Credit composition and income inequality in Vietnam: an empirical analysis

Le Quoc Hoi
Economics, National Economics University, Hanoi, Viet Nam, and
Hương Lan Trần
Faculty of Economics, National Economics University, Hanoi, Viet Nam

Abstract

Purpose – This paper aims to examine the credit composition and income inequality reduction in Vietnam. In particular, the authors focus on the distinction between policy and commercial credits and investigate whether these two types of credit had adverse effects on income inequality. The authors also examine whether the impact of policy credit on income inequality is conditioned by the educational level and institutional quality.

Design/methodology/approach – The authors use the primary data set, which contains a panel of 60 provinces collected from the General Statistics Office of Vietnam from 2002 to 2016. The authors employ the generalized method of moments to solve the endogenous problem.

Findings – The authors show that while commercial credit increases income inequality, policy credit contributes to reducing income inequality in Vietnam. In addition, we provide evidence that the institutional quality and educational level condition the impact of policy credit on income inequality. Based on the findings, the paper implies that it was not the size of the private credit but its composition that mattered in reducing income inequality, due to the asymmetric effects of different types of credit.

Originality/value – This is the first study that examines the links between the two components of credit and income inequality as well as constraints of the links. The authors argue that analyzing the separate effects of commercial and policy credits is more important for explaining the role of credit in income inequality than the size of total credit.

Keywords Commercial credit, Policy credit, Income inequality, Vietnam

Paper type Research paper

1. Introduction

Income inequality is a widespread concern worldwide, especially in developing countries. Former US President Barak Obama even called the rise in income inequality is the challenge of our time (Dabla-Norris et al., 2015). Income inequality has increased globally, but there is still no consensus on its cause. In recent researches, the impact of financial development in general and credit in particular on income inequality has been theoretically and empirically investigated. Theoretically, there are many different views on the impact of credit on income inequality. Some theoretical studies argue that more credit extension may make it easier for the poor to access loan for improving their lives, which can reduce income inequality (Galor and Moav, 2004). Imperfect information and credit transaction costs may create constraints on the poor such as a lack of collateral, thus loosening these credit restrictions is considered to be beneficial for the poor (Beck et al., 2007). In another theoretical view, Greenwood and
Jovanovic (1990) argue that the credit market is only better for the richer group with better mortgage conditions to access credit, thereby increasing income inequality.

In terms of empirical researches, the studies have not been entirely agreed about the impacts of credit on income inequality. Although many empirical studies show that countries with higher levels of credit growth, income inequality is lower (Li et al., 1998; Clarke et al., 2006; Beck et al., 2007; Kappel, 2010; Hamori and Hashiguchi, 2012; and Zhang, 2016), other studies suggest that there is a non-linear relationship between credit and income inequality (Kim and Lin, 2011; Law et al., 2014), or credit increases income inequality (Jauch and Watzka, 2012; Jaumotte et al., 2013; Dabla-Norris et al., 2015). Thus, studies at different levels with different aspects show that income inequality is related to credit; however, the mechanisms and degrees of impact differ from countries to countries and are subject to each country’s institutional and socio-economic background.

Vietnam has made a number of remarked achievements of social and economic development since more than 30 years of its economic reform. Economic growth has brought Vietnam from the country with the rate of more than 58% poor population in 1993 to about 5% in 2018 (Pham and Riedel, 2019). Policy credit is considered to contribute to this great achievement. However, income inequality in society tends to increase in the line with the achievement of rapid economic growth and sharply poverty reduction in Vietnam. Gini coefficient, a common measure of income inequality, increases from 0.34 in 1993 to 0.42 in 2018 (GSO, 2019). So far, there have been several studies examining the impact of financial development and credit on income inequality in Vietnam (Le and Chu, 2013). However, there is not any study on credit composition and income inequality. In addition, the studies also have not clarified the constraints of economic and institutional factors on the impact of credit on income inequality. In this paper, we study the link between the two components of credit and income inequality. We argue that analyzing the separate effects of commercial and policy credits is more important for explaining the role of credit in income inequality than the size of total credit.

The paper is organized as follows. Section 2 provides the theoretical framework and literature review. An overall of credit and income inequality in Vietnam is presented in Section 3. Section 4 describes the model specification, data and methodology. The empirical results and discussion are presented in Section 5. And, section 6 is conclusions and policy implications.

2. Credit and income inequality: theory and literature

There have been three main strands of theory about the credit–inequality nexus. The first one developed by Greenwood and Jovanovic (1990), also known as non-linear or inverted U-shaped hypothesis, states that credit leads to higher income inequality in early stage of economic development, but the income gap may decreases as the credit market has been grown to mature. The second one proposed by Galor and Zeira (1993) and Banerjee and Newman (1993) concludes that credit has the effect of reducing income inequality. In the third strand, Aghion and Bolton (1997) provides a trickle-down theory, which shows that when capital accumulation is high enough, a governmental policy may still make income distribution more equal if it redistributes more wealth of the richer lenders to poorer borrowers, which could be done through the credit allocation mechanism.

Based on those theoretical frameworks, the extensive empirical literature on the relationship between credit and income inequality provides very mixed findings. Beck et al. (2007) use data for 65 countries over the 1960–2005 period and report a negative relationship between private credit-to-GDP and the growth rate of the Gini coefficient controlling for real per capita gross domestic product (GDP) growth and a wide array of other country-specific factors. Using a similar model for a group of 83 countries in the period of 1960–1995,
Clarke et al. (2006) also find that credit market development reduces income inequality. Kappel (2010) finds that credit reduces income inequality for high-income countries, but is not significant for low-income countries. Using panel fixed effects, generalized method of moments (GMM) and annual panel data for a sample of 126 countries over the 1963–2002 period, Hamori and Hashiguchi (2012) find that private credit-to-GDP reduces household income inequality.

Based on a cross-section sample of 81 countries over the period 1985–2010, Law et al. (2014) conclude that credit tends to reduce income inequality only after a certain threshold level of institutional quality has been achieved. Until then, the effect of credit on income inequality is nonexistent. Cournoed et al. (2015) examine the effects of intermediated credit for Organization for Economic Co-operation and Development (OECD) countries and a European subset and find a negative impact of intermediated credit on average household disposable income growth, controlling for country and time-fixed effects and financial crises. Beck (2011) shows the positive effect on inequality that decreasing credit constraints will benefit the poor at least in developing countries. Marta et al. (2020) analyze the relationship between finance and income inequality for a group of nine OECD countries over the pre- and post-crisis periods (2000–2015). The model proposed in this study simultaneously considers two explanatory variables for measuring financial depth (credit provision and capital markets) and a new multidimensional variable to measure the financial system’s resilience (a composite indicator) and conducts panel data analysis. The empirical results confirm that a financial system’s resilience helps alleviate existing income inequality, and that income inequality appears higher in liberal market economies than in coordinated economies.

On a national level, Cruz and Imperial (2014) use data in the period 1961–2000 and certify that credit increases inequality in the Philippines. Law and Tan (2009) find no evidence to conclude that credit can reduce the rich–poor gap when analyzing national data from 1980 to 2000 in Malaysia. Re-examining this correlation in the context of better government institutional quality, Law et al. (2014) conclude that credit only reduces income gap after the institutional quality has reached a certain threshold. In India, Ang (2010) provides a quantitative analysis on time-series data during 1951–2004 and finds that credit expansion for the private sector and bank consistence may narrow income inequality. Using GMM and panel data for a sample of 60 provinces over the 2002–2010 period, Le and Chu (2012) show that the financial development measured by private credit-to-GDP increases income inequality in Vietnam.

Most studies in the literature focus on the impact of the total credit on income inequality. There have been few systematic studies that distinguish between the components of credit. For example, Beck et al. (2012) use data of 33 cross-country for the period from 1992 to 2005 to examine the differential effects of household and enterprise credits on economic growth, income inequality and poverty. They find a negative relation between enterprise credit and growth of the Gini coefficient, but no statistically significant impact of household credit. Jianu (2020) estimated a positive impact of private-sector credit growth on income inequality, this being caused by the existence of disequilibriums in the distribution of the credit. This research demonstrated that the income inequality has a historical cause. The proper conduct of macro-prudential policy can provide a solution in terms of moderating the impact of excessive lending to the private sector on the income inequalities. More recently, Seven et al. (2018) identify the heterogeneous behaviors of income inequality in response to credit to non-financial corporations (firm credit) and credit to households and non-profit institutions serving households (household credit) across 30 developed and developing countries. They find that the impact of private credit on reducing income inequality goes through firm credit rather than household credit.

Our study is further related to the empirical studies on the distinction between household and firm credits, all of which show that credit composition matters for income inequality.
Our research on country-level credit decomposition–inequality analysis may also enrich the empirical literature.

3. Credit and income inequality in Vietnam

3.1 Commercial credit
In the period 2000–2010, commercial credit grows rapidly at an average rate of 32.2% year-on-year, peaking at 54% in 2007 (Figure 1). Successively high commercial credit growth for many years contributes greatly in rising financial depth of credit market. According to the Asian Development Bank (2015), outstanding domestic credit claims by private sector (as percentage of GDP) in 1999 are only equivalent to 22%, increases rapidly at 115% in 2010, then drops to 100% in 2014. However, from 2011 to 2018, the average rate of credit growth remains only about 13.3% year-on-year.

It can be seen that Vietnam has taken commercial credit expansion as a factor to promote economic growth for a long time. However, a large proportion of commercial credit has not been transformed into real productive activities, such as agriculture, manufacturing, but are transferred to speculative activities such as construction, real estate. Statistical data of State Bank of Vietnam (2019) show that commercial credit for agriculture and manufacturing industry in the period of 2015–2018 accounted for 10 and 25% of the total credit; about 55–59% of communes across the country have difficulty in accessing to the formal credit market; 70% of small and medium enterprises have challenges or cannot reach a credit from an official financial institution. These facts explain why GDP growth is not strongly correlated with credit growth, as shown in Figure 1.

3.2 Policy credit
To implement the national target program on sustainable poverty reduction in the period of 2016–2020, the Vietnam government has implemented many policies, of which policy credit is considered an important tool. By the end of 2018, policy credit has been implementing more than 20 national programs and some programs and projects entrusted by provinces, organizations and individuals. Total capital reached VND207,708bn, an increase of VND63,052bn, total outstanding loans reached VND199,823bn, an increase of

Figure 1.
Commercial credit growth and GDP growth 2000–2018

Source(s): State Bank of Vietnam
VND57,295bn compared to 2015, the average annual loan growth reached 9.7%, with over 6.6 million outstanding customers. With nearly 11,000 transaction units in communes, wards and towns across the country and nearly 200,000 savings and loan groups operating in 100% of villages, hamlets, the Vietnam Bank for Social Policies (VBSP) has implemented policy credit in 100% of communes, wards and towns across the country, in which focusing priority to ethnic minorities groups and mountainous areas, disadvantaged and border areas, contributing significantly to gradually reduce income inequality.

Table 1 shows that the outstanding loans of VBSP increases continuously from VND124,456bn in 2014 to VND187,792bn in 2018. Of the total outstanding loans of VBSP, loans to poor households always accounts for the highest proportion (over 20% in the period 2014–2018), followed by loans to near-poor households, loans to clean water and rural sanitation projects and loans to manufacturing or business households in difficult areas.

In the period of 2016–2018, nearly eight million poor households and other policy beneficiaries are lent from VBSP, with the loans of VND221,693bn, contributing to take over 1.4 million households to overcome the poverty line, creating jobs for over 775,000 labors (over 17,000 labors working abroad in a limited time), nearly poor 200,000 students reached study loans, nearly 4.9 million clean water station and rural environmental sanitation construction are built, over 108,000 houses for poor households are constructed. It can be affirmed that the policy credit has achieved positive results, consistent with the guidelines and policies of the Vietnamese government on sustainable poverty reduction, ensuring social security, improving living standards and gradually reducing income inequality. The quality of policy credit continues to improve, the ratio of overdue and frozen debts of the entire VBSP system in 2018 is only 0.75% (overdue debt 0.42%, frozen debt 0.33%).

3.3 Income inequality in Vietnam

Figure 2 shows the Gini coefficient, which presents Vietnam’s income inequality in the period of 2006–2018 is unstable and fluctuates. The Gini coefficient from 0.424 in 2006 increases to 0.434 in 2008, then gradually decreases to 0.424 in 2012, increases again and reaches the highest value during this period of 0.436 in 2016, and drops to 0.422 in 2018. Although the fluctuation degree of the Gini coefficient is not much (0.422–0.436), it also shows that the income of employees changes over the years. According to Cornia and Court (2001), the Gini coefficient in the range of 0.30–0.45 shows the safe and effective range of income inequality. Based on the actual Gini data, it can be affirmed that Vietnam’s income inequality is still in a safe area. With this threshold, the level of income inequality in Vietnam is acceptable in tradeoff for high economic growth.

However, the level of inequality in Vietnam may be higher than what is shown by the above the Gini coefficient, because the Gini coefficient does not take into account the inequality factor caused by the differences in assets, opportunities to access resources, health care, education, corruption, etc. This may be partly reflected by the income gap between the richest quintile (group 5) and the poorest quintile (group 1) in Table 2.

Table 2 shows that the average monthly income in all five income groups has increased over the years. The average monthly income per person in 2018 is 3.78 times higher than in 2008. In 2008, the income of group 5 is 8.9 times higher compared to group 1, but by 2018, income of group 5 is 9.86 times higher compared to group 1, which has pushed the income gap increasingly far. These data show that income inequality in this period tends to increase rapidly. Comparing income in 2018 and 2008 indicates that group 1 is the group with the slowest increase degree (3.38 times) compared to the remaining groups, while group 2 increases 3.79 times, group 3 increases at the highest degree of 3.96 times and group 4 increases 3.85 times, group 5 increases 3.73 times.
| Credit programs                                      | 2014       | 2015       | 2016       | 2017       | 2018       |
|-----------------------------------------------------|------------|------------|------------|------------|------------|
|                                                     | Debt       | Proportion | Debt       | Proportion | Debt       | Proportion | Debt       | Proportion | Debt       | Proportion |
|                                                     | (billions  | (%)        | (billions  | (%)        | (billions  | (%)        | (billions  | (%)        | (billions  | (%)        |
|                                                     | dong)      |            | dong)      |            | dong)      |            | dong)      |            | dong)      |            |
| To poor households                                  | 38,268     | 28.1       | 35,457     | 24.9       | 37,714     | 24.1       | 39,061     | 22.7       | 38,014     | 20.2       |
| To near-poor households                             | 16,947     | 12.4       | 27,147     | 19.1       | 29,259     | 18.6       | 30,295     | 17.6       | 30,142     | 16.0       |
| To households who just got out of poverty           | –          | –          | –          | –          | 11,663     | 7.4        | 20,653     | 12.0       | 28,293     | 15.1       |
| To poor students                                    | 29,794     | 21.8       | 24,456     | 17.2       | 19,375     | 12.3       | 15,813     | 9.2        | 13,046     | 6.9        |
| To clean water and rural sanitation projects        | 15,294     | 11.2       | 19,914     | 14.1       | 23,602     | 15.1       | 26,573     | 15.4       | 29,898     | 15.9       |
| To manufacturing or business households in difficult areas | 13,854     | 10.1       | 15,366     | 10.8       | 16,216     | 10.3       | 18,107     | 10.5       | 21,123     | 11.2       |
| To employment support                               | –          | –          | –          | –          | 4,356      | 2.8        | 10,834     | 6.3        | 15,234     | 8.1        |
| Total                                               | 124,456    | 94.7       | 142,528    | 97.3       | 157,372    | 96.9       | 171,790    | 97.1       | 187,792    | 96.7       |

Source(s): VBSP
Another measure of inequality, the “40%” standard of World Bank, also reflects this. Specifically, the income proportion of the poorest 40% of the total population and the total population has continuously decreased from approximately 18% in 2002 to about 15% in 2010, 14.9% in 2012 and continued to decline to 14.6% in 2018, which reflects the rise of absolute inequality in Vietnam (Pham and Riedel, 2019). It can easily be seen while the relative inequality level measured by the Gini coefficient is acceptable, the absolute income gap is strongly concerned, because this demonstrates the increasingly rich–poor gap in Vietnamese society. It is also important to clarify that rising inequality does not imply that the rich become richer, and the poor become poorer, but the income growth of the rich group is faster than the income growth of the poor and low-income groups.

4. Research methodology

4.1 Model specification

This study estimates the impact of credit composition on income inequality by using model specification as follows:

\[ \text{Gini}_{i,t} = \beta_0 + \beta_1 \cdot \text{CRED}_{i,t} + \beta_j \cdot X_{i,t} + \beta \cdot \text{Interactions} + \mu_i + \varepsilon_{i,t} \]

In this equation, Gini is the Gini coefficient, taking value from 0 to 1. CRED is abbreviation for credit, measured by two variables: C.CRED, commercial credit, is computed by taking domestic credit claimed by private sector as percentage of GDP; and P.CRED, policy credit, is

| Year | Average | Group 1 | Group 2 | Group 3 | Group 4 | Group 5 | (1) | (2) |
|------|---------|---------|---------|---------|---------|---------|-----|-----|
| 2008 | 995     | 275     | 477     | 700     | 1,067   | 2,458   | 2,183 | 8.94 |
| 2010 | 1,387   | 369     | 669     | 1,000   | 1,490   | 3,410   | 3,041 | 9.24 |
| 2012 | 2,000   | 512     | 984     | 1,500   | 2,222   | 4,784   | 4,272 | 9.34 |
| 2014 | 2,637   | 660     | 1,314   | 1,972   | 2,830   | 6,413   | 5,753 | 9.72 |
| 2016 | 3,098   | 771     | 1,516   | 2,301   | 3,356   | 7,547   | 6,776 | 9.79 |
| 2018 | 3,760   | 931     | 1,808   | 2,774   | 4,110   | 9,175   | 8,244 | 9.86 |

Source(s): General Statistics Office of Vietnam
Note(s): (1) income gap between group 5 and group 1; (2) number of income disparities between group 5 and group 1
Unit: thousand dong
computed by taking policy credit as percentage of GDP. $X$ is a set of other control variables, including: GDPPC – be GDP per capita in real term at comparable 1994 price; EDU – a proxy for educational attainment, computed by number of schooling years of household head; OPEN – a proxy for openness of the economy, calculated by sum of import and export revenue as percentage of GDP; INF is abbreviation of inflation; GEX – government size, measured by government expenditure size over GDP, included in the model to control government intervening into redistribution process through fiscal policy; FDI (foreign-owned sector investment as percentage of GDP) to examine the impact of FDI area on income equality; PCI is provincial competitive index, which is used to proxy for institutional quality.

This study tests two binding factors on the impact of credit and income inequality such as institutional quality and educational attainment. Specifically, in the estimation equation, the interaction variables are interacting variables between CRED variables with two variables, namely, EDU and PCI. Also in the equation, $\mu_i$ is a fixed effect that does not change over time, showing the specific characteristics of each province/city, and $\varepsilon_{i,t}$ is an unseen random component. $i$ and $t$ are symbols for province/city and year.

### 4.2 Data

Data to calculate the income inequality index (Gini coefficient) is calculated by author from VHLSS (Vietnam Household Living Standard Survey) from 2002 to 2016. Since 2002, General Statistics Office of Vietnam conducts VHLSS every two years. The survey is designed to cover the whole country to represent the socio-economic changes of the country at national and provincial level. Data of education in the model are also computed from these surveys in corresponding years. Data on policy credit outstanding are collected from VBSP. Data for generating other variables in the model are collected from General Statistics Office of Vietnam, which includes: GDP, import and export revenue, public expenditure (recurrent and development), inflation. Data of PCI index are collected from Vietnam Chamber of Commerce and Industry. Vietnam today has 63 cities/provinces; however, to have a balanced panel data without reducing observations, we combine data of pair of respectively separated/merged provinces for the whole studying period. Thus primary data set contains a panel of 60 provincial observations during the 2002–2016 period.

### 4.3 Methodology

Theoretically, there could be some technical problems when exploiting panel data, which if unsolved would lead to inefficient estimates. These may consist of the following: (1) some variables may be endogenous; (2) fixed effects within the data may prevail and the effects may correlate with other explanatory variables in the model; (3) income inequality is of dynamic process, which means that the level of income inequality in the current period is influenced by the past ones.

To solve the above problems, we utilize the GMM in this study. Technically, difference GMM (DGMM) could be used to generate empirical results by taking the first difference. While seeking for exogenous instrument is not feasible, constructing instruments through using lagged variables that already exist in the model is highly possible. Supposing $E(\varepsilon_{i,t}|X_{i,s}) = 0$ given that $t > s$, then second- or higher-order lag of variables in the right-hand side of the model could be treated as instruments. This condition holds if serial correlation in $\varepsilon_{i,t}$ does not exist in the model. Nevertheless, DGMM may still contain limits because taking first-order differentiation would make cross-province and within-province long-term information disappear. Furthermore, lagged variables could be weak instrument for its differenced variable. To solve this, we could use an alternative technique which uses both lagged differenced dependent and independent variables as instruments. Arellano–Bond is applied with error term in differenced equation to test phenomenon of auto-correlation.
Sargen/Hansen test indicates the overall validity of set of instruments. However, there is no instruction of how much instrument is too many (Roodman, 2009). Moreover, when executing robust regression to correct problem of heteroskedasticity, Hansen test of over-identification could be unreliable. We, therefore, suggested by Roodman (2009), apply the rule of thumb that the number of instruments does not exceed that of observation groups.

5. Empirical results and discussion
The estimated results in Table 3 show that the coefficient of policy credit variable (CRED) is slated to be negative, implying that the increase of policy credit may push to decrease income inequality in Vietnam. Specifically, a province whose policy credit rate on the GDP is one percentage point higher than that of another province, its Gini coefficient would be average 0.11% lower. In other words, this suggests that provinces with high levels of policy credit may experience lower-income inequality probably due to various positive externalities of policy credit expansion. This also reflects that policy credit has an impact on helping the poor and vulnerable people, thereby contributing to reduce income inequality in Vietnam.

The coefficient of C.CRED is initially slated to be positive, implying that the increase of commercial credit may push to raise income inequality in Vietnam. Specifically, the coefficient of C.CRED falls in range of 0.0022–0.0024, which could be briefly interpreted that on average, a province whose credit market depth is one percentage point higher than that of another province, its Gini coefficient would be roughly 0.23% higher. The estimation results are consistent with the fact that credit market in Vietnam triggers speculative investment.

Table 4 shows that institutional quality and education attainment are influent on the impacts of policy credit on income inequality in Vietnam. Specifically, the estimated coefficients of interacting variables between institutional quality, educational attainment and policy credit are positive and statistically significant. This implies that the provinces/cities with better institutional quality and higher education attainment, policy credit has better effect on reducing the income inequality in these provinces/cities. This can be explained by the fact that better institutional quality and higher education attainment allow the poor and vulnerable to access policy credit easier to invest more in production and business, to improve income, thereby reducing income inequality.

| Explanatory variables | 1         | 2         | 3         |
|-----------------------|-----------|-----------|-----------|
| C.CRED                | 0.0023**  | 0.0012*** | 0.0022*** |
|                       | (4.14)    | (3.88)    | (4.02)    |
| P.CRED                |           | 0.0021*   |           |
|                       |           | (1.97)    |           |
| RGDPPC                | 0.0016 (1.17) | 0.0007 (1.12) | 0.0007 (1.13) |
| EDU                   | -0.0334*** (3.51) | -0.0323*** (3.57) | -0.0328*** (3.60) |
| CPI                   | 0.0038*** (3.51) | 0.0039*** (3.52) | 0.0040*** (3.31) |
| OPEN                  | -0.0001 (0.68) | -0.0001 (0.57) | -0.0001 (0.66) |
| GEX                   | 0.0007 (1.11) | 0.0007 (1.12) | 0.0007 (1.13) |
| SINV                  | 0.0003 (0.20) | 0.0003 (0.21) | 0.0003 (0.22) |
| PINV                  | 0.0008 (0.27) | 0.0008 (0.28) | 0.0008 (0.29) |
| FDI                   | -0.002** (3.60) | -0.002** (3.62) | -0.0021*** (3.63) |
| PCI                   | -0.005** (3.60) | -0.005** (3.67) | -0.005** (3.62) |
| No. of observations   | 415       | 415       | 415       |
| No. of instrument     | 21        | 21        | 21        |
| AR(1)                 | 0.000     | 0.000     | 0.000     |
| AR(2)                 | 0.780     | 0.842     | 0.832     |
| Hansen test           | 0.305     | 0.287     | 0.256     |

*Note(s):* numbers in bracket indicate t-statistics, and asterisk marks with *, ** and *** indicate the estimated coefficients are statistically significant at level of 10, 5 and 1%, respectively
Along with the results of the credit variables, the regression results also show the necessity of ensuring macroeconomic stability because the increasing inflation is not beneficial for the poor and increases income inequality. Although the estimated coefficient of RGDPPC is positive and not statistically significant, it still implies that economic growth in the country may have an inequality-widening effect at least over period 2002–2016. The estimation results show that the presence of foreign direct investment (FDI) sector helps reduce income inequality. This can be explained by the fact that FDI enterprises in Vietnam mainly focus on exploiting the advantages of low-cost and cheap skilled labor, thus reducing the income gap compared to high-skilled labor. In addition, there is evidence that the presence of FDI sector helps to deplete some inequality. This could be true given that FDI companies in Vietnam mostly focus on taking advantage of cheap and low-skilled labor, which results in lowering the income gap between low-skilled laborers and high-skilled ones.

### 6. Conclusion and policy implications

On dissecting a panel data 60 provinces/cities in Vietnam over the period 2002–2016, this paper finds empirical evidence proving the important role of policy credit on reducing income inequality. Our findings are in line with the theoretical predictions of Galor and Zeira (1993), Banerjee and Newman (1993), which suggest that the impact of credit on reducing the income inequality goes through policy credit rather than commercial credit. These findings suggest that the composition of credit between households and firms has key implications for policies to tackle income inequality. When these two types of credits have different effects on the level of income inequality, the composition becomes even more important. This is because when policymakers are confronted with the need to restrict (or expand) credit growth, they should pay particular attention to the asymmetric effects that household and firm credits may have on income inequality. Hence, the composition of credit can support policymakers by enabling them to understand whether, and in which context, credit is an instrument that can be used to...
influence income inequality, and whether the size of the total credit is always good for the poor. Moreover, if the government of Vietnam wants to fight against income inequality, they must make sure that poor areas and agrarian areas have sufficient access to credit to continue their development. Thus, it is important for the government to continue helping the poorer regions, they have managed to help through micro-credit programs and policies stimulating access to credit for poor rural households. However, they need to note that these programs are not the sole solution to decrease income inequality in the country. The problem with credit is that it is difficult to make sure that the obtained credit is used for the projected it was intended for, instead these loans in many cases seem to be going into increased consumption for the household. Supervision of the usage of credit is a factor that needs improvement, especially for policy credit programs for poor households where the incentive for reimbursement is not as high as for commercial banks.

In particular, the government should focus on credit for the poor by helping them to exit poverty through investing in human capital, health and microenterprises activities. We also confirm that the impact of credit on income inequality is conditioned on the levels of education and institution. These evidences imply that the government should focus on improving educational attainment and institutional quality to reduce income inequality in Vietnam. The expansion of education has an impact on income inequality by redistributing public resources; it can also have a longer-term impact on income inequality through its effects in promoting social mobility and boosting future earnings and opportunities.

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**Corresponding author**
Hương Lan Trần can be contacted at: lanhuong1702@gmail.com

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