidimensional inequality in both areas. Meanwhile, crude birth rate, poverty rate, and average GDP growth per capita have opposite effects in the two regions. In addition, economic regions also have an impact on multidimensional inequality in urban and rural areas of the province.

5. Conclusion

With data from 63 provinces and cities over 5 years (2012, 2014, 2016, 2018, and 2020), the study explained the impact of governance quality on multidimensional inequality in Vietnam. The results show that governance quality has an inverse relationship with multidimensional inequality, meaning that when governance quality is improved, multidimensional inequality in Vietnamese provinces and cities will decrease.

Based on the research results, the authors hope to make some appropriate recommendations to contribute to improving the quality of governance and narrowing the multidimensional inequality gap in Vietnam. Specifically, the government needs to pay more attention to preventing corruption and negative impacts that negatively affect economic and investment activities, making people's lives difficult, especially those with low incomes. disadvantaged. In addition, the state also needs to focus on building effective public services, helping people have the opportunity to work, study, and develop in a healthy environment, and receiving support from local authorities. In addition, it is also necessary to adjust and streamline administrative procedures, enhance the position and voice of the people to increasingly improve political institutional issues, and make efforts to narrow the gap between diversity and inequality, towards the goal of comprehensive and sustainable development.

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References

Akçay, S. (2006). Corruption and human development. *Cato Journal*, *26*(1), 29-48.

Aluko, O. (2011). The effects of location and neighbourhood attributes on housing values in metropolitan Lagos. *Ethiopian Journal of Environmental Studies and Management*, *4*(2), 69-82.

Atkinson, A. B., & Bourguignon, F. (1982). The comparison of multi-dimensioned distributions of economic status. *The Review of Economic Studies*, *49*(2), 183-201.

Bahmani-Oskooee, M., & Maki-Nayeri, M. (2019). Asymmetric effects of policy uncertainty on domestic investment in G7 countries. *Open Economies Review*, *30*(4), 675-693.

Bahmani-Oskooee, M., & Xi, D. (2011). Economic uncertainty, monetary uncertainty and the demand for money in Australia. *Australian Economic Papers*, *50*(4), 115-128.

Baloch, A., Noor, Z. M., Habibullah, M. S., & Bani, Y. (2017). The impact of gender equality on education inequality: A global analysis based on GMM dynamic panel estimation. *International Journal of Economics and Management*, *11*(3), 691-714.

Brenner, N., & Theodore, N. (2002). Cities and the geographies of "actually existing neoliberalism". *Antipode*, *34*(3), 349-379.

Bui, A. T., Dungey, M., Nguyen, C. V., & Pham, T. P. (2014). The impact of natural disasters on household income, expenditure, poverty and inequality: Evidence from Vietnam. *Applied Economics*, *46*(15), 1751-1766.

Bui, T. K. T., & Erreygers, G. (2020). Multidimensional inequality in Vietnam, 2002–2012. *Economies*, *8*(2).

Caruso, R., & Baronchelli, A. (2013). Economic aspects of the complementarity between corruption and crime: Evidence from Italy in the period 1996–2005. *International Journal of Monetary Economics and Finance*, *6*(2-3), 244-260.

Dalton, H. (1920). The measurement of the inequality of incomes. *The Economic Journal*, *30*(119), 348-361.

Dang, Q. V. (2016). The impact of corruption on provincial development performance in Vietnam. *Crime, Law and Social Change*, *65*(4-5), 325-350.

Danish, M. H., & Nawaz, S. M. N. (2022). Does institutional trust and governance matter for multidimensional well-being? Insights from Pakistan. *World Development Perspectives*, *25*.

Decancq, K., & Lugo, M. A. (2009). Measuring inequality of well-being with a correltation-sensitive multidimensional Gini index. *ECINEQ, Society for the Study of Economic Inequality* (No. 124). Retrieved from https://www.ecineq.org/milano/WP/ECINEQ2009-124.pdf

Decancq, K., & Lugo, M. A. (2012). Inequality of wellbeing: A multidimensional approach. *Economica*, *79*(316), 721-746.

Ferrara, A. R., & Nisticò, R. (2019). Does institutional quality matter for multidimensional well-being inequalities? Insights from Italy. *Social Indicators Research*, *145*(3), 1063-1105.

Frey, B. S., & Stutzer, A. (2000). Happiness, economy and institutions. *The Economic Journal*, *110*(466), 918-938.

Gallego, F. A. (2010). Historical origins of schooling: The role of democracy and political decentralization. *The Review of Economics and Statistics*, *92*(2), 228-243.

Garedow, F. A. (2022). Political institutions and economic performance in Ethiopia: An auto regressive distributed lag bound approach to co-integration. *Journal of Economics and Development*, *24*(1), 2-17.

Ghura, M. D. (1998). *Tax revenue in Sub-Saharan Africa: Effects of economic policies and corruption*. Retrieved from https://books.google.com.vn/books?hl=vi&lr=&id=XFsYEAAAQBAJ&oi=fnd&pg=PA3&ots=PFFmT1dbSm&sig=UenS4b0sPzFhHFxIt7vpuT4PyD8&redir_esc=y#v=onepage&q&f=false

Giang, L. T., Nguyen, C. V., & Nguyen, H. Q. (2020). The impacts of economic growth and governance on migration: Evidence from Vietnam. *The European Journal of Development Research*, *32*(4), 1195-1229.

González-Benito, J., & González-Benito, Ó. (2006). A review of determinant factors of environmental proactivity. *Business Strategy and the Environment*, *15*(2), 87-102.

Gough, K. V., & Tran, H. A. (2009). Changing housing policy in Vietnam: Emerging inequalities in a residential area of Hanoi. *Cities*, *26*(4), 175-186.

Gupta, H. V., Sorooshian, S., & Yapo, P. O. (1998). Toward improved calibration of hydrologic models: Multiple and noncommensurable measures of information. *Water Resources Research*, *34*(4), 751-763.

Gupta, S., Davoodi, H. R., & Tiongson, E. (2000). Corruption and the provision of health care and education services. *IMF Working Paper* No. 116. Retrieved from https://www.imf.org/external/pubs/ft/wp/2000/wp00116.pdf.

Huque, A. S., & Zafarullah, H. (Eds.). (2017). *International development governance*. New York: Routledge.

Huther, J., & Shah, A. (1998). Applying a simple measure of good governance to the debate on fiscal decentralization. *World Bank Policy Research Working Paper* No.1894. Retrieved from https://documents1.worldbank.org/curated/fr/673221468766535925/pdf/multi-page.pdf.

IGI Global (2020), *What is Governance Quality*?. Retrieved from: https://www.igi-global.com/dictionary/corporate-social-performance-and-governance-quality-across-the-brics-countries/93968

Kataeva, V. I., Kaurova, O. V., Koludarova, S. V., Sulyagina, J. O., Fomicheva, T. V., & Kryukova, E. M. (2015). Barriers of inequality in social institutions of Russia. *Biosciences Biotechnology Research Asia*, *12*(3), 2813-2820.

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2003). Governance matters III: Governance indicators for 1996-2002. *World Bank Policy Research Working Paper* No. 3106. Retrieved from https://openknowledge.worldbank.org/server/api/core/bitstreams/fe7c8a73-4ab0-5e4f-9640-8bfaf5c91e4d/content.

Kien, V. D., Van Minh, H., Giang, K. B., Weinehall, L., & Ng, N. (2014). Horizontal inequity in public health care service utilization for non-communicable diseases in urban Vietnam. *Global Health Action*, *7*(1).

Klomp, J., & De Haan, J. (2008). Effects of governance on health: A cross-national analysis of 101 countries. *Kyklos*, *61*(4), 599-614.

Kolm, S. C. (1977). Multidimensional egalitarianisms. *The Quarterly Journal of Economics*, *91*(1), 1-13.

Lambert, P. (2001). Horizontal inequity comparisons. *Social Choice and Welfare*, *18*(4), 799-816.

Lee, J., & Zhu, Y. P. (2006). Urban governance, neoliberalism and housing reform in China. *The Pacific Review*, *19*(1), 39-61.

MDRI (2020). *Báo cáo nghiên cứu: Bất bình đẳng đa chiều tại Việt Nam.* [Research Report: Multidimensional inequality in Vietnam]. Retrieved from https://oi-files-cng-v2-prod.s3.eu-west-2.amazonaws.com/vietnam.oxfam.org/s3fs-public/

file_attachments/OXFAM%20RESEARCH%20REPORT%20-%20EN%20%28Final%29.pdf.

Mingat, A., & Tan, J. P. (1998). The mechanics of progress in education: Evidence from cross-country data. *World Bank Publications* No 2015. Retrieved from https://documents1.worldbank.org/curated/ru/992721468741368498/105505322_20041117162511/additional/multi-page.pdf

Mohammed, U. (2022). Remittances, institutions and human development in Sub-Saharan Africa. *Journal of Economics and Development*, *24*(2), 142-157.

Muller, C., & Trannoy, A. (2012). Multidimensional inequality comparisons: A compensation perspective. *Journal of Economic Theory*, *147*(4), 1427-1449.

Narayan, D. (2000). Voices of the poor: Can anyone hear us?. *World Bank* No 20246. Retrieved from https://docs.adaptdev.info/lib/L9HXD3SC.

Nguyen, T. V., Bach, T. N., Le, T. Q., & Le, C. Q. (2017). Local governance, corruption, and public service quality: Evidence from a national survey in Vietnam. *International Journal of Public Sector Management*, *30*(2), 137-153.

Nifo, A., & Vecchione, G. (2014). Do institutions play a role in skilled migration? The case of Italy. *Regional studies*, *48*(10), 1628-1649.

Rajkumar, A. S., & Swaroop, V. (2008). Public spending and outcomes: Does governance matter?. *Journal of development economics*, *86*(1), 96-111.

Rose-Ackerman, S. (1997). The political economy of corruption. *Corruption and the Global Economy*, *31*(60).

Sağlam, B. B. (2021). Educational inequality versus income inequality: An empirical investigation. *The Economic and Social Review*, *52*(3), 269-299.

Sen, A. (1973). *On economic inequality*. Oxford: Clarendon Press

Sen, A. (1985). *Commmodities and capabilities*. North-Holland: Oxford University Press.

Sen, A. (1993). Capability and well-being73. *The Quality of Life*, *30*, 270-293.

Sen, A. (1997). From income inequality to economic inequality. *Southern Economic Journal*, *64*(2), 383-401.

Sudsawasd, S., & Charoensedtasin, T. (2015). Trade liberalisation and income inequality in Thailand: A household-level analysis. *Thammasat Economic Journal*, *33*(1), 24-75.

Tran, T. N. M., & Pasquier-Doumer, L. (2019). Full-day schooling and educational inequality in Vietnam. *The Journal of Development Studies*, *55*(5), 786-804.

Tsui, K. Y. (1995). Multidimensional generalizations of the relative and absolute inequality indices: The Atkinson-Kolm-Sen approach. *Journal of Economic Theory*, *67*(1), 251-265.

Tsui, K. Y. (1999). Multidimensional inequality and multidimensional generalized entropy measures: An axiomatic derivation. *Social Choice and Welfare*, *16*(1), 145-157.

UNDP (1997). *Governance for sustainable human development: A UNDP policy document*. Retrieved from https://digitallibrary.un.org/record/492551?v=pdf

Van Phan, P., & O'Brien, M. (2019). Multidimensional wellbeing inequality in a developing country: A case study of Vietnam. *Social Indicators Research*, *145*, 157-183.

Varlamova, J., & Larionova, N. (2015). Macroeconomic and demographic determinants of household expenditures in OECD countries. *Procedia Economics and Finance*, *24*, 727-733.

World Bank (1989). *Sub-Saharan Africa: From crisis to sustainable growth*. Retrieved from https://documents1.worldbank.org/curated/en/498241468742846138/pdf/multi0page.pdf.

World Bank (1992). *Governance and development*. Retrieved from https://documents1.worldbank.org/curated/en/604951468739447676/pdf/Governance-and-development.pdf

Yusuf, A. A., Sumner, A., & Rum, I. A. (2014). Twenty years of expenditure inequality in Indonesia, 1993–2013. *Bulletin of Indonesian Economic Studies*, *50*(2), 243-254.

Appendix

Appendix 1: Results describing the value of Democratic aspects of provinces in Vietnam in the period 2012-2020

Year	Mean	S.D.	Variance	Kurtosis	Skewness	Variation range	Min.	Max.
2012	5.38	0.39	0.15	2.46	0.18	1.75	4.59	6.34
2014	5.54	0.39	0.15	2.66	0.13	1.79	4.72	6.51
2016	5.52	0.49	0.24	3.90	0.74	2.44	4.63	7.06
2018	5.22	0.34	0.11	2.79	0.54	1.54	4.57	6.11
2020	5.20	0.37	0.14	1.91	0.16	1.42	4.42	5.84

Source: Author's calculation

Appendix 2: Results describing the value of Corruption aspects of provinces in Vietnam in the period 2012-2020

Year	Mean	S.D.	Variance	Kurtosis	Skewness	Variation range	Min.	Max.
2012	5.82	0.57	0.33	3.06	-0.43	2.83	4.05	6.88
2014	5.92	0.70	0.49	2.68	-0.09	3.28	4.36	7.64
2016	6.27	0.58	0.34	2.29	-0.19	2.41	5.09	7.50
2018	5.96	0.69	0.48	2.15	0.19	2.77	4.74	7.51
2020	6.66	0.57	0.33	3.69	-0.27	3.27	4.92	8.19

Source: Author's calculation

Appendix 3: Results describing the value of Public Service aspects of provinces in Vietnam in the period 2012-2020

Year	Mean	S.D.	Variance	Kurtosis	Skewness	Variation range	Min.	Max.
2012	6.88	0.26	0.07	3.01	-0.06	1.37	6.16	7.53
2014	7.05	0.28	0.08	2.40	-0.08	1.11	6.46	7.57
2016	7.03	0.31	0.10	3.03	-0.48	1.54	6.16	7.69
2018	7.01	0.28	0.08	2.55	-0.31	1.20	6.35	7.55
2020	7.02	0.35	0.12	2.16	0.01	1.42	6.31	7.73

Source: Author's calculation

Appendix 4: Atkinson index of aspects of multidimensional inequality in provinces in Vietnam in the period 2012-2020

	Mean	S.D.	Variance	Kurtosis	Skewness	Variation range	Min.	Max.
Consumption	0.4246	0.0734	0.0054	4.1471	0.9916	0.4444	0.2745	0.7189
Health	0.0256	0.0274	0.0008	70.0379	6.4446	0.3529	0.0013	0.3542
Education	0.2520	0.0755	0.0057	2.7195	0.3261	0.3617	0.0967	0.4584
Housing	0.7294	0.1247	0.0155	5.9769	-1.6362	0.6419	0.3202	0.9621

Source: Author's calculation

Appendix 5: Atkinson index of multidimensional inequality in provinces in Vietnam in the period 2012-2020

Year	Mean	S.D.	Variance	Kurtosis	Skewness	Variation range	Min.	Max.
2012	0.1098	0.1035	0.0107	53.7028	7.0220	0.8442	0.0487	0.8929
2014	0.1106	0.0496	0.0025	25.1326	4.0757	0.3591	0.0605	0.4196
2016	0.1227	0.0550	0.0030	29.6679	4.5049	0.4077	0.0729	0.4805
2018	0.1264	0.0331	0.0011	2.7324	0.5128	0.1383	0.0713	0.2096
2020	0.1378	0.0402	0.0016	10.8702	2.0936	0.2603	0.0751	0.3354

Source: Author's calculation