Economics Bulletin

Volume 37, Issue 4

Sectoral Employment and Poverty in Rural Vietnam in 2000s

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Abstract

This paper uses Vietnam Households Living Standards Surveys of 2002, 2004, 2006 and 2008 and utilize a linear probability model with household fixed-effects to examine the impact of sectoral employment on rural poverty. The result shows that non-farm employment play a vital role in poverty reduction in rural Vietnam. The number of household members self-employing has a significant impact on poverty reduction. Employment in domestic private enterprises also contributes significantly to poverty reduction. Finally, change in rice price only helped to reduce poverty in 2006-08 when rice price increased significantly due to the global food crisis of 2008.

This research is supported by Vietnamese Government' Science & Technology Program coded KHCN-TN/16-20
Citation: Trung Xuan Hoang and Quang Nhat Bui, (2017) "Sectoral Employment and Poverty in Rural Vietnam in 2000s", *Economics Bulletin*, Volume 37, Issue 4, pages 2458-2465
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Submitted: February 20, 2017. **Published:** October 26, 2017.

1. Introduction

The process of economic reform started in the late 1980s and shifted Vietnam from a centrally planned to a market economy. It led to a period of high economic growth, which was the primary engine of poverty reduction in 1990s. Vietnam is now often recognized as one of the successful countries that sustain high economic growth and reduce poverty. Before implementing economic reform in 1986, Vietnam's economy was dominated by state-owned enterprises. Since the introduction of economic reform, private sector development has been an important element in the government's economic policy. The Law on Foreign Investment initiated in 1987 allowed foreigners to invest in Vietnam. This resulted in a surge of the first wave of foreign direct investments into Vietnam. The issuance of Corporate Law and Private Enterprise Law in 1990 paved the way and laid down a major legal framework for private sector development. As a result, number of registered companies increased rapidly, from less than 5000 registered companies in 1992 to more than 40,000 in 1999 (Schaumburg-Müller, 2005). The right to do business was officially recognized in the Enterprise Law in 2000, this increased significantly the number of private enterprise registrations, from 14,457 in 2000 to around 36,000 in 2004 (Hakkala & Kokko, 2007).

Those factors allow us to investigate the impact of rural households' participation in different economic sectors, including self-employment, working for other households, for the government, for state-owned enterprises and collectives and for domestic as well as foreign private enterprises, on poverty in rural Vietnam. To document the impact of participation in different economic sectors on poverty, this study uses four Vietnam Households Living Standards Surveys of 2002, 2004, 2006 and 2008 and establishes five balanced panel datasets. We find that number of household members self-employed are negatively correlated to poverty reduction in rural Vietnam. Also, working for private domestic enterprises has negative and significant effects on poverty reduction. Finally, change in rice productivity did not lead to poverty reduction in 2000s while those factors helped reduce poverty in 1990s and change in rice price only helped rural household to move out of poverty in 2006-08 because of an increase in rice price caused by the global food crisis of 2008.

This paper will be organized as follows: Section 2 reviews the literature. Section 3 describes the data. Section 4 provides methodology and specification of linear probability model. Section 5 analyses empirical result. Finally, section 6 draws a conclusion.

2. Literature review

Foreign direct investment (FDI) can affect poverty reduction through indirect and direct channels. The indirect impact of FDI on poverty is through economic growth. The direct impact of FDI is through its effects on employment. However, the link between FDI and poverty reduction is not easy to establish empirically. Tsai. P and Huang. C (2007) use time series data for Taiwan over the period 1964-2003 and find that there is not any effect of inward FDI on poverty, while outward FDI appears to harm the poor both in the long term and short term through job destruction and wage depression. Using the data at provincial level in China between 1984 and 1998 to analyse poverty impact of inward foreign direct investment by testing a growth model, Zhang. H. K (2006) indicates that inward FDI is an important factor for successful growth in China and economic growth is a powerful force for poverty reduction. This means that inward FDI is able to alleviate poverty through promoting economic growth and diffusing growth widely. Jalilian and Weiss (2002) use 147 observations including twenty-six countries: eighteen developing countries (five of which belong to ASEAN) and eight

developed ones. Their result shows that there is no direct link between FDI and poverty reduction, however, they find evidence on positive relationship between FDI and poverty reduction in the ASEAN region. Mahmoud (2010) use panel data of 62 countries over the period 1996-2007 to examine the link between FDI and poverty reduction. He finds that FDI only helps poverty reduction in countries with better financial systems and sound business environment. So, the empirical studies on the link between FDI and poverty reduction remain ambiguous. Meanwhile, the above studies use data at countries or regional level, there is no study using household surveys to examine the impact of FDI on poverty. This paper will fill in this gap through analysing participation of rural household in FDI sector on poverty.

Livingstone (2000) finds the role of household economic sector in poverty reduction in rural Vietnam. Henrik (2005) also shows that household industries have an impact on poverty reduction in rural Vietnam because it generates a lot of employment. Walle and Cratty (2004) find that some, but not all, of Vietnam's poor in rural areas may benefit from the participation in the emerging rural non-farm market economy.

Most of studies on dynamics of poverty in Vietnam use multinomial logit model (Niimi et al, 2004; Glewwe et al, 2002; Justino et al, 2008; Litchfield and Justino, 2004). There is no study on poverty using linear probability model with household fixed-effects. Therefore, this paper will use that model to control for time-invariant factors to document the dynamics of poverty. Characteristics of households which make them poor can be low endowments of human capital, difficulty in participating in high-paid sector, lack of credit to increase agricultural productivity, but those characteristics can be controlled in the regression. One important feature of this paper is its focus on rural areas because most of poor people in Vietnam live in rural areas.

3. Data

This study uses the Vietnam Household Living Standards Surveys (VHLSSs) of 2002, 2004, 2006 and 2008. These surveys were implemented by the Vietnam General Statistics Office with the technical assistance from World Bank and funded by UNDP. Poverty mostly concentrates in rural Vietnam. These surveys are nationally representative. They include two questionnaires at household and commune level. The household surveys contain detailed information on education, health, employment, housing, non-farm employment, food and non-food expenses, consumer durables and credit. The commune surveys provide information on infrastructure and institution at commune level in rural areas, there is no commune-level information in urban areas. However, information on characteristics of commune for some rural households is not available. This paper will focus on poverty in rural areas because most of poor people live in rural Vietnam.[1] Therefore, this study only looks at poverty dynamics in rural Vietnam.

Two VHLSSs 2002 and 2004 form a panel dataset covering 2908 rural households in both years. Two VHLSSs 2004 and 2006 generate a panel dataset including 3022 households which overlap in both years 2004 and 2006. There are 1367 rural household which were resurveyed in three years, 2002, 2004 and 2006. Meanwhile, two VHLSSs 2006 and 2008 create a panel dataset covering 2952 rural households in both years 2006 and 2008. There are 1,281 rural households covering in 2004, 2006 and 2008. It is noteworthy that there is no link between

[1] Note that poverty rate in urban Vietnam is very small, accounting for about 3 to 5 percent.

household surveys in 2002 and 2008. Specifically, we will use different balanced panel datasets: 2002-04-06, 2004-06-08, 2002-04, 2004-06 and 2006-08.

4. Methodology

To consider the effect of households' participation in different economic sectors on poverty, the following model will be used:

$$P_{it} = \beta_1 + \beta_2 L_{it} + \beta_2 X_{it} + T_t + \varepsilon_i + \mu_{it} \quad (1)$$

where P_{it} is equal to 1 if the household i is poor at time t and zero otherwise, β2 is our interest coefficients. L_{it} is the number of self-employed household members; the number of household members working for the other households; the number of household members working in state-owned enterprises; the number of household members working for government as civil servants; the number of household members working in collectives; the number of household members working in domestic private enterprises; the number of household members working in foreign investment enterprises.

We follow Glewe et al (2002), Litchfield and Justino (2004) to include the control variables - X_{it}. They are:

- A set of individual characteristics, including age and squared age, gender, ethnicity, occupation of household head, education of household head and spouse.
- A set of household characteristics, containing the number of adults and children in the household, household size.
- The change of rice productivity and price between two periods is, on average, calculated at commune level from household level.
- A set of characteristics at commune level, containing dummies for having car way to the commune, lower secondary school, upper secondary school, post office, market.

Although we control for time-variant factors at individual, household and commune level, there are a lot of omitted variables or unobservable factors which might affect our results. This suggests that evaluating the impact of employment participation of rural households on poverty is always challenging. It may well be that good workers or workers from better families are chosen to work for the foreign companies when an opportunity opens up. Controlling for observable characteristics does not guarantee that such selection effects can be washed away. Meanwhile, poverty of rural households might affect the ability of participating in labor market. Therefore, we use fixed-effects regressions at household level eliminate unobserved time-invariant variables (ε_i in the equation 1) which can result in endogeneity issues. It is expected that the endogeneity issue will be negligible after we control for unobserved time-invariant variables and observed factors. We also control for year fixed-effects (T_t). For the ease of interpretation, we use linear probability model for equation (1). In addition using linear probability model allows for controlling for household fixed effects, or conventional fixed effects model is employed to examine the determinants of poverty status.

5. Empirical results

Table 1 shows the estimation results for five different balanced panel datasets 2002-04-06, 2004-06-08, 2002-04, 2004-06 and 2006-08, which show that the number of self-employed household members has a negative and significant effect on poverty reduction for panel dataset 2002-04-06 and panel dataset 2002-04. This suggests that larger number of household members

self-employing reduce the probability of being poor. The number of household members working for other households is negatively and statistically significant in panel dataset 2002-04-06 and 2002-04, but the result is positively and statistically significant for poverty in panel dataset 2006-08. The number of household members working for state-owned enterprises has only a significant impact on poverty reduction for panel dataset 2004-06-08, not for 2002-04-06. Interestingly the result is only statistically significant for panel dataset 2006-08 but it is not for panel dataset 2004-06. Obviously, this can be because there was an increase in investment of state-owned enterprises by government since 2007 (Viet, 2009, pp. 404). One important point is that the number of household members working for government as a civil servant is not statistically significant for poverty reduction in any panel dataset. Clearly, most of important government offices have been located in urban areas, therefore, there was no significant increase in ratio of rural people working for a civil servant. Collective economic sector does not have impact on poverty reduction. It is only statistically significant for panel dataset 2004-06, but the significant level is very low. The number of household members working for private enterprises has a significant impact on poverty reduction for panel 2002-04 and 2004-06. This finding is in accordance with that by Henrick (2005), who shows that domestic private sector play a vital role in poverty reduction in Vietnam. While the number of household members working for foreign direct investment enterprises is not statistically significant for poverty reduction in any panel dataset. This shows that although Vietnam has attracted a lot of inflow of foreign direct investment into its economy, ratio of employment in this sector has been very small, occupying about 1.61 percent in 2008.

Sex and age of household head do not have any significant effect on poverty reduction in rural areas. Households belonging to the Kinh (the ethnic Vietnamese) or the Chinese is positively and statistically significant for panel dataset 2002-04-06, however the results are not statistically significant for any other panel datasets.

Occupational Factors

Relating to occupation of household head, the result finds that household head works in production sector is more likely to decrease poverty compared with household head working in agricultural sector in 2002-04. Meanwhile, household head who does not work more probability of falling into poverty than ones working in agricultural sector in 2004-06.

Education

Relating to education variables, the reference group is one without education. Households with better-educated spouse have more probability of exiting poverty in panel dataset 2002-04, 2002-04-06. However, there is no statistically significant effect of education of household head on poverty reduction.

Household Characteristics

Households with small size are more likely to reduce poverty for panel dataset 2002-04-06, 2002-04 and 2004-06, the result is highly statistically significant at 1 percent level. In contrast there is no statistically significant impact of number of adults on poverty. Households with children under age 3 have more probability of falling into poverty in panel dataset 2002-04-06 and 2004-06. Households with children under age 6 are also more likely to move into poverty in panel dataset 2002-04-06 and 2002-04. This finding suggests that dependent members of rural households may prevent their parents to participate in labor market to increase their income because they have to spend their time on caring their children.

Rice

Rice is an exporting product of Vietnam and plays an important role in agricultural production. Change in rice productivity has a significant impact on poverty reduction in panel dataset 2002-04-06, however change in rice productivity increases poverty in panel dataset 2006-08. We find that change in rice price has highly significant effect on poverty reduction in panel dataset 2004-06-08 and 2006-08. The global food crisis of 2008 dramatically pushed the food prices up. The VHLSS 2008 also shows that the real price of rice at household level increased by 28% between 2006 and 2008, in particular the real price of rice was 2.09 thousand VND/kg in 2006 and 2.68 thousand VND/kg in 2008. This is the reason why we can observe the significant effect of rice price on poverty reduction in the panel dataset 2006-08.

Characteristics of commune

Estimation result shows that having a lower school at commune level increases the likelihood of exiting poverty in 2004-06-08 and 2006-08. However, having factories/traditional businesses is positively significant for poverty in panel dataset 2006-08, the result is similar for having a market in panel dataset 2004-06.

6. Conclusion

This paper uses Vietnam Households Living standards Surveys covering almost of the whole 2000s: 2002, 2004, 2006 and 2008 to analyse poverty reduction in rural areas. We construct five balanced panel datasets including 2002-04-06, 2004-06-08, 2002-04, 2004-06 and 2006-08. We employ the linear probability model and use fixed-effects at household level to control for time-invariant factors. We analyse the impact of rural members' participation in different economic sector on poverty reduction. The findings show that number of household members self-employing is negatively correlated to poverty reduction in rural areas. Working for other households also contributes significantly to poverty reduction. The number of household member working for state-owned enterprises is statistically significant for poverty reduction in the second period of 2000s because there was an increase in government investment for state-owned enterprises. Employment in private companies has also played an important role in poverty reduction in rural areas. Although Vietnam has attracted a lot of inflow of foreign direct investment, employment in this sector has no significant impact on poverty reduction in the period 2002-08, this is because the share of employment in foreign direct investment sector is very small in Vietnamese economy.

The findings of this paper offer several important policy implications. First, poverty is a persistent phenomenon. It means that rural households living in disadvantaged regions, especially in mountainous regions, are more difficult to move out of poverty compared with those living in advantaged regions. Therefore, the government should support poor households in helping them moving out of poverty such as: credit support, agricultural tax reductions. Second, working in non-agricultural economy plays an important role in poverty reduction. This suggests that the government need to create a favourable business environment through simplification of administrative procedures, invest more in infrastructure in disadvantaged regions. Third, our important finding is that change in rice price and productivity does not contribute much to poverty reduction in 2000s while it helped reduce poverty significantly in 1990s ((Glewwe et al, 2002; Justino et al, 2008). According to the Government's Resolution on National Food Security, 3.8 million hectares of agricultural land must be reserved for rice cultivation by 2020 (GOV, 2009). This policy should be reconsidered to allow rice producers

to diversify into other crops in order to increase their agricultural income because rice cultivation would not help farmers to exit poverty anymore in the future.

Table 1: Linear probability model of poverty in rural Vietnam 2002-2008

VARIABLES	Panel dataset 2002-04-06	Panel dataset 2004-06-08	Panel dataset 2002-04	Panel dataset 2004-06	Panel dataset 2006-08
	(1)	(2)	(3)	(4)	(5)
Number of household members self-employing	-0.021**	-0.010	-0.016*	-0.001	0.013
	(0.009)	(0.015)	(0.009)	(0.009)	(0.017)
Number of household members working for other household	-0.054***	0.003	-0.031**	-0.018	0.072***
	(0.014)	(0.020)	(0.014)	(0.013)	(0.022)
Number of household members working in state-owned enterprises	-0.017	-0.122***	0.022	-0.032	-0.096***
	(0.021)	(0.033)	(0.018)	(0.026)	(0.034)
Number of household members working for government as civil servant	0.002	0.026	0.005	-0.023	-0.025
	(0.028)	(0.043)	(0.030)	(0.030)	(0.052)
Number of household members working in collective economic sector	-0.040	-0.018	0.004	-0.092*	0.017
	(0.069)	(0.068)	(0.059)	(0.054)	(0.072)
Number of household members working for private enterprises	-0.040	-0.020	-0.046*	-0.045**	0.001
	(0.024)	(0.032)	(0.025)	(0.020)	(0.036)
Number of household members working in foreign investment enterprises	-0.028	0.003	0.020	-0.026	0.048
	(0.039)	(0.051)	(0.051)	(0.033)	(0.056)
Sex of household head	0.061	0.050	0.013	0.033	0.067
	(0.048)	(0.065)	(0.051)	(0.042)	(0.084)
Age of household head	-0.009	-0.007	-0.004	0.003	-0.007
	(0.008)	(0.010)	(0.009)	(0.007)	(0.014)
Age of household head-squared	0.000	0.000	0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ethnicity of household head	0.246***	-0.064	0.058	0.039	-0.043
	(0.073)	(0.123)	(0.072)	(0.069)	(0.142)
Occupation of household head (agricultural job as reference group)					
White-collar	-0.016	0.023	0.009	-0.019	0.083
	(0.031)	(0.045)	(0.033)	(0.029)	(0.051)
Sales	-0.021	0.010	-0.051	-0.011	0.025
	(0.031)	(0.044)	(0.032)	(0.027)	(0.051)
Production	-0.017	0.043	-0.067***	-0.016	0.057
	(0.025)	(0.037)	(0.025)	(0.023)	(0.039)
Other/no work	0.007	-0.047	-0.015	0.061**	-0.022
	(0.032)	(0.045)	(0.030)	(0.028)	(0.051)
Education of household head (no education as reference group)					
Vocational education	0.008	0.002	-0.040	0.035	-0.018
	(0.046)	(0.062)	(0.044)	(0.039)	(0.069)
Upper-school education	0.068	-0.041	0.011	0.030	-0.103
	(0.050)	(0.075)	(0.047)	(0.047)	(0.083)
Lower-school education	0.011	0.019	0.024	0.000	-0.026
	(0.034)	(0.052)	(0.032)	(0.032)	(0.054)
Primary school education	0.037	0.049	-0.004	0.036	-0.024

	(0.026)	(0.038)	(0.024)	(0.023)	(0.041)
Education of spouse of household head (no education as reference group)					
Vocational education	-0.053	0.032	-0.071	-0.028	0.070
	(0.058)	(0.074)	(0.059)	(0.051)	(0.087)
Upper-school education	-0.064	0.086	-0.109*	-0.027	0.071
	(0.059)	(0.087)	(0.060)	(0.053)	(0.094)
Lower-school education	-0.058*	-0.002	-0.062*	0.043	0.001
	(0.033)	(0.051)	(0.034)	(0.032)	(0.057)
Primary school education	-0.017	-0.024	-0.029	-0.020	0.031
	(0.025)	(0.042)	(0.024)	(0.024)	(0.046)
Household size	0.053***	-0.004	0.049***	0.041***	-0.025
	(0.010)	(0.014)	(0.011)	(0.010)	(0.017)
Number of household member with age between 45 and 55	0.011	0.013	-0.002	0.014	0.010
	(0.018)	(0.024)	(0.024)	(0.016)	(0.031)
Number of household member with age over 55	0.069*	0.077	-0.008	0.027	0.060
	(0.038)	(0.054)	(0.044)	(0.036)	(0.064)
Number of household member with age under 3	0.059***	0.036	0.030	0.038**	0.015
	(0.023)	(0.030)	(0.022)	(0.019)	(0.034)
Number of household member with age under 6	0.043**	0.041	0.057***	0.027	0.031
	(0.019)	(0.026)	(0.019)	(0.017)	(0.031)
Number of female household member with age over 55	-0.036	-0.044	0.051	-0.010	-0.041
	(0.048)	(0.066)	(0.053)	(0.042)	(0.082)
Number of male household member with age over 60	-0.045	0.083	-0.003	0.064	-0.102
	(0.041)	(0.057)	(0.045)	(0.042)	(0.068)
Characteristics of commune					
Having factories/traditional businesses	0.025	-0.002	-0.017	0.040	0.095**
	(0.027)	(0.041)	(0.025)	(0.026)	(0.046)
Having a car way in commune	0.010	-0.074	-0.000	-0.002	0.094
	(0.030)	(0.096)	(0.026)	(0.045)	(0.117)
Having a lower school	-0.018	-0.176***	-0.002	-0.044	-0.131**
	(0.020)	(0.050)	(0.016)	(0.028)	(0.062)
Having a upper-school	-0.015	-0.055	-0.021	0.052*	-0.010
	(0.018)	(0.046)	(0.016)	(0.028)	(0.051)
Having a post office	-0.023	-0.053	-0.008	-0.006	-0.044
	(0.023)	(0.033)	(0.021)	(0.019)	(0.043)
Having a market	0.004	0.021	-0.000	0.034**	-0.009
	(0.016)	(0.028)	(0.014)	(0.016)	(0.035)
Change in rice productivity	-0.020*	-0.014	0.006	-0.014	0.035**
	(0.011)	(0.014)	(0.010)	(0.010)	(0.015)
Change in rice price	0.024	-0.064***	-0.024	0.016	-0.103***
	(0.025)	(0.014)	(0.027)	(0.022)	(0.013)
Household fixed-effects	Yes	Yes	Yes	Yes	Yes
Year fixed-effects	Yes	Yes	Yes	Yes	Yes
Observations	4,101	3,843	5,816	6,044	5,904
Number of groups	1,367	1,281	2,908	3,022	2,952
R-squared	0.113	0.467	0.079	0.064	0.481

Notes: * Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level. Standard errors in parentheses.

Source: Authors' calculation based on the Vietnam Households Living Standards Surveys 2002-04-06-08

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