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**Transmission Channels of Effects of Inequality in Income Distribution on Economic Growth in the Group of Countries with Lower Levels of Inequality and Economic Development than Average - Suggestions for Vietnam**

MSc. Nguyen Thanh Hang  
Faculty of Development Economics, VNU- University of Economics and Business,  
Room 709, E4 Building, 144 Xuan Thuy, Cau Giay, Hanoi, Vietnam

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**Abstract**

Using a fixed effects model for processed panel data to increase data homogeneity, the article found that in the group of countries with lower levels of inequality and economic development than average, increased income inequality will stimulate economic growth. This positive effect is the combined result of many different effect transmission channels, of which 6 channels were found including fiscal policy channel, imperfect capital market channel, consumer behavior channel, labor motivation channel, access to education channel and domestic demand for goods and services channel. The article has not found evidence about socio-political instability channel, fertility decision channel, investment savings channel and access to health service channel. From the estimation results, the study has proposed a number of solutions for Vietnam towards harmoniously resolving the relationship between income inequality and economic growth.

**Keywords:** income inequality, economic growth, transmission channel, Fixed effect model

**1. Introduction**

Research on the effects of inequality in income distribution on economic growth is a topic that gets the attention from many economists. These researches are quite diverse, including both theoretical and empirical research with diverse research scopes by target group (for many countries, a few countries or a specific country) or according to the research period (short-term, medium-term, or long-term consideration). The results of the researchers are both similar and different. One of the explanations for the difference in results is that the researchers use different transmission mechanisms for the effects of inequality in income distribution on economic growth. There are transmission channels through which inequality in income distribution is beneficial for economic growth, but there are also transmission channels through which inequality in income distribution is harmful to economic growth. The effects of inequality in income distribution are essentially the summary of the effects of these effect transmission channels. The important issue is that it is difficult to determine which transmission channel plays the dominant role, this can vary depending on different groups of countries, different periods, and therefore, the effects of inequality in income distribution on economic growth are quite ambiguous and cannot be uniquely determined without considering at a specific time, a specific country or group of countries (including countries that are considered similar to each other). Facing that reality, this article will study the effects of inequality in income distribution on

economic growth as well as verify the effect transmission channels in a group of countries with lower levels of inequality and economic development than the average during 1980 – 2019 period.

There are 5 main theories about the transmission channels of the effects of inequality in income distribution on economic growth that are frequently mentioned including distribution theory, theory of socio-political instability, theory of imperfect capital markets, theory of fertility and educational investment decisions, and social comparison theory. This article adds three more theories including neoclassical growth theory, labor motivation theory and Todaro's theory.

Alesina and Rodrik's (1994) distribution theory was explained based on median voter theory. The more equal the society is, the more capital the median voter will have, so they desire a lower tax rate, a lower redistribution policy, leading to more investment, and thus a higher level of economic growth. However, Persson and Tabellini (1994) argued that this effect only exists in democracies, where each citizen is a vote and fiscal policy is decided by a majority of votes. In the other direction, Li and Zou (1998) argued that when government revenue through income taxes is used to support public consumption instead of production, the more equal income distribution can lead to higher income tax rates and thus lower economic growth.

The imperfect capital market theory is represented by Galor and Zeira (1993), Aghion and Bolton (1997), Chiou (1998). In an unequal society, the distribution is more skewed towards the rich and middle class, so there are higher borrowing constraints and increasingly strict demands on the assets that households own. Most poor people cannot meet these constraints and they cannot borrow, and therefore cannot invest in education. Even if the direct cost of education is insignificant for the primary or even secondary level, the most important component of the cost of education, especially secondary education, is the income lost when not working, which is the main concern of the poor. Opportunities to invest in human capital (investment in education) decrease, the majority of the population will have substandard education spending, thus limiting human resources, and resulting in low economic growth.

The theory of socio-political instability is supported by Hibbs (1973), Rodrik (1989), Gupta (1990), Alesina et al (1996), Perotti (1996), etc. In more unequal societies, the polarized distribution of resources creates incentives for private organizations to pursue interests by engaging in activities seeking special privileges, thereby giving rise to discontent, social conflicts, and acts of opposition to the regime expressed through violent protests, assassinations, coups, and increased crime rates. In turn, socio-political instability will reduce investment and create uncertainty regarding the political and legal environment while disrupting market operations and labor relations, creating uncertainty over economic decisions, such as investment, production or labor supply, that have a direct negative effect on productivity. Risk increases and investment expectations decrease, thereby inhibiting growth (Rodrik, 1989).

The theory of fertility and educational investment decisions was discussed by Galor and Zang (1993). More equal societies have lower birth rates and higher rates of investment in education, thereby bringing about higher rates of economic growth (Perotti, 1996). Galor and Zang (1997) found that for countries that are similar in all respects except average household size and income distribution, the smaller average household size and more equal income distribution will bring

about a higher rate of economic growth and a higher level of output per worker. Countries with large family sizes and very uneven income distribution are likely to be caught in a development trap. Explaining this, Galor and Zang (1993) argued that, with the given income distribution, having one more child means each family will have fewer resources to invest in each child's education; with education costs and borrowing difficulties remaining constant, fewer children are likely to go to school. Similarly, with the given fertility rate, a more skewed income distribution is associated with lower school enrollment rate due to the inability to borrow. Thus, the more skewed income distribution is associated with a country possessing low levels of human capital. In countries with low levels of human capital, the decline in economic growth caused by income inequality is exacerbated with higher levels of physical capital (Chambers and Krause, 2010) and fertility difference is an important channel to explain negative effects of income inequality on economic growth (De la Croix and Doepke, 2003).

Knell's (1998) social comparison theory argued that each individual's consumption depends not only on their income level but also on the average consumption level of the social group to which they are related. Poor people are attracted to the lifestyle of the upper class and tend to consume more. In a society where the level of income inequality is higher and the income gap between the poor and the rich is larger, the higher the proportion of spending on the poor's life is, the lower investment in human capital will be, resulting in low economic growth.

Neoclassical growth theory believes that savings is a key factor determining the process of capital accumulation and that reduction of savings/investment will reduce economic growth. On that basis, Lewis (1954) argued that businessmen save a larger portion of their income compared to other groups in the economy, and that income inequality can lead to more savings among the rich and faster economic growth. Kaldor (1967) considered that the savings rate of the working class is zero, so income inequality can generate high savings rates and rapid economic growth if the rich take a larger portion of income or if income is more unequally distributed in the economy. Similarly, Stiglitz (1969) argued that the marginal propensity to save of the rich is much higher than that of the poor, and the redistribution of income will reduce the savings of the rich while the amount of savings of the poor increases insignificantly and overall will reduce the economy's savings, thereby reducing economic growth. In addition, in the absence of efficient capital markets that allow pooling the resources of small investors, concentrated distribution of wealth will support new investments with large initial sums of money, thereby leading to faster economic growth. Li et al. (2016) pointed out that physical investment capital, especially private investment capital, is the main driver of long-term growth in China, while the role of human capital and public investment capital is still very vague and insignificant. Higher income rewards can encourage people to invest more, and allowing the concentration of asset ownership among a few individuals can facilitate large investments, thereby promoting economic growth.

J. Stacy Adams's equity theory (1965) - one of the motivation theories in labor for enterprises, mentions that everyone wants to be treated fairly. Individuals tend to compare their contributions and the benefits they receive with the contributions and benefits of others. They will feel treated fairly if the treatment rate is equal. The creation and maintenance of a balance between an individual's contribution and the benefits that individual enjoys contributes to motivating employees to continue dedicating. Expanding the above theory at the national level, Mankiw

(2004) argued that the implementation of the goal of social justice, especially aiming for a more equal income distribution may conflict with the goal of ensuring the economy operates more efficiently to achieve faster economic growth. When a part of the income of the rich is taken away to subsidize the poor, at a certain point it will cause a loss of motivation to work, the rich will not actively work, and the poor will easily have the mindset of dependence, not needing to work but still having enough money to live.

According to Todaro (1997), in developing economies, where public services such as health, medicine, and education are limited, there is no ability to fully invest and distribute to each person, income inequality means that a part of the poor have little opportunity to improve their health through medical services, and have little access to an advanced education system, so their labor productivity is low, thereby reducing economic growth. He also pointed out that the rich in developing countries do not really want to save to invest in the domestic economy, they tend to spend their increased income to buy more imported luxury goods. This type of savings and investment does not contribute much to increasing the country's productive potential, and is even a waste of already meager resources in these countries. On the contrary, increased income of the poor will stimulate increased demand for domestically produced goods and services, thereby contributing to stimulating domestic investment, production and job creation, while creating conditions for the poor to have more opportunities to participate and benefit.

Corresponding to these 8 theories, we have 9 effect transmission channels (Todaro's theory specifically mentions 2 effect transmission channels). The article below will examine the combined effects of income inequality on economic growth in a group of countries with lower levels of inequality and economic development than the average and verify through which channels income inequality has affected the economic growth.

## 2. Experimental analysis framework

### *Estimation models and methods*

To determine the aggregate effects of income inequality on economic growth, most previous researches used econometric models in the form of:

$$G_t = \beta_1 + \beta_2 Inequality_t + \beta X_t + U_t$$

$X_t$  is a group of control variables, usually including economic development rate and human capital (refer Alesina and Rodrik, 1994; Person and Tabellini, 1994), economic openness and investment capital (refer Li and Zou, 1998; Barro, 2000). Inherited from these researches, however, adjusted by adding a second-order factor of the income inequality level (because there is an opinion that there exists an optimal level of income inequality for economic growth), the article will use the following model:

$$G_t = \beta_1 + \beta_2 Ineq_t + \beta_3 Ineq_t^2 + \beta X_t + U_t \quad (1)$$

Of which,  $G_t$  is the growth rate of real GDP per capita,  $Ineq$  is the level of inequality in income distribution,  $X_t$  is a group of control variables, including GDP - economic development level (measured by real GDP per capita), Educ - human capital (measured by secondary and high school enrollment rates regardless of age, Open - openness of the economy (measured by % GDP

of export of goods and services) and Invest - investment capital (measured by investment/GDP ratio). Unlike previous researches that often use WorldBank's Gini coefficient to measure the level of inequality in income distribution, this article uses Solt's Gini coefficient, sourced from the Standardized World Income Inequality Database (SWIID). Compared to other existing datasets, the SWIID database has better quality, seamless data over the years, ensuring comparability across countries and great numbers of countries covered. All variables in the model are averaged over 5 years, except for the GDP growth rate and the level of inequality in income distribution at the beginning of each period. Like most recent researches often do, the fixed-effects (FE) estimation method will be used to estimate equation (1).

Similar to Perotti (1996), the examination of the transmission channels of the effects of income inequality on economic growth is performed based on estimating a system of two structural equations:

$$G_t = \beta_1 + \beta_2 CHANEL + \beta X_t + U_{1t} \quad (2)$$

$$CHANEL = \alpha_1 + \alpha_2 Ineq_t + \alpha W_t + U_{2t} \quad (3)$$

Of which, *CHANEL* is one of 9 effect transmission channels, X and W are groups of control variables. This system of equations is estimated in two steps. Step 1 is to estimate the effects of inequality in income distribution on transmission channels (equation 3) and step 2 is to estimate the effects of the transmission channels on economic growth (equation 2). All variables are averaged over 5 years, especially the GDP growth rate and the level of inequality in income distribution are taken at the beginning of each period. The estimation of each of these equations is still performed using the FE method.

#### *Usage data*

The data was taken from 1980 to present. One of the reasons for the variation in the results obtained, although in the same research, was due to the heterogeneity of the sample. Observations of very different natures mixed together in a sample could easily skew the estimation results. Therefore, the research conducted to divide the observations into homogeneous subgroups before estimation.

One of the most commonly used grouping methods is based on the level of development ranked by WorldBank. However, this grouping still gives different results because there are countries with low inequality, some countries with high inequality at the same level of development. Therefore, this article has extended the grouping method based on two criteria: (i) the level of economic growth (real GDP per capita) and (ii) the level of income inequality (GINI Sold) of countries. At each year where real GDP per capita is averaged for all countries, the average level of inequality for all countries is established. The countries are then grouped into 4 groups:

Group 1: Group of countries with low growth (lower than average) and low inequality (lower than average)

Group 2: Group of countries with low growth (lower than average) and high inequality (higher than average)

Group 3: Group of countries with high growth (higher than average) and high inequality (higher than average)

Group 4: Group of countries with high growth (higher than average) and low inequality (lower than average)

Based on the results of grouping each year, this research continues to monitor the group change of a country over the years for a long period, thereby ranking that country in the most suitable group according to the following criteria: (i) if in the last 5 years, a country only belongs to group A, it is considered to be in group A for the whole research period; (ii) if in the last 5 years, a country has a change of group, then in the whole period, assuming that country is commonly classified as group A, it belongs to group A. Thus, compared to the original pooled data, the data of each group has better consistency.

Vietnam is a group 1 country. Along with the economic development process, Vietnam's income inequality also gradually increases, especially the gap between the richest and poorest groups. Although economic growth in the recent period (excluding the Covid-19 period) has shown positive signs, this also does not guarantee that rising income inequality will not cause disadvantages for economic growth in the near future. Harmonizing the relationship between income inequality and economic growth is Vietnam's development orientation and the research understands how the increase in income inequality will affect economic growth in Vietnam as well as the necessary transmission channels through which income inequality affects economic growth. Therefore, the article will focus on studying group 1, the group of countries with low levels of economic development and inequality in income distribution (lower than the average). The list of countries in group 1 is presented in table 1.

Table 1: List of countries in group 1

Afghanistan	Ethiopia	Libya	Pakistan	Kyrgyz Republic
Algeria	Hungary	Lithuania	Poland	North Macedonia
Armenia	Iraq	Mauritania	Romania	Russian Federation
Azerbaijan	Jordan	Mauritius	Serbia	Sao Tome and Principe
Bangladesh	Kazakhstan	Moldova	Timor-Leste	Vietnam
Belarus	Kosovo	Mongolia	Tonga	West Bank and Gaza
Bulgaria	Lao PDR	Montenegro	Turkmenistan	Yemen, Rep.
Burundi	Latvia	Myanmar	Ukraine	
Cambodia	Lebanon	Nepal	Uzbekistan	
Croatia	Liberia	Niger	Venezuela, RB	

### 3. Experimental results and discussion

#### *Regarding the effects of income inequality on economic growth*

The results of model 1 estimation only find a significant effect of the level of economic development and education on economic growth, respectively at the 1% and 10% significance level, while the effect of income inequality on economic growth has not been found (see column 1, table 2). This is most likely due to the collinearity between two variables Ineq and Ineq<sup>2</sup>. To

verify this, the article has successively estimated the model with only *Ineq* (see column 2, table 2) and only *Ineq*<sup>2</sup> (see column 3, table 2). The results in column 2 show that income inequality has a positive effect on economic growth at the 1% significance level. The results of column 3 confirm, also at the 1% significance level, that income inequality has an effect on economic growth in the form of a positive U-shaped quadratic function, symmetric on the vertical axis, which also means that in reality, income inequality also has a positive effect on economic growth. Thus, in the case of group 1, using a linear function to describe the effects of income inequality on economic growth will be more appropriate than a quadratic function. In all 3 cases, the article has not found the effects of economic openness and investment on economic growth.

Table 2: Results of the effects of income inequality on economic growth

Explanatory variable	G	G	G
	1	2	3
Const	-16.278	13.579	26.819
<i>Ineq</i>	2.891	0.872 ***	
<i>Ineq</i> <sup>2</sup>	-0.033		0.014 ***
GDP	-5.893 ***	-5.828 ***	-5.792 ***
Educ	0.105 *	0.106 *	0.107 *
Open	-0.014	-0.014	-0.012
Invest	0.254	0.217	0.21

Source: Author's calculations. Note: FE. \*\*\*, \*\*, \*: statistically significant at the 1%, 5%, and 10% level respectively

Where: *G* is the growth rate of real GDP per capita, *Ineq* is Solt's Gini coefficient, *GDP* is real GDP per capita, *Educ* is secondary and high school enrollment rates regardless of age, *Open* is % GDP of export of goods and services and *Invest* is investment/GDP ratio.

Regarding the transmission channels of the effects of income inequality on economic growth

- *Fiscal policy channel*: To represent redistribution policy, the article uses the ratio of income tax to GDP (Tax variable) and the ratio of government expenditure to GDP (GS variable). The results in columns 1 and 2, Table 3 show that the effects of taxes on economic growth nor the effects of income inequality on taxes have not been found. However, the results of columns 3 and 4 confirm the fiscal policy channel, where income inequality has a negative and significant relationship with government spending and government spending has a negative and significant relationship with growth. This means, increased income inequality leads to less government spending and less government spending brings higher growth, thereby implying a positive relationship between income inequality and economic growth, that is, increased income inequality is beneficial to economic growth, this result is consistent with the judgment of Li&Zou (1998). Thereby, we can see that in group 1, the higher income group seems to hold the power to decide distribution policy, government spending focuses on supporting production instead of public consumption.

Table 3: Fiscal policy channel

Explanatory variable	G	Tax	G	GS
	1	2	3	4
GDP	-3.056**	0.375	-1.843	-1.37*
Educ	0.112**		0.060*	
Ineq		-0.076		-0.139*
Tax	0.005			
GS			-0.118*	

Source: Author's calculations. Note: FE. \*\*\*, \*\*, \*: statistically significant at the 1%, 5%, and 10% level respectively

Where: **G** is the growth rate of real GDP per capita, **Ineq** is Solt's Gini coefficient, **GDP** is real GDP per capita, **Educ** is secondary and high school enrollment rates regardless of age, **Tax** is the ratio of income tax to GDP and **GS** is the ratio of government expenditure to GDP.

- *Imperfect capital market channel*: To represent the imperfect capital market, the article uses credit information depth (Dept variable). The credit information depth takes a value from 0 to 8. The smaller the value is, the more difficult it is to access credit information, accordingly, the ability to access capital will be narrowed. The results show that income inequality has a negative and significant effect on the ability to access credit information, access to credit information has a positive and significant effect on education, and education has a positive and significant effect on economic growth (see table 4). This implies that increased income inequality makes it more difficult to access credit information (more difficult to access capital), thereby reducing human resources, leading to reduced growth. Thus, the results obtained support the imperfect capital market channel.

Table 4: Imperfect capital market channel

Explanatory variable	G	Educ	Dept
	1	2	3
GDP	-1.975*	7.183*	5.328***
Educ(-15)	0.100***		
Ineq			-0.1324*
Dept		0.603**	

Source: Author's calculations. Note: FE. \*\*\*, \*\*, \*: statistically significant at the 1%, 5%, and 10% level respectively

Where: **G** is the growth rate of real GDP per capita, **Ineq** is Solt's Gini coefficient, **GDP** is real GDP per capita, **Educ** is secondary and high school enrollment rates regardless of age and **Dept** is credit information depth.

- *Socio-political instability channel*: The article uses WorldBank's political stability and absence of violence index (PS variable) to represent socio-political instability. The higher the value of this index is, the more stable and non-violent the country is. The results have not found the effects of



income inequality on socio-political instability; therefore, the channel of socio-political instability effect has not been found in the case of group 1 (see column 1, table 5). However, it can be seen that the reduction in socio-political instability (increased PS variable) is associated with investment stimulation (Invest variable, measured by the investment-to-GDP ratio) and increased investment promotes economic growth.

Table 5: Political and social instability channel

Explanatory variable	G	Invest	PS
	1	2	3
GDP	-2.636**	1.507***	0.139
Educ			-0.002
Ineq			0.005
PS		1.441***	
Invest	0.780***		

Source: Author's calculations. Note: FE. \*\*\*, \*\*, \*: statistically significant at the 1%, 5%, and 10% level respectively

Where: **G** is the growth rate of real GDP per capita, **Ineq** is Solt's Gini coefficient, **GDP** is real GDP per capita, **Educ** is secondary and high school enrollment rates regardless of age, **Invest** is investment/GDP ratio and **PS** is World Bank's political stability and absence of violence index.

- **Fertility decision channel:** The article uses expected fertility (Fer variable) to represent fertility decisions. However, the effects of income inequality on expected fertility have not been found, so the fertility channel has not been found in the case of group 1. However, the results show that high fertility reduces human capital, thereby reducing growth (see table 6).

Table 6: Fertility channel

Explanatory variable	G	Educ	Fer
	1	2	3
GDP	-4.700***	15.783***	-0.174
Educ	0.103*		-0.033***
Ineq			-0.013
Fer		-5.864***	
Invest	0.329		

Source: Author's calculations. Note: FE. \*\*\*, \*\*, \*: statistically significant at the 1%, 5%, and 10% level respectively

Where: **G** is the growth rate of real GDP per capita, **Ineq** is Solt's Gini coefficient, **GDP** is real GDP per capita, **Educ** is secondary and high school enrollment rates regardless of age, **Invest** is investment/GDP ratio and **Fer** is expected fertility.

**Savings/investment channel:** Examining the savings/investment channel requires data on the savings of the rich, but the research did not have access to this data. Therefore, the research used

general savings data (Sav variable, measured by the savings-to-GDP ratio). The results do not find an effect of income inequality on savings, and although savings have an effect on investment, it is a significant and negative effect. This shows the inappropriateness of using a general asymptotic savings measure for the savings of the rich.

Table 7: Savings/investment channel

Explanatory variable	G	Invest	Sav
	1	2	3
GDP	-2.636**	1.424***	5.181***
Ineq			-0.027
Sav		-0.016*	
Invest	0.780***		

Source: Author's calculations. Note: FE. \*\*\*, \*\*, \*: statistically significant at the 1%, 5%, and 10% level respectively

Where: **G** is the growth rate of real GDP per capita, **Ineq** is Solt's Gini coefficient, **GDP** is real GDP per capita, **Invest** is investment/GDP ratio and **Sav** is the savings-to-GDP ratio.

- *Labor motivation channel*: There is no specific measure for labor motivation, so the article uses labor productivity (Pro variable, measured by GDP/labor) as a result of labor motivation. High labor productivity is a sign of having a lot of motivation to work, low labor productivity is a sign of having little motivation to work. The results found that income inequality (at a moderate level, this is the level of group 1) stimulates increased labor productivity, thereby promoting growth (see table 8). Thus, this result supports the labor motivation channel.

Table 8: Labor motivation channel

Explanatory variable	G	Pro
	1	2
GDP	-32.373***	0.865***
Educ	0.059*	0.002*
Ineq		0.007***
Pro	33.108***	
Invest	-0.017	

Source: Author's calculations. Note: FE. \*\*\*, \*\*, \*: statistically significant at the 1%, 5%, and 10% level respectively

Where: **G** is the growth rate of real GDP per capita, **Ineq** is Solt's Gini coefficient, **GDP** is real GDP per capita, **Educ** is secondary and high school enrollment rates regardless of age, **Invest** is investment/GDP ratio and **Pro** is GDP/labor.

- *Consumer behavior channel*: The article uses average household expenditure per capita (HC variable) to represent the average level of expenditure. The results found that income inequality has a positive and significant effect on the average spending level and the average spending level has a negative and significant effect on human capital while human capital has positive and significant effect on economic growth (see table 9). This implies that increased income

inequality causes average spending to increase, leading to low investment in human capital (due to the increased proportion of spending on living expenses of the poor), resulting in reduced growth. Thus, this result supports the consumer behavior channel.

Table 9: Consumer behavior channel

Explanatory variable	G	Educ	HC
	1	2	3
GDP	-4.700***	30.154***	1.105***
Educ	0.103*		
Ineq			0.013*
Pro		-10.118*	
HC	0.329	-0.170	-0.036**

Source: Author's calculations. Note: FE. \*\*\*, \*\*, \*: statistically significant at the 1%, 5%, and 10% level respectively

Where: **G** is the growth rate of real GDP per capita, **Ineq** is Solt's Gini coefficient, **GDP** is real GDP per capita, **Educ** is secondary and high school enrollment rates regardless of age, **Pro** is GDP/labor and **HC** is average household expenditure per capita.

- Access to education and health service channel: The article uses the proportion of students enrolled in secondary and high school (Educ variable) to represent the access to education. An access to health can be measured by the percentage of the population that has used health services or the average number of times a person uses health services, however, the research did not have access to such data, so it used per capita medical-care expenditure (Med variable) instead. The results support the education access channel, when income inequality reduces access to education, thereby reducing labor productivity, resulting in reduced growth (see columns 1, 2, 3, table 10). However, research has not found an effect of income inequality on health while there is evidence that health helps improve labor productivity, thereby bringing about higher growth (see column 1, 4, 5 table 10). This result can be predicted due to the increase in average public expenditure, but it is not certain that the number of people accessing health services has increased.

Table10: Access to education and health service channel

Explanatory variable	G	Pro	Educ	Pro	Med
	1	2	3	4	5
GDP	-31.008***		22.037***		223.904***
Educ		0.019***		0.016***	
Ineq			-0.734***		2.532
Med				0.001***	
Pro	32.303***				
Invest	-0.073				

Source: Author's calculations. Note: FE. \*\*\*, \*\*, \*: statistically significant at the 1%, 5%, and 10% level respectively

Where: *G* is the growth rate of real GDP per capita, *Ineq* is Solt's Gini coefficient, *GDP* is real GDP per capita, *Educ* is secondary and high school enrollment rates regardless of age, *Invest* is investment/GDP ratio, *Pro* is GDP/labor and *Med* is per capita medical-care expenditure.

- *Domestic demand for goods and services channel*: The article uses the income proportion of the poorest 40% (*inc40* variable) as a measure of the poor's income and total consumption (of both individuals and the government, *FCE* variable) as a measure of domestic demand for goods and services. The results support the transmission channel of the effects on domestic demand for goods and services when reduced income inequality increases the income of the poor, thereby increasing domestic demand for goods and services, resulting in increased growth (see table 11).

Table 11: Domestic demand for goods and services channel

Explanatory variable	G	FCE	Inc40
	1	2	3
GDP	-10.015***	0.499***	1.023***
Ineq			-0.044**
Inc40		0.520***	
FCE	8.706***		

Source: Author's calculations. Note: FE. \*\*\*, \*\*, \*: statistically significant at the 1%, 5%, and 10% level respectively

Where: *G* is the growth rate of real GDP per capita, *Ineq* is Solt's Gini coefficient, *GDP* is real GDP per capita, *Inc40* is the income proportion of the poorest 40% and *FCE* is total consumption (of both individuals and the government).

#### 4. Conclusion and suggestions for Vietnam

Thus, the article has found that in group 1 countries (group of countries with lower levels of development and inequality than average) there is a positive effect of income inequality on economic growth, meaning that increased income inequality stimulates economic growth. This positive effect is the combined result of many different effect transmission channels. The research supports the effects of income inequality on economic growth through 6 channels: fiscal policy channel, imperfect capital market channel, consumer behavior channel, labor motivation channel, access to education channel and domestic demand for goods and service channel and does not support the socio-political instability channel and decision fertility channel. Particularly, the two savings/investment channels and the access to health service channel have not really been inspected because there is no suitable measure for the savings of the rich as well as people's access to health services. Accordingly, income inequality has the effects of promoting economic growth through fiscal policy channels and labor motivation channels and has the effects of hindering economic growth through imperfect capital market channels, consumer behavior channels, access to education service channel and domestic demand for goods and service channel.

As a group 1 country, to harmoniously resolve the relationship between income inequality and economic growth, Vietnam needs to: (1) Increase investment in education because education

helps mitigate the negative effects of income inequality on economic growth through access to educational services; (2) Provide solutions to increase the income in rural and mountainous areas, reduce the rate of poor households, near-poor households and the rate of relapse into poverty, thereby helping to mitigate the negative effects of income inequality on economic growth through domestic demand for goods and services; (3) Enhance access to credit information and credit for the poor, thereby helping to mitigate the negative effects of income inequality on economic growth through imperfect capital market channel; (4) Promote price stabilization programs to reduce expenditure for the poor, thereby mitigating the negative effects of income inequality on economic growth through consumer behavior channel; (5) Develop a reasonable remuneration regime for employees to stimulate their labor motivation, take advantage of the positive effects of income inequality through the labor motivation channel.

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