ISSN 2477-0531

THE DETERMINANTS OF POVERTY IN THE MEKONG RIVER DELTA KEY ECONOMIC ZONE IN VIETNAM

Le Thanh Ngoc[1]* and Pham Thi Thuy Diem[1]

[1]Banking University of Ho Chi Minh City, 36 Ton Dam Street, Ho Chi Minh City,Vietnam

[*]Corresponding Author: *ethanhngoc@yahoo.com*

ABSTRACT

This paper investigates the determinants of poverty in Mekong River Delta Key Economic Zone in Vietnam for a sample of 604 households in Can Tho province, An Giang province, KienGiang province and Ca Mau province in 2012. Explanatory variables include demographic, nature, region, finance and physical. Using Binary Logistics regression, results show the complexity of the issues, wherein the financial variable has been the most important influence of poverty in this area.

Keywords: *Poverty, Mekong River Delta Key Economic Zone, Sustainable rural livelihoods.*

INTRODUCTION

Mekong River Delta Key Economic Zone includes Can Tho city, Ca Mau province, An Giang and KienGiang provinces with the total area of 16,600 km^2 and the population of about 6.2 million people (GSO, 2009). Mekong River Delta Key Economic Zone is acknowledged as the motivate development region of Mekong River Delta. One of the highlights of this Key Economic Zone is the low percentage of poor households. According to the authors' statistics based on data of Households' Living Standards Survey in 2012 by the General Department of Statistics, the poverty rates classified by the local government of Can Tho, Ca Mau, An Giang and KienGiang provinces are 10.87%, 10.14%, 7.53% and 6.79% respectively, while the Mekong River is 18.7%. Although the poverty rate of research areas is low compared to the country in general and the region in particular, the poverty reduction trend is still the major problem to be concerned of the Mekong River Delta Key Economic Zone. Besides, poverty issues study of Mekong River Delta has caught the attention of local and foreign scientists and organizations (UNDP and AUSAID, 2004; VASS, 2011). However, there has been little in-depth research and systems in questions of the factors affecting poverty in the Mekong River Delta Key Economic Zone so far. Therefore, identifying the main causes of poverty affecting it, and then suggesting some solutions to reduce sustainable poverty for the Mekong River Delta Key Economic Zone, has the scientific and practical significance to policy-makers of the research.

There are many interpretations and different definitions of poverty. According to UNESCO, poverty is defined in either relative or absolute terms. "Absolute poverty measures poverty in relation to the amount of money necessary to meet basic needs such as food, clothing, and shelter" and "Relative poverty defines poverty in relation to the economic status of other members of the society: people are poor if they fall below prevailing standards of living in a given societal context". Anand and Sen (1997), poverty is not only the shortage of basic needs of human beings, but also lacks of acceptable living opportunity. According to the UN Declaration, June of 2008: "Poverty is the lack of capacity to join the social activities effectively. Poverty means not having enough food, clothing, no education, no health care, no land to crop or no occupation to feed them, not having access to credit. Poverty also means not safe, no rights, and excluded, vulnerable to violence, to live in risky conditions, no clean water and sanitation". The differences in the definitions of poverty bring a lot of different approaches in the measurement. Accordingly, poverty can be divided into two main approaches: one-dimensional approach and multidimensional approach. One-dimensional approachaims at measuring poverty in a single indicator such as monetary poverty, poor nutrition, poor education, and income poverty.Meanwhile, multidimensional approach bases on several factors that constitute

poor people's experience of deprivation such as lack of education, disempowerment, and lack of income. Poverty is not only measured by income or expense, but also related to education, health care, housing, and food. Synthesis of multidimensional indicators reflects the living quality as the Human Development Index - HDI (Anand andSen, 1997; Jahan, 2004), Multidimensional Poverty Index - MPI (Alkire *et al*., 2011).

The study of poverty has caught the attention of many local and foreign authors. Some classic studies as Mukherjee and Benson (2003), researched the model of factors affecting poverty of Malawian households by multivariate analyzing empirical data of the General Household Survey 1997-1998. The author used the model to measure the impact of change in the basic characteristics of households as well as the policies for poverty reduction of government on people's poverty. Results showed that the level of education (especially women) and the redistribution of the workforce from agriculture to commerce and service in the economy indicate the effect of reducing poverty in Malawi. The restriction of this study is the limitation of effort in collecting information, so readers should use the models and the indicated results rather than accurate figures. De Silva (2008) described the poverty in Sri Lanka, and tested the micro-factors that affect poverty. The research based on General Sri Lanka Survey data commissioned by the World Bank in 2000.

To research the relationship between poverty and related variables, the author used the logistic regression and the quantile regression methods. The results indicate that the education of the head of household, wage income and business participation have a positive impact on household living standard. However, the high probability of being poor was positively correlated with the house scale, female-headed households, living in rural areas and unstable incomes. The limitation of the study is only one-dimensional approach to poverty. Research by Vijaya*et al*. (2014) used multidimensional approach to poverty through individual level. The authors found that both the poor males and the poor females mainly belong to the non-poor households. Those individuals would be put wrongly on the non-poor in the analysis of households. Furthermore, based on the analysis of individual level, detection also showed that women were mainly accounted compared to men in total of poor individuals, which stem from one basic reason, is the low education and the lack of property ownership. The limitation of this study is the restriction of data as well as only focuses on gender in individual level poverty research.

In Vietnam, Thang *et al*. (2011) summarized the main detections of various studies carried out in 2008-2010 with many topics such as poor behavior, poor ethnic minorities, rural poverty, inequality, and social security. The study results showed that Vietnam had made outstanding achievements in the past two decades, yet uneven and unstable especially after joined the WTO in early 2007. Because the objective of this report is to assess poverty in Vietnam, thereby the suggestion of poverty reduction research in each area has yet to be seen as well as measuring the impact factors to the poverty in Vietnam in general and specific areas in particular. UNDP and AUSAID (2004) used qualitative research method from the poverty assessments with the participation of the community (PPA) in Dong Thap and Ben Tre and quantitative research method based on the Vietnam Household Living Standard Survey data. The main objective of this report is to provide the analysis for the process of planning for the poor at both local and central levels including comprehensive poverty assessment, as the basis for the Government in planning poverty reduction; assess the types of participation in decision-making and providing services of social assistance program for rural and urban people; effectively analyze the policies, implementation mechanism and provide services to the poor in order to find out more progressive solutions. Four years later, UNDP (2008) researched some solutions for reducing poverty in the Mekong River Delta. The research results indicate the gap between the communities is extended day by day in the Mekong River Delta as well as the trend of forming poor groups with similar characteristics. Factors that are landless or few arable lands, live in rural areas, depend on unstable jobs, the Khmer ethnic group and females positively effect on people's poverty. The research also highlights that poverty reduction programs should be designed to match the specific situation of that region and the socioeconomic situation which are more and more complex. With the target of analyzing the poverty in the Mekong River Delta, the report has not modeled the factors that impact the poverty in the Mekong River Delta.

RESEARCH METHOD

This study uses the "sustainable livelihoods" theory as the foundation to determine the factors affecting poverty, since this theory is used quite commonly in developing countries (Khai and Danh, 2012).

The term "sustainable livelihoods" was first used as development concept in the early 1990. Chambers and Conway (1991) defined livelihoods as "as adequate stocks and flows of food and cash to meet basic needs. Security refers to secure ownership of, or access to, resources and income-earning activities, including reserves and assets to offset risk, ease shocks and meet contingencies. Sustainable refers to the maintenance or enhancement of resource productivity on a long-term basic. A household may be enable to gain sustainable livelihood security in many ways – through ownership of land, livestock or tree; rights to grazing, fishing, hunting or garthering; through stable employment with adequate remuneration; or through varied repertoires of activities."

The topic uses data of the Vietnam Household Living Standard Survey in 2012 (VHLSS 2012) by the General Statistics Office (GSO), which combined support from the World Bank and UNDP. To analyze the factors affecting poverty in the Mekong River Delta Key Economic Zone, topic only focused on researching qualitative and quantitative data of 624 households in Can Tho city, Ca Mau, An Giang and KienGiang provinces. Because of the limitations of the data, the inquiring variables were classified into four livelihood asset groups: (1) human resource; (2) natural resource; (3) physical resource; (4) financial resource and (5) regional variable.

This study uses the econometric approach to determine the factors affecting poverty in the Mekong River Delta Key Economic Zone. The dependent variable of poverty only has two values (0 or 1) so the regression model cannot apply the ordinary least squares (OLS) method to estimate the parameters. Therefore, maximum likelihood estimation (Maximum Likelihood) method is considered suitable for estimating the parameters. Specifically in this study, the authors used binary logistics regression. To avoid experiencing dummy variable trap problem, the number of dummy variable is always one variable less than the number of options (Gujarati, 2014).

According to Gujarati (2014), binary logistics regression equation has the general form as follows:

$$L_i = \ln\left(\frac{P_i}{1-P_i}\right) = Z_i = BX_i + u_i \tag{1.1}$$

where,

P_i = probability of outcome values from 0 to 1, logit L_i values from - ∞ to +∞. Specifically in this study is that the probabilities of being in poor (P = 1) and non-poor households (P = 0).

$\frac{P_i}{1-P_i}$ = odds coefficient, i.e. the ratio of the probabilities of poor and non-poor households.

B = parameter.

X_i = the independent variables. Specifically in this study, the variables represent human resource, natural resource, physical resource, financial resource (livelihood asset group) and household living area variable.

u_i = white noise.

Based on binary logistics regression in model 1.1, the predicted probability of poor households in Mekong River Delta Key Economic Zone was calculated as follows:

$$E(\frac{Y}{X}) = \frac{P_i}{1-P_i} = e^{BX_i} \tag{1.2}$$

$Y = 1$ probability means household is considered poor appears when independent variables Xi have specific values. Therefore:

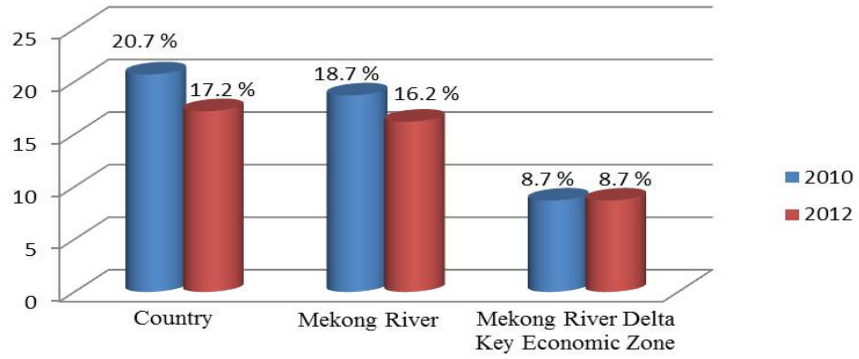
$$P = \frac{e^{BX_i}}{1+e^{BX_i}} \tag{1.3}$$

RESULTS AND DISCUSION

Descriptive statistics

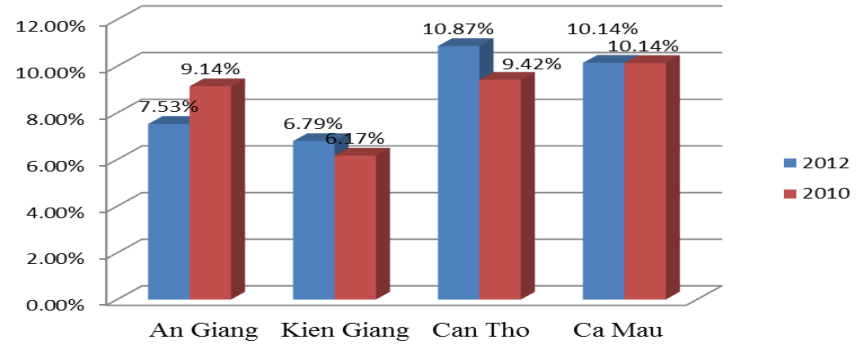
The research result of the poverty rate in the Mekong River Delta Key Economic Zone was low compared to the country in general and the region in particular (Figure 1). Specifically in 2010, the national poverty rate was 20.7%, the Mekong River Delta was 18.7% then the Mekong River Delta Key Economic Zone was 8.7%. Two years later, the national poverty rate dropped to 17.2%, the Mekong River Delta dropped to 16.2% then the Mekong River Delta Key Economic Zone still remained at 8.7%. This shows that despite the research region's poverty rate is low compared to the country in general and the Mekong River Delta in particular, but the poverty reduction trend is still the major problem, which need to be concerned of the Mekong River Delta Key Economic Zone, to turn this zone into the highlight of sustainable poverty reduction of the country and deserved to be the "key economic zone".

Figure 2 shows that the poverty rates among the provinces in the Mekong River Delta Key Economic Zone. Specifically in 2010, the poverty rates among the provinces had big differences. Among them, the highest poverty rate was in Ca Mau (10.14%) and the lowest was in KienGiang (6.17%). However, in 2012, leading of the poverty rate belonged to Can Tho province, and the lowest poverty rate continued belonging to KienGiang province. Besides that, the poverty reduction trend in those four provinces had generally increased during the 2010-2012 period. Specifically, the poverty rates of KienGiang, Can Tho in 2012 increased compared to 2010, yet this trend remained in Ca Mau and decreased in An Giang. The research results show that there are differences among the provinces on the effectiveness of poverty reduction.



Source: GSO, VHLSS 2010 and VHLSS 2012

Figure 1: The poverty rates among regions

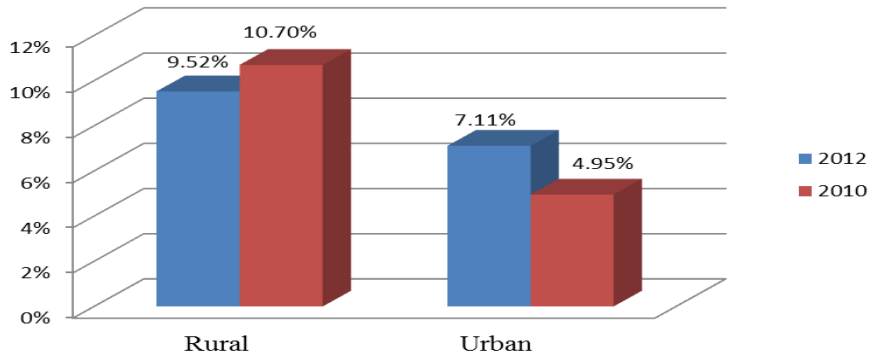


Source: VHLSS 2010, VHLSS 2012 and author's statistics

Figure 2: The poverty rates among the provinces in the Mekong River Delta Key Economic Zone

By comparing the poverty rates between urban and rural areas (Figure 3), research results also show the considerable difference between these two areas. Specifically, in 2010, rural area had the poverty rate of 10.7% then urban area only had 4.95% of households - which were classified as poor. In 2012, the poverty rate in rural area dropped to 9.52%, while urban increased up to 7.11%. This shows that sustainable poverty reduction in urban area is less effective than rural area during 2010-2012.

The statistical result shows that the Kinh, Hoa ethnics were poorer than Khmer ethnic living in the research area. The 1-2 person house scale often accounted for higher poverty rates than the other cases. These male-headed households accounted for higher poverty rate than the female-headed. Besides, head of household with higher degree, had lower poverty rate. Head of household, who was 60-and-older, had higher poverty rate than the younger groups. Head of household, whose marital status as "having spouses", had lower poverty rate than other groups. Moreover, the area of agricultural land, forestry and aquaculture water surface by households, the area of residence, and households' home values were inversely proportional to the poverty rate. Temporary housing and others had higher poverty rate than permanent and semi-permanent groups. In addition, households which did not have clean water, clean toilet were proportional to the poverty rate. The families living in the national grid area had the possibility of being poor lower than those areas without national power. In 2012, households with loans or in the preferential credit program for poor people had lower poverty rates than other groups. These features were opposite to which of 2010.



Source: VHLSS 2010, VHLSS 2012 and author's statistics

Figure 3: The poverty rates between urban and rural areas in the Mekong River Delta Key Economic Zone

The Omnibus tests of model coefficients based on chi-square test indicated significant at 0.01 level (Table 1). This implies that there was a correlation between dependent variable and independent variable in the general model. The model summary (as presented in Table 2) shows value of 0.443 for Nagelkerke' R^2, indicating that about 44% of the variation in the outcome variable is explained by the binary logistics regression model.

Table 3 gives the consequences of the classification table from research model. There in, the right predicted ratio for the whole model is 93.3%. Specifically:

- In 570 families subjecting to not poor households of Mekong River Delta Key Economic Zone, there are 566 situations in the accuracy of prediction model, which means the accurate ratio is 99.3%.
- Similarly, in 54 families subjecting to poor households of Mekong River Delta Key Economic Zone; there are 16 situations in the accuracy of prediction model, which means the accurate ratio is 29.6%.

The research results of factors affecting to the poverty in Mekong River Delta Key Economic Zone are shown in the Table 4. The Wald test result is showed by the sig value. Variables of household scale (tsnguoi), highest degree of the head of household (bangcap2, bangcap3, bangcap4, bangcap5), marital status of the head of household when he/her is a widow, divorced, separated (honnhan3), type of house (loainha2, loainha3), water (water), toilet (nhavesinh), electricity (dien), loans (vonvay), interest (laisuat), loan costs (chiphivay), rest debt (conno), house value (giatrinha), variable of area of agricultural and

Table 1. Omnibus tests of model coefficients

		Chi-square	df	Sig.
Step 1	Step	137.134	27	.000
	Block	137.134	27	.000
	Model	137.134	27	.000

Source: VHLSS 2012 and the author's statistics

Table 2. Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	230.346a	.197	.443

a Estimation terminated at iteration number 20 because maximum iterations have been reached. Final solution cannot be found.
Source: VHLSS 2012 and the author's statistics

Table 3. The accuracy of prediction model

Observed			Predicted		
			ngheoxa		Percentage Correct
			.0	1.0	
Step 1	ngheo	.0	566	4	99.3
		1.0	38	16	29.6
Overall Percentage					93.3

a The cut value is .500
Source: VHLSS 2012 and the author's statistics

Table 4: Results of binary logistics regression model

	Variable	B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	dantoc	-1.497	.544	7.586	1	.006	.224
	tsnguoi	-.032	.134	.059	1	.809	.968
	gioi	-1.327	.524	6.416	1	.011	.265
	bangcap2	.282	.393	.516	1	.473	1.326
	bangcap3	-1.681	1.112	2.283	1	.131	.186
	bangcap4	-17.323	4878.318	.000	1	.997	.000
	bangcap5	-17.266	6605.369	.000	1	.998	.000
	tuoi	.039	.014	7.719	1	.005	1.039
	honnhan2	-1.729	1.036	2.785	1	.095	.177
	honnhan3	-1.094	1.052	1.081	1	.298	.335
	dientichdat	.000	.000	6.887	1	.009	1.000
	dientichnha	-.046	.012	13.767	1	.000	.955
	loainha2	-.177	.388	.208	1	.648	.838
	loainha3	.745	1.236	.364	1	.547	2.107
	giatrinha	.000	.000	4.294	1	.038	1.000
	nuocsinhhoat	-.217	.431	.253	1	.615	.805
	nhavesinh	-.381	.437	.761	1	.383	.683
	dien	.463	.775	.358	1	.550	1.589
	tindung	2.821	1.475	3.656	1	.056	16.799
	vonvay	-.001	.001	.737	1	.391	.999
	laisuat	-1.965	1.783	1.214	1	.270	.140
	chiphivay	-6.986	454.764	.000	1	.988	.001
	conno	.001	.001	.807	1	.369	1.001
	ttnt	.095	.480	.039	1	.844	1.099
	tinh2	.275	.539	.260	1	.610	1.316
	tinh3	1.271	.572	4.936	1	.026	3.564
	tinh4	.410	.589	.484	1	.487	1.507
	Constant	1.554	1.625	.915	1	.339	4.729

a. Variable(s) entered on step 1: dantoc, tsnguoi, gioi, bangcap2, bangcap3, bangcap4, bangcap5, tuoi, honnhan2, honnhan3, dientichdat, dientichnha, loainha2, loainha3, giatrinha, nuocsinhhoat, nhavesinh, dien, tindung, vonvay, laisuat, chiphivay, conno, ttnt, tinh2, tinh3, tinh4.

Source: VHLSS 2012 and the author's statistics

forestry land and aquaculture of the household (dientichdat), variable of urban and rural area (ttnt) and between provinces (tinh2, tinh4) except Can Tho province (tinh3) have the Sig. value larger than 0.1 or the coefficient is 0. Therefore, the above variables do not have the statistical significance. The variables with statistical significan celarger than 90% and Sig. value < 0.1 include the ethnic of the head of household (dantoc), gender of the head of household (gioi), age of the head of household (tuoi), marital status of the head of household when he/she is married (honnhan2), area of the house of the head of household (dientichnha), household with loans or in the preferential credit program for poor people (tindung) and Can Tho province.

The statistics in the Table 5 implies that if other factors are unchanged, probability of household firstly subjected to poverty is 10% and the ethnic of head of household is KinhorHoa; the probability of household subjected to poverty will be 2.4%, declining 7.6% compared to the first probability of 10%. Similarly, if the head of household is a female, the probability of household subjected to poverty will be 2.9%, droping 7.1% compared to the first probability of 10%. Besides, if the head of household is 1 year older, the probability of household subjected to poverty will be 10.3%, increasing 0.3% compared to the first probability of 10%. To the marital status, if head of household is married, the probability of household subjected to poverty will be 2%, decreasing 8% compared to the first probability of 10%. Meanwhile, if area of the house is up to 1 m^2, the probability of household subjected to poverty will be 9.6%, falling 0.4% compared to the first probability of 10%. If the household has loans or is still in the preferential credit program for poor people (tindung), the probability of household subjected to poverty will be 65%, rocketing up to 55% compared to the first probability of 10%. Finally, if the household belongs to Can Tho province, the probability of household subjected to poverty will be 28%, going up to 18% compared to the first probability of 10%.

CONCLUSION AND POLICY IMPLICATION

Based on the whole date of Living Standard of Vietnamese household investigation in 2012 (VHLSS 2012) by General Statistical Organization (GSO) with the support from the World Bank and UNDP surveys, binary logistics regression method was used in order to identify the factors affecting the poverty of households living in 4 provinces of Mekong River Delta Key Economic Zone including Can Tho, An Giang, Kien Giang and Ca Mau. The results show some factors significantly affecting the poverty consisting of variable of ethnic of head of household (dantoc), gender of head of household (gioi), age of head of household (tuoi), marital status of head of household when he/she is married (honnhan2), are of the house of head of household (dientichnha), loans or preferential credit program for poor people (tindung) and Can Tho province.

Based on the research result, the author recommends some policies to reduce poverty sustainably for Mekong River Delta Key Economic Zone. Firstly, policy makers should care more about ethnic minorities (Hoa, Khmer). Secondly, the distance of gender inequality should be narrowed, the female role as the head of household should be enhanced. Thirdly, healthy and stable living standards of the households should be propagandized; multi-generational families should be encouraged. Finally, the preferential credit program needs supportingfrom the local authorities for poor people, however; the amount of loans for effective purposes also should be controlled.

REFERENCES

Alkire, S., J.M. Roche, M.E. Santos, and S.Seth. 2011. Multidimensional poverty index 2011: Brief methodological note. PovertyOxford and Human Development Initiative (OPHI), University of Oxford. Retrieved from http://www.ophi.org.uk/wp-content/uploads MPI_2011_Methodology_Note_4-11-2011_1500.pdf

Anand, S. and A. Sen. 1997. Concepts of human development and poverty: A multidimensional perspective. In: Human Development Papers 1997 (pp. 1-20). United Nations Development Programme, New York.

Chambers, R. and G. Conway. 1992. Sustainable rural livelihoods: practical concepts for the 21st century. Institute of Development Studies (UK).

De Silva, I. 2008. Micro-level determinants of poverty reduction in Sri Lanka: a multivariate approach. International Journal of Social Economics 35(3): 140-158.

Gujarati, D.N. 2014. Econometrics by example. Palgrave Macmillan.

Jahan, S. 2004. Measuring human development: evolution of the human development index.Journal of Social Studies-Dhaka:21-42.

Khai, T.T. and N.N. Danh. 2012. Interrelation between livelihood assets and poverty in rural Vietnam. Journal of Economic Development 216: 108-130.

Mukherjee, S. and T. Benson. 2003. The determinants of poverty in Malawi, 1998. World Development 31(2): 339-358.

Thang, N., N.T.T. Phuong, T.N.M. Tam, L.D.Trung and N.T.T. Hang.2011. Poverty reduction in Viet Nam: Achievements and challenges. Viet Nam Academy of Social Sciences, Hanoi.

UNDP and AUSAID. 2004. The regional poverty assessment Mekong River Region. United Nations Development Programme& Australian Agency for International Development (UNDP &AUSAID).

UNDP. 2008. Research supportive solutions for poverty reduction in Mekong River Delta area.Ministry of Labor, War Invalids and Social Affairs.and United Nations Development Programme, Hanoi.

VASS. 2011. Poverty reduction in Vietnam:Achievements and challenges. Vietnam Academy of Social Sciences (VASS), Hanoi.

Vijaya, R.M., R. Lahoti, and H. Swaminathan. 2014. Moving from the household to the individual: Multidimensional poverty analysis. World Development59: 70-81.

World Bank. 2003. Vietnam Development Report 2004: Poverty. Report No. 27130-VN. Poverty Reduction and Economic Management Unit East Asia and Pacific Region.