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Dynamics of Spatial Inequality and Poverty: Evidence from Two Decades of Surveys in Vietnam, 1993-2014

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Abstract

This paper verifies the dynamics of spatial inequality and poverty, notably for the bottom 40 percent of the population in Vietnam, during the period of 1993-2014. According to Theil T and Blinder-Oaxaca decompositions, expenditure inequalities of urban-rural and between regions were diverging from 1993 to 2004 along with the urban concentration on economic growth, but they were converging from 2004 to 2014 partly backed by the substantial increase of domestic remittances. Meanwhile, inequalities within areas and regions were continuously diverging from 1993 to 2014, which are likely to reflect the difference in main covariates. The urban-rural expenditure gap is mainly explained by years of education, job sector, and ethnic minority status of the household head, and remittances over the duration. For the determinants of poverty of the bottom 40 percent of the population, years of education, service sector job and remittances, among others, largely and positively explained the dynamics based on the quantile regression estimation results. Ethnic minorities have been still left behind from the benefits of economic growth relative to the majority Kinh–remaining space for policy intervention.

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1. Introduction

Vietnam has been one of the most successful countries in reducing absolute poverty along with promoting higher and more stable economic growth after the introduction of the *DoiMoi* reform in 1986, which aimed at liberalization and integration into the international economy. Poverty in Vietnam was 0.58 percent of the poverty headcount ratio at 1.9 international dollars a day (2011 PPP) in 2012, a monumental improvement from 49.2 percent in 1992 according to PovcalNet, World Bank. While inequality in Vietnam as measured by Gini index is in the lowest category according to World Income Inequality Database (WIID 3.3), the Gini index in Vietnam has shown upward trajectory from 35.65 in 1992 to 42.68 in 2010 from PovcalNet that cast a caution on inclusive growth in the country.

Past studies have attributed to the source of inequality across selected quantiles in the overall distribution of expenditure to the difference in economic conditions, particularly in geography, education and ethnicity, among others, in the 1990s and during the period of 1992-2006 (Nguyen et al., 2007; Fesselmeyer and Le, 2010; and Le and Booth, 2014). Nguyen et al. (2007) addressed the gap of Vietnam by applying quantile regression decomposition (Machado and Mata, 2005) to Vietnam Living Standard Survey (VLSS) 1993 and 1998. The results show that the urban-rural expenditure gap between 1993 and 1998 increased significantly. This gap is primarily due to differences in covariates of education and ethnicity status. Fesselmeyer and Le (2010) also supported the result of Nguyen et al. (2007) by employing semi-parametric decomposition method proposed by Dinardo et al. (1996). Subsequently, Le and Booth (2014) also examined urban-rural inequality in Vietnam by using additional Vietnam Household Living Standard Survey (VHLSS) up to 2006 and applied unconditional quantile regression (Firpo et al., 2009), estimating the marginal effect of explanatory variables at selected percentiles across the whole distribution, not at the mean value. Le and Booth (2014) confirmed the urban-rural inequality in Vietnam, which increased significantly after 1993, peaked in 2002, and then declined but is still relatively large as of 2006. Disparities in education continue to be the biggest factor in urban-rural inequality. However, their studies have been conducted under

the limited duration up to 2006, and with less focus on poor. To bridge these gaps, I employ Theil T and Blinder-Oaxaca decompositions for examining the overall trends of spatial inequality and the reason behind, and quantile regression to verify the determinants of poverty dynamics of the bottom 40 percent of the population in Vietnam in the past two decades, 1993-2014.

2. Methodology and data

Theil indexes satisfy desirable properties as a measure of economic inequality, notably decomposability and statistical testability[1]. They are generalized entropy (*GE*) class of economic inequality measures, which is described as following.

$$GE(\propto) = \frac{1}{\propto(\propto-1)}\frac{1}{n}\sum_{j=1}^{n}\left[1-\left(\frac{y_j}{\mu}\right)^{\propto}\right] \quad for \ \propto \neq 0,1 \tag{1}$$

$$GE(1) = \frac{1}{n}\sum_{j=1}^{n}\frac{y_j}{\mu} ln\left(\frac{y_j}{\mu}\right) \tag{2}$$

$$GE(0) = \frac{1}{n}\sum_{j=1}^{n} ln\left(\frac{\mu}{y_j}\right) \tag{3}$$

where y_i is real per capita expenditure (RPCE) of household *j,* μ is mean RPCE of all household, and *n* is the total number of households (Fields, 2001, p30; Haughton and Khandker, 2009, pp106-107). *GE (1)* is referred to as Theil T index and *GE (0)* is referred to as Theil L index or the mean log deviation index. Suppose *i* refers to a group and all the households are divided into *m* mutually exclusive and collectively exhaustive groups, *GE (1)* and *GE (0)* can be transformed into the within-group *(T_W)* and the between-group *(T_B)* inequalities, expressed as follows (Shorrocks, 1980).

$$GE(1) = \frac{1}{n}\sum_{i=1}^{m}\sum_{j=1}^{n_i}\left(\frac{y_{ij}}{\mu}\right) ln\left(\frac{y_{ij}}{\mu}\right) \tag{4}$$

$$GE(1) = \sum_{i=1}^{m}\left(\frac{n_i}{n}\frac{\mu_i}{\mu}\right) GE(1)_i + \sum_{i=1}^{m}\left(\frac{n_i}{n}\frac{\mu_i}{\mu}\right) ln\left(\frac{\mu_i}{\mu}\right) = T_{TW} + T_{TB} \tag{5}$$

$$GE(0) = \frac{1}{n}\sum_{i=1}^{m}\sum_{j=1}^{n_i} ln\left(\frac{\mu}{y_{ij}}\right) \tag{6}$$

$$GE(0) = \sum_{i=1}^{m}\left(\frac{n_i}{n}\right) GE(0)_i + \sum_{i=1}^{m}\left(\frac{n_i}{n}\right) ln\left(\frac{\mu}{\mu_i}\right) = T_{LW} + T_{LB} \tag{7}$$

1 It is expected that economic inequality index satisfies following criteria: (i) mean independence; (ii) population size independence; (iii) symmetry; (iv) Pigou-Dalton Transfer sensitivity (e.g. the expenditure transfer from rich to poor reduces measured inequality.); (v) decomposability and (vi) statistical testability (e.g. the index should be able to test the significance of change over time by using the method such as bootstrap that enables to generate confidence intervals (Haughton and Khandker, 2009, pp105-106).

To reveal the reason behind of within-group and between-group inequality changes, I employ Blinder-Oaxaca decomposition (Blinder and Oaxaca, 1973). Blinder-Oaxaca decomposition is originally used to analyze the wage discriminations of lace and sex. Suppose lnY_i is logarithm of RPCE in area i described as in the equation 8.

$$lnY_i = \beta_i \cdot X_i + \varepsilon_i \quad (i = \text{urban if } i = 1 \text{ and } i = \text{rural if } i = 0) \tag{8}$$

where β_i is the parameters and the intercept on a vector including the explanatory factors and the constant of X_i, and ε_i is the error term. $\widehat{\beta_i}$ is estimated using the linear least squared regression for each sample in urban and rural areas. $\overline{X_i}$ is the estimation for $E(X_i)$. The difference of RPCE between urban and rural areas can be expressed as the equation 9.

$$\overline{lnY_1} - \overline{lnY_0} = \widehat{\beta^*}(\overline{X_1} - \overline{X_0}) + (\overline{X_1}(\widehat{\beta_1} - \widehat{\beta^*}) + \overline{X_0}(\widehat{\beta^*} - \widehat{\beta_0})) \tag{9}$$

$\widehat{\beta^*}$ is the estimated vector for the intercept and the slope parameters using linear least squared regression, which is calculated from the pooled samples from urban and rural areas (Neumark, 1988). The first sum of the equation 9 is regarded as the difference of explanatory factors between urban and rural RPCE that is explained by group differences (attribute to the endowments), and the second sum is the difference between urban and rural areas that is the unexplained part which captures differences derived from unobserved variables (attribute to the coefficients).

To analyze how logarithm of RPCE (LNRPCE) is explained by urban-rural characteristics at the deciles of the bottom 40 percent, I employ quantile regression (equation 10).

$$lnY_i = \alpha + \beta X_i + \gamma U_i + \delta U_i \cdot X_i + \varepsilon_i \tag{10}$$

where lnY_i is the logarithm of RPCE of household i, U_i is the urban dummy, X_i is the vector of explanatory variables for household i, and $U_i \cdot X_i$ is the interaction between the urban dummy and the explanatory variables. The vector of coefficients β is the returns to characteristics, and γ and δ give the intercept and slope differential associated with the urban location. The set of explanatory variable X_i includes education, demographic characteristics, employment, and geographical

characteristics of the household. In particular, I use characteristics of the years of education of the household head[2], gender, ethnicity, marital status, and types of industry, as explanatory variables. Household demographic variables include household size and the number of elderly people in the household. I evaluate the impact of remittances from foreign and domestic sources on household expenditure, separately. Finally, I include seven dummies to control for eight regional differences.

Nominal expenditure is adjusted by month and region, and then converted to real value by using time series deflators with the base year in 2005. As stated in the previous study, in developing countries, expenditure is a better proxy of living standards than income because (i) income is derived largely from self-employment, (ii) seasonal fluctuations of income is larger than expenditure (Alderman and Paxson, 1994; Paxson, 1993) and (iii) while income is likely to be understated, households are often able to recall expenditure accurately (Haughton and Khandker, 2009, pp20-30; Hentschel and Lanjouw, 1996; Blundell and Preston, 1998).

3. Decomposition results of urban-rural and regional inequalities using Theil T index

Urban living standards in Vietnam have improved dramatically in the past two decades (Table 1). The mean RPCE has inched up from VND 4,019.5 thousand in 1993 to VND 7,730.5 thousand in 2004, an increase of 1.9 times in around the decade. The growth of RPCE has accelerated to VND 16,135.4 thousand in 2014, an increase of 4.0 times in the two decades, and the growth of RPCE has shown an increase of 2.1 times from 2004. The growth of RPCE of rural living standards has improved even more rapidly. The rural mean RPCE has increased from VND 2,042.8 thousand in 1993 to VND 3,692.9 thousand in 2004 and VND 9,467.6 thousand in 2014, respectively, which is 1.8 times greater in 2004 and 4.6 times greater in 2014 compared to 1993. Among eight regions, top three regions in terms of living standards are the Red River Delta, Southeast and South Central Coast. Ho Chi Minh City, a big economic center, and the capital city Hanoi are located in Southeast and Red River Delta, respectively. In South Central Coast area, Da

[2] The years of education is measured by highest degree or diploma obtained.

Nang is famous for its productive industrial and tourism sectors. Da Nang is recognized as an important transportation hub for central Vietnam connecting Ho Chi Minh City and Hanoi. While these are relatively prosperous regions in Vietnam, living standards in the North East and North West are far lower.

Table 1: Mean RPCE and shares of RPCE by area and region

	1993		2004		2014	
	Mean RPCE	Share of RPCE	Mean RPCE	Share of RPCE	Mean RPCE	Share of RPCE
Urban	4019.5	0.330	7730.5	0.404	16135.4	0.417
Rural	2042.8	0.670	3692.9	0.596	9467.6	0.583
8 Regions						
Red River Delta	2366.1	0.233	5012.9	0.227	12834.5	0.220
North East	1748.0	0.100	3980.4	0.122	9291.1	0.118
North West	1732.9	0.019	2721.8	0.027	6992.2	0.029
North Central Coast	1806.3	0.099	3588.0	0.085	10572.9	0.096
South Central Coast	2674.8	0.102	4724.5	0.094	12428.2	0.098
Central Highlands	2106.9	0.017	3789.6	0.051	10086.2	0.061
Southeast	3382.7	0.194	7179.6	0.198	14620.7	0.185
Mekong River Delta	2772.9	0.235	4543.9	0.197	10864.7	0.192

Source: Author based on VLSS1993, VHLSS2004 and VHLSS2014
Note: Unit of RPCE is thousand Vietnam Dong in a year. Regions 1-8 are following: 1 = Red River Delta, 2 = North East, 3 = North West, 4 = North Central Coast, 5 = South Central Coast, 6 = Central Highlands, 7 = Southeast and 8 = Mekong River Delta. The national capital Hanoi is located in Red River Delta. Economic center Ho Chi Minh City is located in Southeast.

Decomposition results by Theil T and Gini indexes provide further explanation about the spatial distribution of wealth (Table 2). Over the years, overall inequality measured by both Theil T and Gini indexes increased from 1993 to 2004, but it decreased from 2004 to 2014. The same trend is observed in inequalities between areas and between regions measured by Theil T index. However, within areas and within regions Theil T inequalities show the different trend: continuously increasing from 1993 to 2014. Also, the contribution of inequalities within areas and regions accounts for the majority in overall inequality, which is not lower than 74 percent.

Table 2: Inequality decompositions using Theil T and Gini Indexes by area and region

	1993			2004			2014		
	Theil T		Gini	Theil T		Gini	Theil T		Gini
	Value	Contribution		Value	Contribution		Value	Contribution	
Urban	0.211	1.042	0.349	0.196	0.854	0.340	0.223	1.032	0.344
Rural	0.142	0.701	0.283	0.160	0.696	0.304	0.175	0.812	0.318
Within area	0.165	0.781	-	0.175	0.740	-	0.195	0.854	-
Between area	0.046	0.219	-	0.061	0.260	-	0.033	0.146	-
Total (1)	0.211	1.000	0.339	0.236	1.000	0.365	0.228	1.000	0.353
8 Regions									
Red River Delta	0.201	0.994	0.327	0.223	0.970	0.350	0.207	0.959	0.332
North East	0.107	0.530	0.251	0.218	0.946	0.351	0.267	1.240	0.378
North West	0.084	0.415	0.228	0.261	1.135	0.382	0.284	1.317	0.410
North Central Coast	0.104	0.513	0.247	0.160	0.698	0.310	0.210	0.976	0.344
South Central Coast	0.248	1.221	0.355	0.216	0.941	0.352	0.213	0.986	0.340
Central Highlands	0.164	0.810	0.317	0.213	0.925	0.349	0.290	1.343	0.401
Southeast	0.231	1.139	0.368	0.219	0.954	0.358	0.206	0.954	0.324
Mekong River Delta	0.188	0.926	0.327	0.185	0.806	0.322	0.161	0.748	0.300
Within region	0.187	0.885	-	0.209	0.884	-	0.213	0.935	-
Between region	0.024	0.115	-	0.027	0.116	-	0.015	0.065	-
Total (2)	0.211	1.000	0.339	0.236	1.000	0.365	0.228	1.000	0.353

Source: Author based on VLSS1993, VHLSS2004 and VHLSS2014
Note: Total (1) is calculated by the sum of "Within area" and "Between area" inequality. Total (2) is calculated by the sum of "Within region" and "Between region" inequality.

4. Blinder-Oaxaca decomposition results of urban-rural differences

Following covariates [3] are used for the Blinder-Oaxaca decomposition: (i) EDUCATION[4], (ii) GENDER, (iii) MINORITY[5], (iv) AGE_Y, (v) AGESQ, (vi) MARITAL STATUS, (vii) HHSIZE, (viii) AGRICULTURE_D, (ix) INDUSTRY_D, (xi) SERVICE_D, (xii) PR_ELDERLY[6], (xiii) FORREM, (xiv) DOMREM, (xv) dreg[7].

[3] Please see each descriptions as follow: (i) EDUCATION (years of education measured by highest diploma/degree obtained by household head), (ii) GENDER (gender of household head: male = 1, female = 0), (iii) MINORITY (ethnicity of household head: ethnic minorities = 1, *Kinh* = 0), (iv) AGE_Y (age of household head in years), (v) AGESQ (squared age of household head in years), (vi) MARITAL STATUS (1 = married, 0 = other), (vii) HHSIZE (household size), (viii) AGRICULTURE_D (job sector of household head: 1 = agricultural sector, 0 = other), (ix) INDUSTRY_D (job sector of household head: 1 = industrial sector, 0 = other), (xi) SERVICE_D (job sector of household head: 1 = service sector, 0 = other), (xii) PR_ELDERLY (proportion of elderly people in the household), (xiii) FORREM (foreign remittances dummy: 1 = with, 0 = without), (xiv) DOMREM (domestic remittances dummy: 1 = with, 0 = without), (xv) dreg (1 = Red River Delta, 2 = North East, 3 = North West, 4 = North Central Coast, 5 = South Central Coast, 6 = Central Highlands, 7 = Southeast and 8 = Mekong River Delta).

[4] The years of education is calculated in each degree/diploma as following: zero year for no degree/diploma, five years for primary education, 12 years for upper secondary education, 16 years for college, 16 years for bachelor's degree, 18 years for master's degree and 18 years for doctorate.

[5] *Kinh* is the ethnic majority in Vietnam.

[6] Following OECD definitions, "elderly" is defined as people age 65 and over and children are defined as people younger than 15. For the details please see following web page that I accessed on December 15, 2016 (https://data.oecd.org/pop/working-age-population.htm#indicator-chart).

[7] 1 = Red River Delta, 2 = North East, 3 = North West, 4 = North Central Coast, 5 = South Central Coast, 6 = Central Highlands, 7 = Southeast and 8 = Mekong River Delta.

The urban-rural difference can be decomposed into the explained part (endowments effect assuming rural households have the same coefficients with urban households) and the unexplained part, including a residual. The share of explained part is gradually increasing from 43.9 percent in 1993, 45.4 percent in 2004, and 54.5 percent in 2014 (Table 3). Among the explained part, EDUCATION plays a significant role to explain the urban-rural differences of mean LNRPCE. The magnitude of coefficient largely increases from 9.1 percent in 1993 (percentage of the contribution) to 14.6 percent in 2004 and 23.0 percent in 2014. The number of jobs that require more and more complicated tasks in a capital-intensive sector in the urban area increase as the economic development of the country. Hence the return to education is increasing because educational training fosters the ability to handle those tasks. The MINORITY dummy accounts for the relatively large component of the urban-rural LNRPCE difference; 1.4 percent for 1993, 4.6 percent for 2004 and 11.0 percent for 2014. This implies ethnic minorities have been left behind in economic development compared to the *Kinh* majority. World Bank and MPI (2016, p44) indicate ethnic minorities are one of the main marginalized group[8]. AGE_Y is also an important in explaining the urban-rural LNRPCE difference at around five to six percent over the years. While INDUSTRY_D explained the urban-rural LNRPCE difference at 2.4 percent in 1993 compared to AGRICULTURE_D, the effect has been marginal. On the other hand, SERVICE_D has largely explained the urban-rural LNRPCE difference at around seven to 9.4 percent since 1993, compared to AGRICULTURE_D. The role of FORREM has been instrumental in explaining the urban-rural LNRPCE difference in 1993 at 6.1 percent; the effect has been getting smaller and there was almost no effect in 2014 (opposite to DOMREM). Other variables have had relatively negligible effects on the urban-rural LNRPCE difference.

[8] World Bank and MPI (2016, p44) mention people with disabilities and urban migrants as marginalized groups, too.

Table 3: Blinder-Oaxaca decomposition of urban-rural differences in mean LNRPCE

	1993			2004			2014		
	Coefficient	P-Values	Contribution (%)	Coefficient	P-Values	Contribution (%)	Coefficient	P-Values	Contribution (%)
Prediction (urban)	13.248 ***	(0.000)	-	9.190 ***	(0.000)	-	4.320 ***	(0.000)	-
Prediction (rural)	12.178 ***	(0.000)	-	8.453 ***	(0.000)	-	4.110 ***	(0.000)	-
Difference (urban-rural)	1.0693 ***	(0.000)	100.0	0.737 ***	(0.000)	100.0	0.211 ***	(0.000)	100.0
Explained									
EDUCATION	0.0972 ***	(0.000)	9.1%	0.1074 ***	(0.000)	14.6%	0.0482 ***	(0.000)	23.0%
GENDER	0.00972	(0.229)	0.9%	0.0124 ***	(0.000)	1.7%	0.00125	(0.166)	0.2%
MINORITY	0.0152 ***	(0.000)	1.4%	0.0336 ***	(0.000)	4.6%	0.0232 ***	(0.000)	11.0%
AGE_Y	0.0631 **	(0.002)	5.9%	0.0434 ***	(0.000)	5.9%	0.0104 **	(0.002)	5.0%
AGESQ	-0.0237	(0.102)	-2.2%	-0.0199 **	(0.001)	-2.7%	-0.0056325 *	(0.029)	-2.7%
MARITAL	-0.00466	(0.061)	-0.4%	-0.004114 **	(0.003)	-0.6%	-0.000440	(0.093)	-0.2%
HHSIZE	0.00354	(0.689)	0.3%	0.0200 ***	(0.000)	2.7%	0.000790	(0.561)	0.2%
INDUSTRY_D	0.0261 ***	(0.000)	2.4%	0.00497 ***	(0.000)	0.7%	0.000396	(0.068)	0.1%
SERVICE_D	0.101 ***	(0.000)	9.4%	0.0525 ***	(0.000)	7.1%	0.0185 ***	(0.000)	8.8%
PR_ELDERLY	0.00143	(0.463)	0.1%	0.00326 *	(0.030)	0.4%	0.00114 *	(0.037)	0.5%
FORREM	0.0656 ***	(0.000)	6.1%	0.0243 ***	(0.000)	3.3%	-0.0002154	(0.279)	0.0%
DOMREM	-0.00262	(0.171)	-0.2%	-0.000445	(0.299)	-0.1%	0.00149 ***	(0.000)	0.7%
dreg2	0.00425 *	(0.040)	0.4%	-0.0000918	(0.803)	0.0%	0.000541 *	(0.047)	0.3%
dreg3	-0.000328	(0.552)	0.0%	0.00207 **	(0.009)	0.3%	0.000913 **	(0.004)	0.4%
dreg4	0.0151 ***	(0.000)	1.4%	0.00836 ***	(0.000)	1.1%	0.00154 ***	(0.000)	0.7%
dreg5	0.0104 **	(0.003)	1.0%	0.000951	(0.129)	0.1%	0.000948 **	(0.004)	0.4%
dreg6	-0.00786 **	(0.004)	-0.7%	0.0000578	(0.765)	0.0%	-0.0000340	(0.653)	0.0%
dreg7	0.0988 ***	(0.000)	9.2%	0.0538 ***	(0.000)	7.3%	0.0135 ***	(0.000)	6.4%
dreg8	-0.00396	(0.633)	-0.4%	-0.00793 ***	(0.000)	-1.1%	-0.0019403 ***	(0.000)	-0.9%
Explained total	0.469 ***	(0.000)	43.9%	0.3346212 ***	(0.000)	45.4%	0.115 ***	(0.000)	54.5%
Unexplained	0.601 ***	(0.000)	56.2%	0.402 ***	(0.000)	54.6%	0.0959 ***	(0.000)	45.5%
_cons	1.304 **	(0.003)	-	0.548 **	(0.006)	-	0.0457	(0.496)	-
N	4846			9188			9424		

p-values in parentheses

* p<0.05, **p<0.01, ***p<0.001

Source: Author based on VLSS1993, VHLSS2004 and VHLSS2014

5. Estimation results of the quantile regression

Quantile regression uses the same covariates employed for the Blinder-Oaxaca decomposition. The following variables are worth a closer look to interpret main results (Tables 4, 5 and 6)[9]: EDUCATION, MINORITY, INDUSTRY_D, SERVICE_D, PR_ELDERLY, FORREM and DOMREM.

The return to education is statistically significant and positively related to LNRPCE across areas, the deciles of bottom 40 percent, and the years. The coefficients in urban areas are larger than rural areas. The coefficients have been decreasing slightly as time passes and do not have consistent changes across the deciles. Ethnic minorities have been left behind the *Kinh* majority. The minority dummy is mostly statistically significant and negatively correlated to LNRPCE except for the urban area in 1993. However, the chronological change of coefficients of minority dummy implies that the inequality between ethnic minorities and the *Kinh* has been converging. Compared to the coefficients in rural areas, the coefficients of urban areas are smaller. Non-agricultural jobs have provided higher earning opportunities compared to agricultural jobs. Among non-agricultural jobs, the service sector provides the most, followed by the industrial sector. While there have been no consistent trends across the deciles, areas and years, proportion of elderly people in the household greatly and negatively correlated to LNRPCE. Foreign remittances were a strong driver in improving living standards. Those who receive foreign remittances increased around 25-75 percentage points of LNRPCE in 1993 and 2004. But, this relationship almost disappeared in 2014–no statistical significance and the marginal size of coefficient. Conversely, domestic remittances started playing an important role in explaining LNRPCE in 2014, although the effect was relatively negligible in 1993 and 2004.

[9] While the objective of this quantile regression estimation is not identifying a one-to-one causal relationship between the dependent variable and a specific independent variable, one caveat to interpreting estimation results is the existence of omitted variable bias.

Table 4: Estimation results on the determinants of LNRPCE by decile of bottom 40 percent in 1993

	Overall in 1993					Urban in 1993					Rural in 1993				
LNRPCE	QREG(0.1)	QREG(0.2)	QREG(0.3)	QREG(0.4)	OLS	QREG(0.1)	QREG(0.2)	QREG(0.3)	QREG(0.4)	OLS	QREG(0.1)	QREG(0.2)	QREG(0.3)	QREG(0.4)	OLS
EDUCATION	0.0597 ***	0.0569 ***	0.0554 ***	0.0533 ***	0.0609 ***	0.0661 ***	0.0614 ***	0.0592 ***	0.0588 ***	0.0645 ***	0.0474 ***	0.0503 ***	0.0440 ***	0.0449 ***	0.0481 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GENDER	-0.0198	0.0183	0.0684	0.108 **	0.153 ***	0.318 *	0.191	0.159	0.210 *	0.204 **	-0.0820	-0.0979	-0.0639	0.00555	0.0330
	(0.718)	(0.669)	(0.136)	(0.008)	(0.000)	(0.011)	(0.061)	(0.092)	(0.018)	(0.004)	(0.214)	(0.063)	(0.199)	(0.911)	(0.406)
MINORITY	-0.430 ***	-0.426 ***	-0.354 ***	-0.314 ***	-0.320 ***	0.228	0.173	0.172	0.0397	0.220 *	-0.482 ***	-0.525 ***	-0.432 ***	-0.384 ***	-0.472 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.237)	(0.273)	(0.237)	(0.772)	(0.042)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
AGE_Y	0.0338 ***	0.0355 ***	0.0355 ***	0.0358 ***	0.0260 ***	0.0190	0.0400	0.0160	0.0252	0.0126	0.0423 ***	0.0384 ***	0.0380 ***	0.0389 ***	0.0302 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.487)	(0.075)	(0.439)	(0.196)	(0.411)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
AGESQ	-0.000188	-0.000193 *	-0.000175 *	-0.000177 *	-0.0000880	-0.0000400	-0.000256	-0.0000261	-0.000114	0.0000145	0.000294 **	-0.000249 **	-0.000233 **	-0.000237 **	-0.000160 *
	(0.060)	(0.014)	(0.037)	(0.018)	(0.168)	(0.887)	(0.267)	(0.902)	(0.569)	(0.927)	(0.008)	(0.004)	(0.005)	(0.004)	(0.016)
MARITAL	0.1604 *	0.162 **	0.184 ***	0.197 ***	0.165 ***	0.299	0.195	0.127	0.208	0.206 *	0.167 *	0.0917	0.106	0.155 **	0.0960 *
	(0.012)	(0.001)	(0.001)	(0.000)	(0.000)	(0.051)	(0.121)	(0.272)	(0.056)	(0.016)	(0.025)	(0.121)	(0.059)	(0.005)	(0.032)
HHSIZE	-0.0944 ***	-0.101 ***	-0.106 ***	-0.113 ***	-0.105 ***	-0.0966 ***	-0.132 ***	-0.142 ***	-0.145 ***	-0.134 ***	-0.105 ***	-0.101 ***	-0.0972 ***	-0.103 ***	-0.101 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
INDUSTRY_D	0.199 **	0.232 ***	0.256 ***	0.278 ***	0.371 ***	0.0348	0.00274	0.0822	0.0255	0.105	0.150	0.130	0.106	0.140 *	0.175 ***
	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)	(0.822)	(0.983)	(0.481)	(0.816)	(0.223)	(0.075)	(0.052)	(0.095)	(0.027)	(0.001)
SERVICE_D	0.423 ***	0.477 ***	0.496 ***	0.521 ***	0.539 ***	0.246	0.198	0.193 *	0.133	0.177 *	0.338 ***	0.350 ***	0.379 ***	0.393 ***	0.401 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.059)	(0.064)	(0.049)	(0.151)	(0.015)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
PR_ELDERLY	-0.186	-0.295 **	-0.370 **	-0.366 ***	-0.347 ***	-0.134	-0.173	-0.254	-0.254	-0.305	-0.149	-0.195	-0.271 *	-0.319 **	-0.262 **
	(0.182)	(0.007)	(0.002)	(0.000)	(0.000)	(0.737)	(0.597)	(0.400)	(0.371)	(0.172)	(0.324)	(0.104)	(0.017)	(0.005)	(0.004)
FORREM	0.510 ***	0.592 ***	0.557 ***	0.670 ***	0.751 ***	0.368 *	0.438 **	0.365 **	0.307 *	0.475 ***	0.417 **	0.309 **	0.449 ***	0.469 ***	0.572 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.031)	(0.002)	(0.005)	(0.011)	(0.000)	(0.002)	(0.003)	(0.000)	(0.000)	(0.000)
DOMREM	0.00864	0.0281	0.00574	0.0104	-0.0169	0.0151	-0.0479	-0.206 *	-0.127	-0.0772	-0.0530	-0.00399	0.0195	0.0333	-0.0396
	(0.863)	(0.475)	(0.891)	(0.781)	(0.597)	(0.908)	(0.654)	(0.036)	(0.170)	(0.289)	(0.340)	(0.928)	(0.641)	(0.425)	(0.236)
dreg2	0.0528	0.0320	0.0675	0.0391	-0.0641	-0.853 ***	-0.830 ***	-0.964 ***	-0.880 ***	-0.923 ***	0.134	0.120 *	0.133 *	0.114 *	0.119 **
	(0.425)	(0.538)	(0.223)	(0.430)	(0.129)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.059)	(0.034)	(0.013)	(0.033)	(0.005)
dreg3	0.324 **	0.337 ***	0.285 **	0.220 *	0.0532	-0.796 *	-0.573 *	-0.630 *	-0.703 **	-0.948 ***	0.409 **	0.455 ***	0.285 **	0.288 **	0.263 **
	(0.010)	(0.001)	(0.007)	(0.019)	(0.506)	(0.014)	(0.031)	(0.010)	(0.002)	(0.000)	(0.004)	(0.000)	(0.008)	(0.007)	(0.002)
dreg4	-0.173 **	-0.138 **	-0.149 **	-0.110 *	-0.193 ***	-1.194 ***	-0.852 ***	-1.00271 ***	-0.994 ***	-1.00821 ***	-0.0873	-0.0834	-0.0884	-0.0497	-0.0647
	(0.007)	(0.006)	(0.006)	(0.022)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.187)	(0.113)	(0.076)	(0.318)	(0.104)
dreg5	0.113	0.253 ***	0.356 ***	0.343 ***	0.282 ***	-0.267	-0.0937	-0.171	-0.0669	-0.130	0.0975	0.199 **	0.295 ***	0.327 ***	0.291 ***
	(0.121)	(0.000)	(0.000)	(0.000)	(0.000)	(0.157)	(0.544)	(0.229)	(0.617)	(0.216)	(0.233)	(0.002)	(0.000)	(0.000)	(0.000)
dreg6	-0.101	-0.0180	0.150	0.336 **	0.276 **	-	-	-	-	-	-0.116	0.117	0.187	0.464 ***	0.431 ***
	(0.468)	(0.870)	(0.201)	(0.001)	(0.002)	-	-	-	-	-	(0.396)	(0.280)	(0.070)	(0.000)	(0.000)
dreg7	0.548 ***	0.574 ***	0.652 ***	0.726 ***	0.745 ***	0.116	0.180	0.175	0.323 **	0.240 *	0.395 ***	0.523 ***	0.569 ***	0.627 ***	0.676 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.490)	(0.191)	(0.168)	(0.007)	(0.011)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
dreg8	0.492 ***	0.488 ***	0.590 ***	0.639 ***	0.626 ***	-0.255	-0.135	-0.132	0.0752	-0.0273	0.527 ***	0.551 ***	0.563 ***	0.643 ***	0.682 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.138)	(0.337)	(0.310)	(0.537)	(0.776)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
_cons	10.126 ***	10.300 ***	10.446 ***	10.588 ***	10.960 ***	10.740 ***	11.0586 ***	12.152 ***	11.978 ***	12.392 ***	10.130 ***	10.527 ***	10.668 ***	10.683 ***	11.0880 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
N	4846	4846	4846	4846	4846	970	970	970	970	970	3876	3876	3876	3876	3876
R-Squared	-	-	-	-	0.347	-	-	-	-	0.321	-	-	-	-	0.272
Pseudo R-Squared	0.147	0.150	0.163	0.177	-	0.171	0.170	0.178	0.177	-	0.135	0.124	0.127	0.136	-

* p<0.05, ** p<0.01, *** p<0.001

Source: Author based on VLSS1993

Table 5: Estimation results on the determinants of LNRPCE by decile of bottom 40 percent in 2004

	Overall in 2004					Urban in 2004					Rural in 2004				
LNRPCE	QREG(0.1)	QREG(0.2)	QREG(0.3)	QREG(0.4)	OLS	QREG(0.1)	QREG(0.2)	QREG(0.3)	QREG(0.4)	OLS	QREG(0.1)	QREG(0.2)	QREG(0.3)	QREG(0.4)	OLS
EDUCATION	0.0386 ***	0.0433 ***	0.0454 ***	0.0466 ***	0.0477 ***	0.0483 ***	0.0517 ***	0.0524 ***	0.0536 ***	0.0511 ***	0.0343 ***	0.0357 ***	0.0342 ***	0.0348 ***	0.0345 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GENDER	0.123 ***	0.103 ***	0.132 ***	0.161 ***	0.152 ***	0.105 *	0.0972 **	0.107 **	0.116 ***	0.115 ***	0.0353	0.0186	0.00681	0.0496 *	0.0496 *
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.031)	(0.006)	(0.002)	(0.000)	(0.000)	(0.253)	(0.479)	(0.775)	(0.039)	(0.012)
MINORITY	-0.314 ***	-0.279 ***	-0.290 ***	-0.282 ***	-0.292 ***	-0.182 *	-0.238 ***	-0.163 *	-0.170 **	-0.206 ***	-0.299 ***	-0.298 ***	-0.297 ***	-0.302 ***	-0.300 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.041)	(0.000)	(0.010)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
AGE_Y	0.0283 ***	0.0217 ***	0.0215 ***	0.0231 ***	0.0258 ***	0.0184	0.0207 **	0.0192 *	0.0202 **	0.0165 **	0.0292 ***	0.0239 ***	0.0218 ***	0.0246 ***	0.0272 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.096)	(0.010)	(0.014)	(0.002)	(0.006)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
AGESQ	-0.000179 ***	-0.000096 **	-0.0000849 *	-0.0000956 **	-0.000122 ***	-0.0000272	-0.0000614	-0.0000639	-0.000077	-0.000049	-0.000208 ***	-0.000140 ***	-0.000118 ***	-0.000136 ***	-0.000163 ***
	(0.000)	(0.003)	(0.011)	(0.001)	(0.000)	(0.798)	(0.424)	(0.395)	(0.228)	(0.399)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
MARITAL	0.231 ***	0.183 ***	0.199 ***	0.199 ***	0.166 ***	0.226 ***	0.0871	0.0763	0.0777 *	0.0841 *	0.176 ***	0.122 ***	0.105 ***	0.156 ***	0.132 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.061)	(0.093)	(0.044)	(0.017)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
HHSIZE	-0.0777 ***	-0.0857 ***	-0.0840 ***	-0.0839 ***	-0.0854 ***	-0.0929 ***	-0.0721 ***	-0.0717 ***	-0.0713 ***	-0.0783 ***	-0.0790 ***	-0.0807 ***	-0.0814 ***	-0.0829 ***	-0.0856 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
INDUSTRY_D	0.158 ***	0.149 ***	0.147 ***	0.149 ***	0.163 ***	0.176 **	0.188 ***	0.154 ***	0.137 ***	0.119 ***	0.125 ***	0.107 ***	0.107 ***	0.0915 ***	0.0937 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.006)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SERVICE_D	0.282 ***	0.297 ***	0.290 ***	0.303 ***	0.287 ***	0.249 ***	0.245 ***	0.221 ***	0.187 ***	0.180 ***	0.185 ***	0.232 ***	0.231 ***	0.201 ***	0.202 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
PR_ELDERLY	-0.332 ***	-0.448 ***	-0.421 ***	-0.398 ***	-0.325 ***	-0.715 ***	-0.504 ***	-0.457 ***	-0.322 ***	-0.230 **	-0.281 ***	-0.381 ***	-0.362 ***	-0.351 ***	-0.276 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.007)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
FORREM	0.316 ***	0.344 ***	0.367 ***	0.368 ***	0.408 ***	0.401 ***	0.382 ***	0.414 ***	0.373 ***	0.395 ***	0.242 ***	0.267 ***	0.279 ***	0.276 ***	0.322 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
DOMREM	0.0469	0.0349	0.0348	0.0386 *	0.0347 *	0.0340	0.0596	0.0829 *	0.0733 *	0.0490	0.0386	0.0506 *	0.0376 *	0.0368	0.0455 **
	(0.065)	(0.057)	(0.069)	(0.022)	(0.020)	(0.549)	(0.146)	(0.039)	(0.032)	(0.113)	(0.119)	(0.016)	(0.049)	(0.056)	(0.004)
dreg2	0.0924 **	0.0600 *	0.0313	0.0524 *	0.0453 *	-0.0550	-0.0629	-0.107 *	-0.123 **	-0.146 ***	0.0767 *	0.0590 *	0.0247	0.0306	0.0520 *
	(0.005)	(0.011)	(0.206)	(0.016)	(0.019)	(0.461)	(0.244)	(0.043)	(0.006)	(0.000)	(0.016)	(0.030)	(0.316)	(0.217)	(0.011)
dreg3	-0.0792	-0.0584	-0.0432	-0.0462	-0.0298	-0.350 **	-0.213 *	-0.203 *	-0.262 ***	-0.288 ***	-0.0826	-0.0600	-0.061602	-0.0947 *	-0.0374
	(0.122)	(0.114)	(0.263)	(0.172)	(0.323)	(0.007)	(0.023)	(0.027)	(0.001)	(0.000)	(0.091)	(0.147)	(0.101)	(0.012)	(0.230)
dreg4	-0.154 ***	-0.143 ***	-0.171 ***	-0.151 ***	-0.168 ***	-0.0586	-0.167 **	-0.237 ***	-0.301 ***	-0.274 ***	-0.173 ***	-0.165 ***	-0.164 ***	-0.155 ***	-0.138 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.500)	(0.008)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
dreg5	0.0821 *	0.0828 **	0.0741 **	0.0918 ***	0.0865 ***	0.0982	0.140 *	0.0563	0.00846	0.000113	0.0227	0.0362	0.0310	0.0287	0.0250
	(0.020)	(0.001)	(0.005)	(0.000)	(0.000)	(0.197)	(0.011)	(0.296)	(0.853)	(0.998)	(0.516)	(0.223)	(0.249)	(0.290)	(0.264)
dreg6	0.0469	0.110 ***	0.107 ***	0.129 ***	0.0849 ***	-0.0306	-0.0324	-0.0777	-0.114 *	-0.173 ***	0.0102	0.0533	0.0637 *	0.0750 *	0.0694 **
	(0.257)	(0.000)	(0.001)	(0.000)	(0.001)	(0.736)	(0.620)	(0.226)	(0.036)	(0.000)	(0.803)	(0.126)	(0.044)	(0.018)	(0.008)
dreg7	0.393 ***	0.471 ***	0.469 ***	0.484 ***	0.499 ***	0.467 ***	0.427 ***	0.351 ***	0.324 ***	0.319 ***	0.278 ***	0.361 ***	0.356 ***	0.360 ***	0.396 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
dreg8	0.176 ***	0.203 ***	0.190 ***	0.196 ***	0.205 ***	0.0168	-0.0122	-0.0788	-0.110 **	-0.0887 *	0.191 ***	0.189 ***	0.194 ***	0.184 ***	0.225 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.811)	(0.810)	(0.112)	(0.009)	(0.020)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
_cons	6.726 ***	7.0854 ***	7.146 ***	7.163 ***	7.279 ***	7.143 ***	7.318 ***	7.577 ***	7.710 ***	8.0324 ***	6.928 ***	7.247 ***	7.470 ***	7.416 ***	7.484 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
N	9188	9188	9188	9188	9188	2250	2250	2250	2250	2250	6938	6938	6938	6938	6938
R-Squared	-	-	-	-	0.456	-	-	-	-	0.384	-	-	-	-	0.375
Pseudo R-Squared	0.261	0.263	0.263	0.267	-	0.238	0.244	0.241	0.236	-	0.242	0.232	0.225	0.219	-

* p<0.05, ** p<0.01, *** p<0.001

Source: Author based on VHLSS2004

Table 6: Estimation results on the determinants of LNRPCE by decile of bottom 40 percent in 2014

	Overall in 2014					Urban in 2014					Rural in 2014				
LNRPCE	QREG(0.1)	QREG(0.2)	QREG(0.3)	QREG(0.4)	OLS	QREG(0.1)	QREG(0.2)	QREG(0.3)	QREG(0.4)	OLS	QREG(0.1)	QREG(0.2)	QREG(0.3)	QREG(0.4)	OLS
EDUCATION	0.0176 ***	0.0181 ***	0.0179 ***	0.0181 ***	0.0194 ***	0.0221 ***	0.0212 ***	0.0209 ***	0.0205 ***	0.0220 ***	0.0132 ***	0.0132 ***	0.0135 ***	0.0141 ***	0.0144 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GENDER	0.00645	0.00548	0.0203 **	0.0306 ***	0.0253 ***	-0.00969	0.0159	0.0336 **	0.0310 **	0.0217 *	-0.0116	-0.0116	-0.00668	-0.00315	-0.00290
	(0.474)	(0.529)	(0.005)	(0.000)	(0.000)	(0.554)	(0.218)	(0.003)	(0.002)	(0.022)	(0.102)	(0.299)	(0.490)	(0.744)	(0.720)
MINORITY	-0.186 ***	-0.187 ***	-0.179 ***	-0.183 ***	-0.167 ***	-0.132 ***	-0.114 ***	-0.108 ***	-0.0966 ***	-0.107 ***	-0.183 ***	-0.183 ***	-0.182 ***	-0.175 ***	-0.171 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
AGE_Y	0.00982 ***	0.0110 ***	0.00976 ***	0.0103 ***	0.0108 ***	0.00553	0.00784 **	0.00614 **	0.00709 ***	0.00887 ***	0.0117 ***	0.0117 ***	0.0111 ***	0.0108 ***	0.0111 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.103)	(0.003)	(0.008)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
AGESQ	-0.0000716 ***	-0.0000791 ***	-0.0000664 ***	-0.00007 ***	-0.0000701 ***	-0.0000209	-0.000038	-0.0000169	-0.0000229	-0.00004 *	-0.0000944 ***	-0.0000944 ***	-0.0000898 ***	-0.0000821 ***	-0.0000855 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.532)	(0.150)	(0.462)	(0.259)	(0.039)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
MARITAL	0.0305 **	0.0169	0.0222 **	0.0240 **	0.0201 **	-0.00898	0.0005016	0.0222	0.0169	0.00699	0.0267	0.0267 *	0.0199	0.0128	0.0131
	(0.004)	(0.101)	(0.010)	(0.007)	(0.006)	(0.665)	(0.975)	(0.117)	(0.179)	(0.560)	(0.208)	(0.033)	(0.067)	(0.238)	(0.150)
HHSIZE	-0.0305 ***	-0.0338 ***	-0.0353 ***	-0.0358 ***	-0.0373 ***	-0.0399 ***	-0.0378 ***	-0.0366 ***	-0.0387 ***	-0.0406 ***	-0.0339 ***	-0.0339 ***	-0.0346 ***	-0.0372 ***	-0.0383 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
INDUSTRY_D	0.0292 ***	0.0311 ***	0.0295 ***	0.0291 ***	0.0257 ***	0.0119	0.0118	0.0195	0.0209	0.0106	0.0243	0.0243 **	0.0234 **	0.0195 *	0.0187 **
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.572)	(0.479)	(0.177)	(0.103)	(0.387)	(0.101)	(0.010)	(0.004)	(0.016)	(0.006)
SERVICE_D	0.0980 ***	0.0909 ***	0.0922 ***	0.0908 ***	0.0968 ***	0.0704 ***	0.0565 ***	0.0566 ***	0.0705 ***	0.0638 ***	0.0785 ***	0.0785 ***	0.0783 ***	0.0820 ***	0.0859 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
PR_ELDERLY	-0.121 ***	-0.0992 ***	-0.0985 ***	-0.0957 ***	-0.0992 ***	-0.119 *	-0.0949 *	-0.0812 *	-0.102 ***	-0.0955 ***	-0.0877 ***	-0.0877 ***	-0.0737 ***	-0.0906 ***	-0.0864 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.011)	(0.010)	(0.012)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
FORREM	0.0137	0.00270	0.000501	-0.000428	-0.00510	-0.0136	-0.00202	-0.00904	-0.0101	-0.0159	0.0177	0.0177 *	0.00268	0.0005252	-0.000981
	(0.104)	(0.740)	(0.941)	(0.951)	(0.377)	(0.496)	(0.898)	(0.510)	(0.408)	(0.170)	(0.398)	(0.044)	(0.726)	(0.945)	(0.878)
DOMREM	0.0499 ***	0.0534 ***	0.0702 ***	0.0689 ***	0.0762 ***	0.0904 **	0.0708 **	0.0703 ***	0.0579 **	0.0747 ***	0.0356	0.0356 *	0.0542 ***	0.0501 ***	0.0695 ***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.002)	(0.000)	(0.001)	(0.000)	(0.058)	(0.038)	(0.000)	(0.001)	(0.000)
dreg2	0.0003548	0.00200	0.0135	0.0126	-0.00585	0.0153	0.0140	0.0009626	-0.0159	-0.0274	-0.0162	-0.0162	-0.0109	-0.0102	-0.0172
	(0.975)	(0.856)	(0.138)	(0.182)	(0.452)	(0.549)	(0.488)	(0.956)	(0.305)	(0.065)	(0.429)	(0.183)	(0.304)	(0.332)	(0.051)
dreg3	-0.0328	-0.00847	-0.00639	-0.0122	-0.0238 *	0.0239	0.0112	0.0298	-0.00431	-0.0231	-0.0460 **	-0.0460 **	-0.0293	-0.0404 **	-0.0431 ***
	(0.054)	(0.607)	(0.640)	(0.390)	(0.041)	(0.576)	(0.739)	(0.309)	(0.868)	(0.351)	(0.005)	(0.009)	(0.057)	(0.008)	(0.001)
dreg4	-0.0284 *	-0.0173	-0.0107	-0.0190 *	-0.0355 ***	0.0184	0.0271	0.0172	-0.00502	-0.0192	-0.0315 *	-0.0315 **	-0.0167	-0.0242 *	-0.0347 ***
	(0.015)	(0.123)	(0.253)	(0.049)	(0.000)	(0.532)	(0.243)	(0.392)	(0.778)	(0.258)	(0.020)	(0.008)	(0.108)	(0.019)	(0.000)
dreg5	0.0467 ***	0.0618 ***	0.0612 ***	0.0656 ***	0.0510 ***	0.0751 **	0.0644 **	0.0529 **	0.0331 *	0.0325 *	0.0399 *	0.0399 **	0.0350 **	0.0374 **	0.0328 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.004)	(0.002)	(0.003)	(0.038)	(0.032)	(0.014)	(0.003)	(0.003)	(0.001)	(0.001)
dreg6	-0.0111	0.00955	0.0200	0.0251 *	0.00527	0.0504	0.00503	0.0147	0.0167	-0.0196	-0.0246 *	-0.0246	-0.00945	-0.000338	-0.0103
	(0.421)	(0.473)	(0.070)	(0.028)	(0.576)	(0.094)	(0.832)	(0.475)	(0.361)	(0.260)	(0.012)	(0.100)	(0.468)	(0.979)	(0.345)
dreg7	0.115 ***	0.137 ***	0.140 ***	0.135 ***	0.123 ***	0.110 ***	0.112 ***	0.0948 ***	0.0783 ***	0.0613 ***	0.124 ***	0.124 ***	0.122 ***	0.121 ***	0.118 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
dreg8	0.0471 ***	0.0590 ***	0.0669 ***	0.0655 ***	0.0475 ***	0.0148	0.0342	0.0179	0.00400	-0.0197	0.0532 ***	0.0532 ***	0.0576 ***	0.0619 ***	0.0552 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.536)	(0.070)	(0.275)	(0.783)	(0.154)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
_cons	3.571 ***	3.638 ***	3.699 ***	3.717 ***	3.769 ***	3.781 ***	3.746 ***	3.804 ***	3.848 ***	3.896 ***	3.672 ***	3.672 ***	3.745 ***	3.802 ***	3.850 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
N	9424	9424	9424	9424	9424	2783	2783	2783	2783	2783	6641	6641	6641	6641	6641
R-Squared	-	-	-	-	0.443	-	-	-	-	0.353	-	-	-	-	0.418
Pseudo R-Squared	0.301	0.286	0.275	0.264	-	0.212	0.202	0.205	0.202	-	0.299	0.286	0.269	0.254	-

* p<0.05, ** p<0.01, *** p<0.001

Source: Author based on VHLSS2014

6. Conclusion

Overall, urban-rural and between regions inequalities measured by expenditure were diverging from the year 1993 to 2004, but they were converging from the year 2004 to 2014. Meanwhile the trend of inequalities within areas and regions were continuously diverging from 1993 to 2014. For the bottom 40 percent of the population, based on the estimation results from the quantile regression, education has been the important explanatory factor of expenditure from 1993 to 2014. Similarly, the service sector has provided higher earning opportunities compared to industrial and agricultural sectors. At least in the 1990s and early 2000s, the role of foreign remittances was significant; however, as of 2014, the effect became marginal. On the other hand, the relationship of domestic remittances reversed compared to the foreign source. Ethnic minorities have been still left behind the benefit of economic development, while the gap between the majority *Kinh* and the rest of ethnic minorities has been converging.

Given the analytical results, the urban-rural and between regions divergence during the period 1993-2004 is deemed mainly due to the urban-rural difference of access to education and non-farm sector jobs of household heads along with the urban concentration on economic growth, and the access to foreign remittances. The convergence during the period 2004-2014 would partly results from the substantial increase of domestic remittances from the urban migrants to the rural hometown backed by the abolition of so-called *ho khau* system in Vietnam that is similar to the *hukou* system in China, restricting living places of citizens. The diverging trend of inequalities within areas and regions from 1993 to 2014 are likely to reflect the difference in the main covariates (e.g. years of education).

To improve the living standards of more impoverished people, the authorities should keep the expenditure for educational investment notably for them to get productive sector job. In particular, marginalized groups such as ethnic minorities should be better targeted. Also, policy should facilitate the smooth movement of people, from lower productive areas and

sectors to the higher productive for further economic growth and improvement of the living standards of more impoverished people. While *ho khau* system was abolished in 2006, Vietnamese migrants in the urban area are still reported to have been discriminated on the access to public services such as education and health–remaining space for policy intervention.

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