Impacts of the sectoral composition of growth on poverty reduction in Vietnam

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Abstract

Purpose – The purpose of this paper is to assess the impact of sectoral economic growth and other factors on poverty reduction in Vietnam in the period 2010–2016.

Design/methodology/approach – Originating from the question of whether there is an endogenous problem between the structure of economic growth by sector and some other factors in the process of impact on poverty reduction, the paper has used the 2-Stage Least Squares method to deal with the endogenous issues.

Findings – Increasing the proportion of the industrial sector and the agricultural sector had great impacts on poverty reduction. In contrast, the increasing proportion of the service sector made the poverty rate higher. One noticeable thing is that economic growth was not significant for the goal of poverty reduction in 2010–2016. In addition, the process of urbanization, the increase in the labor rate and literacy rate contributed positively to poverty reduction achievements. Finally, population growth was also one of the reasons hindering Vietnam's successful poverty reduction process.

Practical implications – Accelerating the process of economic restructuring in the direction of increasing the proportion of the industry is accompanied by more attention to agricultural development than the service sector. Employment creation policies should be promoted. Maintaining population control by educating poverty reduction awareness for the poor will have a positive effect on long-term poverty reduction.

Originality/value – Research on the growth structure by sector affecting poverty reduction in Vietnam is still relatively limited. The study of relationships in the context of endogenous existence is still quite limited in Vietnam. Therefore, this paper has focused on the question of sectoral economic growth affects poverty in the interrelation among sectors in the process of economic development.

Keywords Poverty, Vietnam, Economic sectors, Endogenous, Sectoral composition of growth

Paper type Research paper

1. Introduction

The relationship between economic growth and poverty reduction has been virtually admitted by a number of studies in the literature. However, it is also evident that there is a sizeable difference in the impacts of a given rate of growth on poverty. Therefore, it is not easy to come to the conclusion that the sectoral composition of growth affects poverty reduction through economic development. The answer to this problem was found to be different from one country to another. From the different findings discovered in various countries, many incomprehensible questions as to which pattern of economic growth has the biggest impact on poverty reduction have arisen in developing countries.

One of the Millennium Development Goals to 2015 as well as Sustainable Development Goals to 2030 proposed by United Nations Development Program is that poverty reduction has been the most prominent target for all countries over the world, especially for developing

countries. Vietnam, one of the developing countries in the world, has experienced a high economic growth with a huge reduction in the incidence of extreme poverty since the economic renovation started in the mid-1980s. A question raised is that whether the pattern of Vietnam's growth matters for poverty reduction. Debate on how Vietnam deals with this question will affect the willingness of policy makers to pursue more rapid economic growth and poverty elimination in the future. This paper attempts to find the answer to the central question: "Does the sectoral composition of growth affect poverty reduction independent of the aggregate rate of growth in Vietnam?" In addition, we also try to answer the following sub-question: "Which is the sector having the most impact on poverty reduction in Vietnam?"

This paper is organized as follows. Section 2 reviews the various existing literature on the link between the pattern of economic growth and poverty. Section 3 presents an empirical model and data used to test the impact of sectoral composition of growth on poverty reduction. The empirical results and discussion are presented in Section 4, and Section 5 provides concluding remarks.

2. Literature review

The close relationship between poverty and sectoral economic growth has been studied and confirmed in numerous theoretical and empirical studies. The first theory of a dual-sector model (Lewis, 1954) shows that national prosperity is achieved when structure of economic sectors tend to increase industry sector. Similarly, Kuznets' (1955) model argues that poverty and inequality will increase in the first phase of economic development when industry sector increases, and, in the later period, poverty as well as inequality will be improved with slowdown economic growth of the industry sector. Living standard of the poor will be sanitated. On the contrary, some theories argue that shifting the growth structure toward the trend of promoting the agricultural sector will lead to better poverty reduction from an early stage for developing countries (Oshima, 1993). Supporting this view, a number of theoretical studies also provide some convincing evidence that for poor countries, the process of economic growth should move in the direction of increasing the proportion of agriculture (Mellor, 1979). Different from the two-sector model, the theory of Fourastie (1949) introduces a three-sector economy. From the author's perspective, the trend of shifting to services is positive and will have an impact on increasing quality of life, social security, education and culture, and reducing poverty.

Despite the convinced theory of closely relationship between sectoral economic growth and poverty, empirical literature suggests that there is considerable heterogeneity in the relationship across space and over time. In different countries, the elasticity of economic growth and poverty may vary. Besley and Burgess (2003) show that in different regions, poverty reduction will respond variously to economic growth. In details, the elasticity of poverty to economic growth ranges from −0.49 for sub-Saharan Africa to −1.14 for Eastern Europe and Central Asia. Or, one empirical research on India, Datt et al. (2016) affirms that poverty reduction might be improved more effectively in post-reform period than before. In terms of the structure of economic growth by sector, empirical studies lead to the conclusions for the three outcome branches as follows: agricultural growth leads to rapid poverty reduction; industrial growth promotes poverty reduction; or the largest service will have the most positive impact on poverty reduction.

Advocates of the agriculture-first view, Loayza and Raddatz (2006) explain how poverty responds to changes in the economic structure of growth and prove that agriculture is the most important sector to reduce poverty, followed by the manufacturing and service sector seems not to help the poor to improve their lives. Besides, many studies have found that growth in the agricultural sector is effective at reducing poverty through direct and indirect channels (Bezemer and Headey, 2008; de Janvry and Sadoulet, 2010; Dercon, 2009; Christiaensen et al., 2010a). The responsiveness of poverty to agricultural growth, however,

has been found to diminish with development (Ravallion and Datt, 2002; Ferreira *et al.*, 2010; Christiaensen *et al.*, 2010a).

Apart from the agriculture-first view, many researchers provided opposite ideas. Results attained from Taiwan by Warr and Wang (1999) proved that the growth of the industry was always strongly associated with poverty reduction, despite the fact that Taiwan was in the first or the second developing period as defined by Kuznets' curve. However, the research of Warr (1999) on sectoral growth and poverty reduction in Southeast Asia provides an opposing case against the industry-first view. In his paper for Southeast Asian countries including Thailand, Indonesia, Malaysia and the Philippines over the period 1990–1999, while poverty reduction is highly related to the growth of agriculture and services, there is no significant connection between poverty and industry growth.

In contrast to Southeast Asia, in the context of India, Ravallion and Datt (1999, 2002) showed that rural economic growth has more impact on poverty than urban economic growth, and growth in the service sector has more impact than the agricultural sector. This may come from the fact that services increased demand for labor in poor areas, especially unskilled labor and low-skill workers. The view that service sector growth will have the greatest impact on poverty reduction is given in Suryahadi *et al.* (2008). The first conclusion is that the growth of agriculture and services is a core element of poverty reduction in rural areas. They also prove that the industrial sector had a relative minor impact on poverty reduction in rural areas.

In addition to the structure of economic growth by sector, there are many other factors that affect the poverty reduction of each region. The most typical factor is the productivity of workers (Aziaradis and Starchurski, 2005). In addition, the appropriate allocation of land resources facilitates economic growth and poverty reduction (Besley and Burgess, 2000). Especially, this resource is essential for poor and ethnic minority poor households in remote areas. The rate of extreme poor and ethnic minority poor households when expanding their agricultural land for production is very low (Walle and Gunewardena, 2001). The economic model and perspectives on the poor that each country is pursuing have a great impact on poverty reduction achievements (Ngo and Nguyen, 2017). The concretization of this is how the social and economic policies that support the poor and how they are implemented will in fact determine the outcomes of poverty reduction, not just in the short term, but also for long-term sustainability. Finally, the profound achievement of poverty reduction must come from the efforts of the poor themselves, stemming from that country's awareness and intellectual level. If a deeper awareness of poverty reduction is needed, the poor will have a great incentive to escape poverty. Conversely, the process of poverty reduction will be difficult and unsustainable (Ngo and Nguyen, 2017). However, these factors in the process of affecting poverty do not exist independently. These factors interact with each other so that studies assessing the impact of factors on poverty reduction often encounter endogenous problems. In particular, the urbanization process is the result of the restructuring of industry and labor. At the same time, the urbanization process has a great impact on the structure of the industry as well as the achievement of poverty reduction in the country (Bairoch and Goertz, 1985; Muhammad and Ishfaq, 2011).

Apart from these above studies about poverty reduction and growth, there have been many studies on economic growth and poverty reduction in Vietnam. Balisacan *et al.* (2003) affirm that the growth process that occurred in Vietnam had a strong pro-poor bias and economic reforms could reinforce both growth and poverty reduction in the long run.

Nguyen *et al.* (1996) released a paper for the Chronic Poverty Report in 2008–2009. This paper analyzes the impact of the labor market, commodities, and financial and housing markets on the poor, including chronically poor people. This study is particularly interested in the role of agricultural growth to help the poor move out of poverty and prevent the non-poor from falling into poverty. They conclude that while agricultural growth has proven to

be an important factor in increasing the opportunities of rural households and reducing poverty, effective policies to maintain stable growth and high farm incomes are central to maintaining rapid poverty reduction.

Another study of the link between economic growth and poverty elimination is the research of Le (2008). He concludes that there is a negative association between the poverty rate and subsequent gross domestic product (GDP) growth rate, and no empirical evidence of the relation between inequality and the growth rate of GDP. Additionally, he shows that a higher initial poverty level could result in greater inequality in the future.

Dewbre and Cervantes-Godoy (2010) also provide research on the role of the agricultural sector to reduce poverty in four poor countries, including Vietnam. In their study, the authors point out the fundamental reasons that agriculture is important for the group of poor people in developing countries. Agriculture is seen as a fundamental factor to promote economic development in breadth, stabilize food prices and generate income for the poor. By comparing changes in agricultural sector indices and indicators of poverty, Vietnam is recognized as a country where the growth rate of the agriculture sector has contributed greatly to improving the lives of the poorest groups in society.

Le and Pham (2012) also estimate the impacts of sectoral compositions of growth on poverty reduction in Vietnam during the period 1998–2008. This research concludes that increase in the proportion of the agricultural sector will lead to a higher poverty rate and that economic growth has a positive impact on poverty reduction in Vietnam. However, these results are estimated following the hypothesis of non-endogeneity among variables. Additionally, this research focuses on impacts of each sector on poverty reduction, which leads to the lack of many other economic factors.

3. Methodology and data
3.1 Methodology
The basic objective in this research is to assess the impact of the growth structure by sector and other economic factors on poverty reduction. Inheriting from the studies mentioned above, the factors selected outside the structural economic growth, including: general economic growth rate, urbanization rate, working labor rate, literacy rate, population growth rate. Due to the theoretical and empirical studies which have shown the endogenous status among the impact factors, it is evident that the urbanization rate which depends on the growth of industrial and service sectors will tend to attract workers, and depends on the ability to create jobs in the agricultural sector (through by proportion of agricultural land used), and population size. Hence, the impact of sectoral composition of economic growth on poverty will be estimated as following equation:

$$\mathrm{LnPOV}_{it} = a_0 + \sum_{j=1}^{3} aj \ln Sijt + a_4 \ln \mathrm{gGDP}_{it} + a_5 \ln \mathrm{Urb}_{it}$$

$$+ a_5 \ln \mathrm{Lwk}_{it} + a_5 \ln \mathrm{Lit}_{it} + a_5 \ln \mathrm{gPop}_{it} + u_{it}. \tag{1}$$

In constraint with the equation as follows:

$$\mathrm{LnUrb}_{it} = b_0 + b_1 \ln S_{1it} + b_2 \ln S_{2it} + b_3 \ln \mathrm{Pop}_{it} + b_4 \ln \mathrm{TL}_{it} + v_{it}, \tag{2}$$

where i represents the province and t is the year. POV is the provincial poverty rate. Poverty rate is defined as the proportion of people living below the poverty line and poverty rate can be calculated by income of each province. S_j is the share of agriculture, industry and service sectors in each province when j has the value of 1, 2 and 3, respectively. S_{ijt} is measured by (Y_{ijt}/Y_{it}), of which Y_{ijt} is output value per capita of sector j in province i in year t. Y_{it} is total output per capita of province i in year t. gGDP is the growth rate of GDP of each province.

Urb is the provincial urbanization rate. Urb is measured by the ratio of number of labor forces in urban to rural areas of each province. Lwk is the provincial working labor rate. Lwk is measures by the ratio of number of working labor to total labor force of each province. Lit is the provincial literacy rate. Lit is measured by the ratio of number of literate to total population of each province. gPop is the growth rate of the provincial population. TL is the provincial agricultural land rate. TL is measured by the ratio of agricultural land to total land in agriculture sector of each province. TL is considered as instrumental variable for system of Equations (1) and (2).

According to many theoretical and empirical studies, the problem is that endogeneity may occur with variable Urb_{it}. Urb_{it} is correlated with the error term u_{it}, that is, $corr(Urb_{it}, u_{it}) \neq 0$. If we use simple OLS in Equation (1), the estimated coefficient will be biased and inconsistent. This situation occurs when there are unobserved factors influencing both program participation (Urb_{it}) and the outcome (POV_{it}). Because of endogeneity in the model, we will use the method of 2-Stage Least Squares to deal with this issue. This technique is the extension of the OLS method. It is used when the dependent variable's error terms are correlated with the independent variables.

In this case, we say that Urb_{it} is endogenous. Then, the solution is applied as follows.

Step 1: specify a model for Urb_{it}. According to the previous theory and empirical studies, a model can be built as Equation (2). We run Equation (2) using OLS, obtain the estimated coefficients and generate predicted program participation.

Step 2: substitute estimated Urb_{it} in the main Equation (1).

Step 3: test for endogenous variable and instrumental variables.

3.2 Data

Poverty rates (POV), growth rate of GDP (gGDP), proportions of agriculture, industry and service (S_{ijt}), literacy rate (Lit), agricultural land rate (TL) and the population (Pop) are obtained and calculated from Statistical Yearbook of Vietnam, which is published yearly by the General Statistics Office of Vietnam (GSO).

Urbanization rate (Urb), the rate of working labor (Lwk) are obtained from yearly Labor Force Survey. These surveys are launched yearly by the GSO with techniques support from International Labor Organization (Table I).

4. Empirical results and discussions

4.1 Empirical results

Table II provides the results of estimating Equations (1) and (2) with the sample of 63 provinces of Vietnam.

In Table II, some noticeable points should be considered.

Variable	Obs	Mean	SD	Min.	Max.
POV	435	13.82302	10.18113	0	50.8
S_1	436	0.3401519	1.611945	0.0099	31.30879
S_2	436	0.4296361	1.162698	0.13	22.67303
S_3	436	0.5094175	2.361948	0.1340626	46.01817
gGDP	436	13.63119	55.26124	−97.97011	1,041.235
Urb	431	26.81908	16.31604	9.657281	87.28212
Lwk	441	58.65847	3.908916	47.3	71.3
Lit	434	92.87285	6.498919	59.2	98.7
Pop	441	1,417.346	1,224.02	296.6	8,146.3
TL	434	0.4498896	0.286059	0.14896	1.498909

Source: Authors' calculations

Explanatory variables	2SLS	SE
Urb	−2.6***	(0.35)
GDP	0.16	(0.084)
Agri	−0.33**	(0.014)
Indus	−0.34***	(0.012)
Ser	0.89***	(0.021)
Lwk	−7.6***	(1.5)
Lit	−2.3***	(0.68)
Pop	0.74***	(0.109)
Cons	52***	(75)

Testing of endogeneity
H_0: variables are exogenous
Durbin (score) $\chi^2(1) = 67.6235$ ($p = 0.0000$)
Wu–Hausman $F(1,349) = 80.9969$ ($p = 0.0000$)

Testing of instrumental variables Urb
$R^2 = 0.6623$, adjusted $R^2 = 0.6546$, partial $R^2 = 0.1728$
$F(1,350) = 73.1197$, Prob. $= 0.0000$

Notes: The dependent variable is the poverty rate. Standard errors are in parentheses. *,**,***Significant at 10, 5 and 1 percent levels, respectively

The share of the industry and agriculture sectors is negatively correlated with the incidence of poverty in Vietnam in the period of 2010–2016. On the contrary, the service sector increases in proportion, which leading to an increase in the incidence of poverty. More specifically, for each 1 percentage point increase in the structure of industry and agriculture, the poverty reduction rate will be 0.34 and 0.33 percentage points, respectively. With the opposite trend, each 1 percentage point increase in the service sector rate causes the poverty rate to increase by about 0.89 percentage points.

Apart from sectoral composition of economic growth, it is noteworthy that the overall growth of the economy during this period no longer meant poverty reduction.

Among other factors considered in the model, the urbanization rate, the proportion of working labors and the increase in literacy rates have a positive impact on poverty reduction goals. Population size is still one of the factors contributing to rapid increase in poverty.

4.2 Discussion

According to testing results, the increasing proportion of agriculture and industry will have a positive impact on poverty reduction, while the growth of the service proportion tends to increase the poverty status. An increase of 1 percentage point in agriculture can reduce poverty by 0.33 percentage points. Similarly, an increase of 1 percentage point in industry can reduce poverty by about 0.34 percentage points. This conclusion is similar to some other studies on poverty in developing countries such as China and Indonesia (Montavol and Ravallion, 2009; Suryahadi *et al.*, 2008; Warr, 2009). This can be seen quite clearly in reality when Vietnam is pursuing the goal of industrialization, while the growth and development of the industry will affect poverty reduction. On the other hand, the majority of the poor are in informal rural and urban areas. This has led to the fact that the agricultural sector still has a prominent role in poverty reduction. This role of poverty reduction is also acknowledged in many studies on Vietnam. In contrast, service sector has an adverse effect on the goal of poverty reduction. In fact, the majority of the poor in the service sector are informal labor force. Therefore, the values generated in the informal sector are not recorded

so they are not quantified in the model. At the same time, it is very difficult for the poor to participate in the formal service sector because it requires skilled and trained labor. It can be said that the formal service sector does not play a positive role in improving the lives of poor households.

An interesting fact in this study is that general economic growth no longer affects poverty in the period of 2010–2016. This conclusion is quite different for some recent studies on Vietnam. However, my view is that for the period of 2010–2016, the achievement of the poverty reduction process over a long period of time of the government has brought about critical results. Poverty based on expenditure or income will not be significantly improved through traditional government solutions as before. Poor households that exist or fall back into poverty are mainly poor households in mountainous and remote areas or those households that are completely unaware of their goal of escaping from poverty. Therefore, for the poverty reduction strategy for the period 2010–2016, if the government does not make breakthroughs in poverty reduction policies and methods, the poverty reduction process will not be effective anymore. Factors that previously could contribute a lot in the role of poverty reduction have gradually reduced their impact. Perhaps, the most useful factor should be the improvement in the awareness of escaping from poverty of poor households. Therefore, economic growth in general will gradually lose its impact on poverty and high growth does not mean that poor households will enjoy more benefits.

Among the other factors, the proportion of labor is the biggest factor affecting poverty. Each 1 percentage point increase in this rate causes poverty reduction by about 7.6 percentage points. Clearly, employment expansion in Vietnam still seems to be the main trend of job creation for unskilled labor. Increasing employment opportunities remains one of the most important factors for poverty reduction in Vietnam.

After the labor rate, the urbanization rate is the second most important factor for rapid poverty reduction. Rapid urbanization, in the context of agricultural growth, shows that the contribution of labor factors in agricultural growth is declining relatively. Poverty reduction effectiveness is higher if the poor in the agricultural sector migrate and find jobs in urban areas. This result also reflects the positive effect of labor migration from agriculture to industry sector in the current industrialization trend of Vietnam. An increase of 1 percentage point in urbanization will reduce poverty by about 2.6 percentage points.

Finally, a 1 percentage point increase in population would cause the poverty rate to increase by about 0.74 percentage points. Meanwhile, an increase in literacy rate by one percentage point will reduce the poverty rate by about 2.3 percentage points. It seems that from 2010 to 2016, the issue of population growth still aggravates poverty in Vietnam. However, focusing on education could significantly improve poverty. The impact of literacy on poverty is quite large. This makes sense in the current context of poverty in Vietnam, when poor households are left behind or fall back into poverty which are not conscious of escaping from poverty. In the long term, education on individual awareness and social responsibility for poor households may be one of the core issues in poverty reduction in Vietnam.

5. Conclusions

Through empirical analysis in the previous section, we can draw the following conclusions about the relationship between the sectoral composition of growth and poverty reduction in Vietnam.

First, economic structure change with an increase in the share of the industry sector has a positive impact on poverty reduction. Agricultural development is a good indicator for poverty reduction than the service sector. Therefore, it is necessary to focus on improving the efficiency of the agricultural sector compared to the service sector.

Second, focusing on employment expansion will have a significant impact on poverty reduction. Basically, the growth model of Vietnam still has many features of the growth model in width, so employment is still the most effective direct solution to poverty reduction.

Third, the process of restructuring from agriculture to the industry sector should be strongly encouraged. This will make urbanization faster. In the context of rapid industrialization in the agricultural sector, increasing urbanization will effectively reduce poverty.

The final solution, in parallel with continuing to control the population growth rate well, is to set education goals as a top priority for the poor in order to raise individual's sense of poverty reduction. It can be said that this is the most effective solution in the long term for poverty reduction goals in Vietnam.

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