Intra-generational and intergenerational mobility in Vietnam

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10 February 2017

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ABSTRACT

This study examines intra-generational and intergenerational mobility of employment and income in Vietnam during the 2004-2008 and 2010-2014 periods. It finds rather high mobility across income quintiles. There was high mobility of individuals by occupational skills but less mobility by employment status and sectors. The upward mobility of occupation increased over time because of the increase in skilled occupation. The intergenerational elasticity of earnings for parents and children is estimated at around 0.36. The intergenerational elasticity is very similar for 2004 and 2014. Education plays an important role in improving the intergenerational mobility. The intergenerational elasticity for children without education degrees and those with post-secondary degrees is 0.51 and 0.17, respectively. With post-secondary degree, 80% of people whose parents are unskilled have skilled or non-manual occupation.

Keywords: Social mobility, intra-generational mobility, intergenerational mobility, occupational mobility, income mobility, Vietnam.

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1. INTRODUCTION

There are different definitions of social mobility (e.g., Behrman, 2000; Torche, 2015). Social mobility can refer to movement of individuals and households across different social positions. Social mobility includes inter-generational mobility and intra-generational mobility. Inter-generational mobility is the change of the position of a person or a household as compared with previous generations, while intra-generational mobility is the change of the position of a person or a household over time. Social mobility can be measured in terms of education, employment and income. The movement can be downward or upward.

There is an association between social mobility and inequality. In a society with high income inequality, there are very rich as well as very poor households, and the family background can be an important factor in determining income of children (Corak, 2013a). For example, being born in a rich family can result in better health and education for children. Family resources and networks also affect children's networks and employment (Corak, 2013a). Children born in rich families are more likely to have good jobs and high earnings. As a result, high inequality can result in low social mobility including both intra-generational and intergenerational mobility. The invert association between intergenerational mobility and inequality is described by the "Great Gastby" curve (Corak, 2013b). Countries with high income inequality tend to have higher intergenerational elasticity or low income mobility across the generations.

Vietnam has achieved high economic growth during the recent decades. Poverty has been significantly decreased over time. The proportion of people below the expenditure poverty line decreased from 58.1 percent in 1993 to 14.5 percent in 2008 and 10 percent in 2012. Poverty rate has declined in all population groups and in all geographical regions (World Bank, 2013).[1] However, poverty rate remains very high in remote and mountainous areas where there is a high proportion of ethnic minorities. In some remote areas, more than 80 percent of people remain to live below the poverty line (Nguyen, 2011; Lanjouw et al., 2013). There are a large gap in living standards between ethnic minorities and Kinh people. The absolute income gap between the top income quintile and the bottom income quintile also tends to increase over time.

There is an influential view that equality in opportunity can improve income equality. Poor as well as rich children should have the same opportunities for education and better employment (Black and Devereux, 2010). Understanding of social mobility is very important to improve equality in opportunities and welfare in Vietnam. Thus, this study provides descriptive analysis of the situation and trend of social mobility in Vietnam, and subsequently examines factors associated with the social mobility. More specifically, this study has three objectives. The first is to present the descriptive analysis of intra-generational mobility of income and

[1] For poverty measurement in Vietnam, see for example Nguyen (2011) and Nguyen and Tran (2014).

employment mobility in Vietnam. The second is to analyse the intergenerational mobility of employment and earnings. The third is to analyse the association of different factors, especially education, with the intra-generational and intergenerational mobility. Data used for this analysis are from Vietnam Household Living Standard Surveys (VHLSS) in 2004, 2008, 2010, and 2014.

There is a large number of studies on intergenerational mobility (for review e.g., see Black and Devereux, 2010; Solon, 2013; and Torche, 2015). Most studies focus on the analysis in the US and other developed countries. There are fewer empirical evidences on intergenerational mobility in developing countries, possibly because of less availability of data sets in these countries. In Vietnam, two studies estimate the intergenerational elasticity. Using the VHLSS 1998, Hertz et al. (2008) estimate the elasticity of education between parents and children at 0.58. Emran and Shilpi (2011) find a high correlation of intergenerational occupation in Vietnam using the VHLSS 1993. Most recently, Brand-Weiner et al. (2015) examine the intra-general mobility of income and occupation using VHLSS in 2004 and 2008, showing rather high income mobility in Vietnam. However, the mobility of employment across sectors (agriculture, service, and industry) is small. Several studies look at poverty transition of households over time (e.g., Nguyen, 2012; Baulch and Vu, 2010; Nguyen et al., 2015). Overall, these studies find ethnic minority and low education households tend to be more chronically poor than Kinh majority and high education households.

Compared with previous studies on social mobility in Vietnam, this study has several differences. Firstly, this study examines not only intra-generational mobility but also intergenerational mobility in both occupational and earning outcomes. Previous studies look at either intra-generational mobility or intergenerational mobility. Secondly, we use most recent VHLSS (from 2004 to 2014) to examine the change in social mobility over time. Finally, using regressions, we are able to investigate association between several socio-economic factors and social mobility.

The paper is structured into five sections. After the Introduction, the second section introduces the data set of VHLSS. The third section presents income inequality and intra-generation income mobility of households in Vietnam. The third section analyses the intra-generational occupational mobility of individuals over time. The fourth section presents the analysis of inter-generational mobility. Finally, the fifth section concludes.

2. DATA SETS

This study uses sets of VHLSS in 2004, 2008, 2010 and 2014. The VHLSSs were conducted by the General Statistics Office of Vietnam (GSO) with technical assistances from the World Bank. VHLSSs are conducted every two years. The latest survey that has been released is the 2014 VHLSS. In this study, we mainly use the four VHLSSs to analyse the change during 2004-2008 and during 2010-2014. The surveys contain household-level and individual-level data. Data include basic demography, employment and labor force participation, education, health, income, expenditure, housing, fixed assets and durable goods, participation of households in poverty alleviation programs.

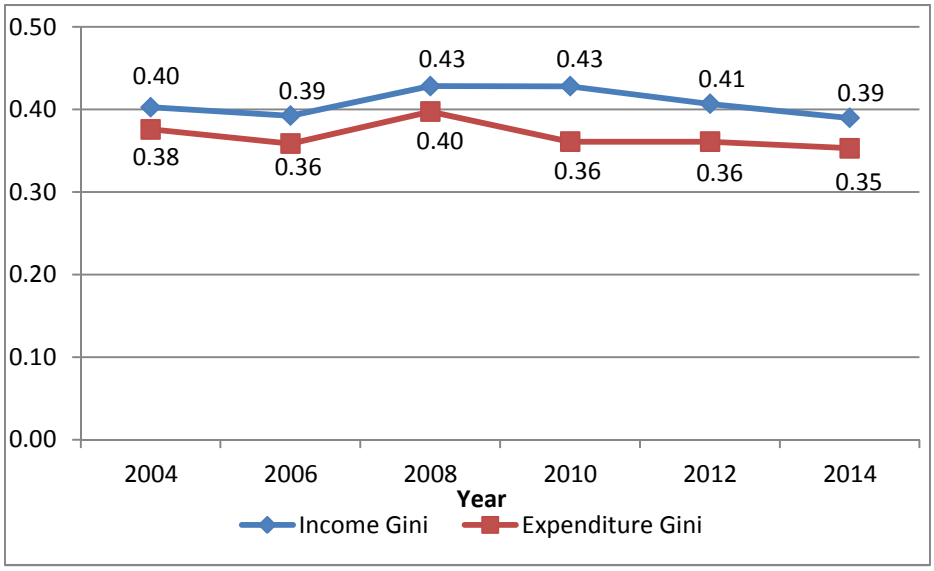
The number of households sampled in the VHLSS 2004, 2008, 2010, and 2014 is 9,188, 9,189, 9,399, and 9,398, respectively. The number of individuals from these sampled households in the VHLSS 2004, 2008, 2010, and 2014 is 40,437; 38,253; 36,999; and 35,520, respectively. The VHLSSs are representative at the urban/rural and regional level. There are panel households (1,817 households) during the 2004 VHLSS and the 2008 VHLSS; and during the 2010 VHLSS ((1,817 households) and the 2014 VHLSS (1,813 households) . However, there are no panel data between the 2008 VHLSS and the 2010 VHLSS. The 2010 and 2012 VHLSSs use the new sample frame (from the 2009 Population and Housing Census). As a result, there is no link between the 2010 VHLSS and the previous VHLSSs.

3. HOUSEHOLD INCOME MOBILITY

3.1. Income inequality

Inequality in Vietnam, which is measured by the Gini index, has been quite stable over time. Inequality increased lightly in 2008 and 2010 and decreased in 2012 and 2014. Figure 1 presents the income and expenditure Gini indexes during 2004-2014. The income inequality is higher than the expenditure inequality, but the difference is small. In 2014, the income and expenditure Gini indexes were 0.39 and 0.35, respectively. It should be noted that household surveys can underestimate income inequality since they do not capture the richest people of the country.

Figure 1. Income and expenditure inequality over time

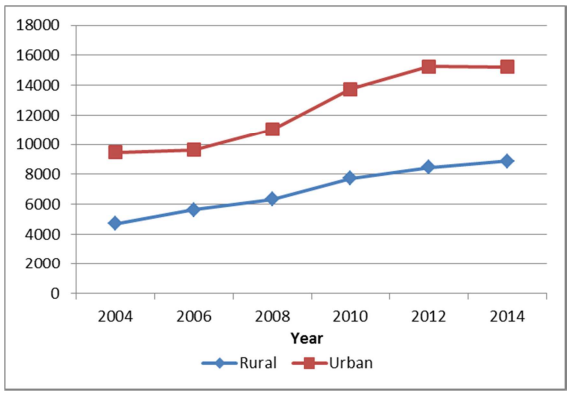


Source: Estimates from VHLSSs

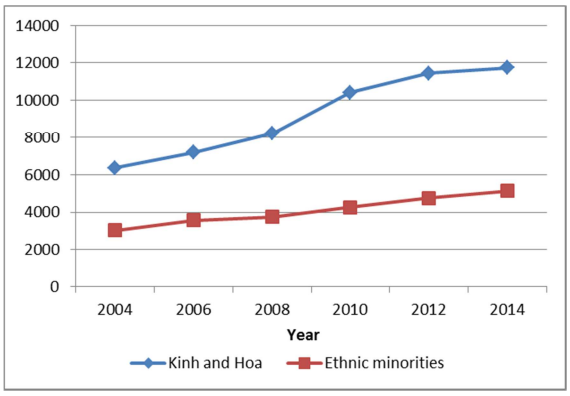
Although the Gini coefficient did not increase over time, the gap in income between groups increased over time. The absolute per capita income gap between urban and rural households increased from 4754 thousand VND (US$ 213) in 2004 to 6344 thousand VND (US$ 288) in 2014 (Figure 2). The gap between Kinh/Hoa and ethnic minorities is larger. Not only the absolute income gap but also the relative income gap increased over time. The ratio of per capita income of Kinh/Hoa to that of ethnic minorities increased from 2.1 in 2004 to 2.3 in 2014.[2]

Figure 2. Per capita income by urban/rural and ethnicity

Urban and rural people



Kinh/Hoa and ethnic minority people

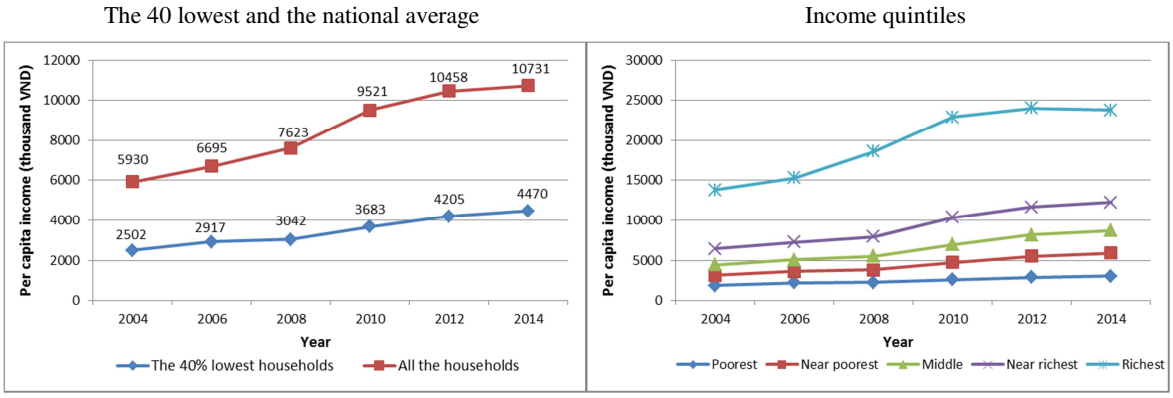


Note: per capita income is measured in the price of Jan 2004.
Source: Estimates from VHLSSs

[2] There are 54 ethnic groups in Vietnam, in which the Kinh majority accounts for 85% of the population. Kinh tends to live in delta areas, and has higher living standards than other ethnic minorities. Hoa (Chinese) is a rich group and also live in delta areas. Thus Hoa is often grouped into Kinh in studies on household welfare in Vietnam.

The left panel of Figure 3 presents the per capita income of all the households and the 40% lowest income households. The Sustainable Development Goals (SDGs) on inequality is 'by 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average'. During the past ten years from 2004 to 2014, the average annual growth rate of real per capita income of the bottom 40 percent of the population is 5.4%/ year, while the corresponding rate of the national average is 5.5%/year. To achieve this target, households in lower income quintiles should have a higher growth rate of income.

Figure 3. Per capita income by income quintiles



Note: per capita income is measured in the price of Jan 2004.
Source: Estimates from VHLSSs

The right panel of Figure 3 shows an important point of the income inequality in Vietnam. There are not large gaps in per capita income among the bottom quintile to the nearest richest quintile. However, there is a large jump in the per capita income from the near richest to the richest quintile. It implies that there are very rich households in the richest quintile, and it would be very difficult to move to the richest quintile from a lower quintile.

3.2. Income mobility

To examine the income mobility, we use panel household data from the 2004 and 2008 VHLSSs, and the 2010 and 2014 VHLSSs. Households are grouped into income quintiles. Figure 4 presents the percentage of households who improved their income level from the bottom income quintile (the 20% lowest income) to a higher income quintile over time by characteristics of household heads. It shows that 45% of households in the bottom quintile in 2004 moved to a higher income quintiles in 2008. This figure is 37% during 2010-2014. It implies the mobility of the lowest quintile households tended to decrease over time.

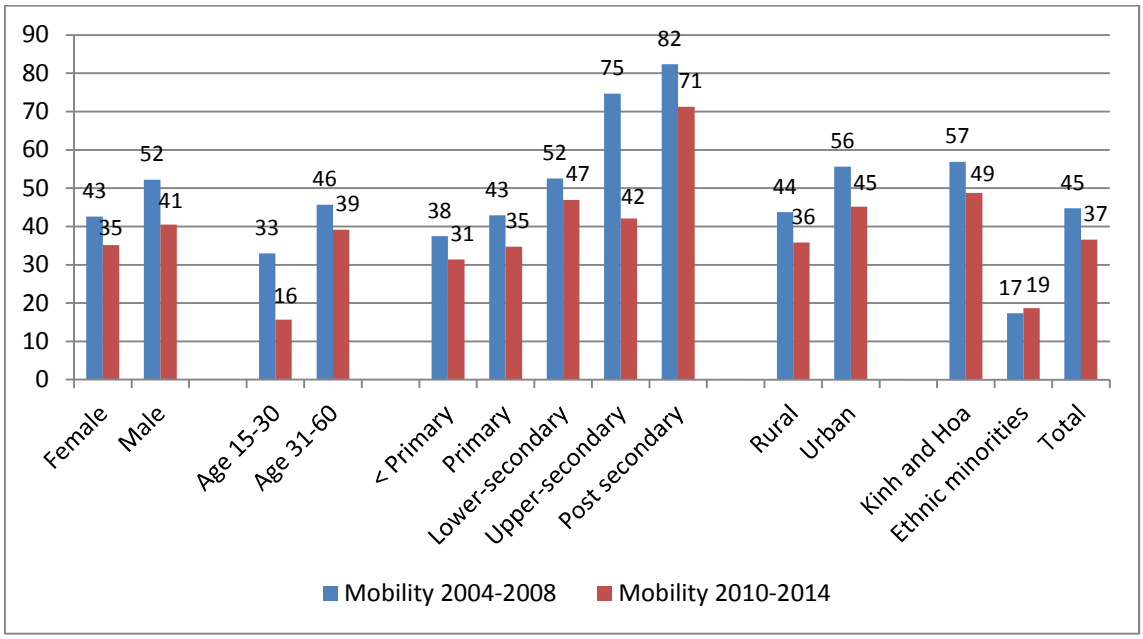
Urban households are more likely to move up than rural households. The gap in income mobility is large between Kinh/Hoa and ethnic minorities. During the 2010-2014 period, around 19% of ethnic minorities in the bottom quintile moved to a higher income quintile, while this figure for Kinh and Hoa was 49%.

Income mobility of households is also correlated with characteristics of household heads. In VHLSSs, household heads are defined as those who have the most powerful in households. Around 22% of households have female heads. However, around two-third of female heads are singled or divorced. It means that female-headed households tend to have a lower household size and more difficulties than male-headed households. Households with male heads and those with female heads have different mobility rates. However the difference is not very large. During the 2010-2014 period, 35% of female-headed households and 41% of male-headed households escaped from the bottom income quintile.

Income mobility is correlated with age of household head. Households with young heads are substantially less likely to mobile than those with older heads. During the 2010-2014 period, 39% of households with heads aged 31-60 moved from the bottom quintile to a higher quintile, while only 16% of households with head below 31 moved from the bottom quintile to a higher quintile. Interviews also show that young people have lower experiences and find it more difficult to have upward mobility.

Education plays an important role in obtaining better employment and earnings. The returns to education have consistently been found to be high in both developed and developing countries (Psacharopoulos and Partinos, 2004; Schultz, 1997, 2002). Figure 4 shows the important role of education in Vietnam, especially post-secondary education (college and above) in income mobility. 71% of households with post-secondary heads moved from the bottom to a higher income quintile during the 2010-2014 period. For households with low education heads, these corresponding figures are just 31% and 35%.

Figure 4. Percentage of households moving up from the lowest income quintile to a higher income quintile



Source: Estimates from VHLSSs

Table 1 presents the more detailed analysis of income mobility during the 2010-2014 period. In Table A.1 in Appendix, we present the analysis of mobility during the 2004-2008 period for comparison. Overall, the mobility trend does not change significantly over time. To avoid repetition, we use the results of income mobility in the period 2010-2014 for interpretation.

In addition to income mobility from the 20% lowest income quintile to a higher income quintile, Table 1 presents the mobility from the 40% lowest income quintiles to a higher income quintile. The trend of mobility from the 40% lowest income quintiles is similar to the trend of mobility from the 20% lowest income quintile. Households with female, young and low education heads are less likely to move up than households with male, older and high education heads. Rural and ethnic minority households are also less likely to move up. It should be noted that the proportion of mobility in the higher income quintiles is lower. It means that it's more difficult to move up when households have high income or belong to a high income quintile.

We also look at the downward mobility from a higher income quintile to lower income quintiles. Households with young heads are more likely to fall down. Education plays an important role to reduce the downward mobility of households. Kinh/Hoa and urban households are less likely to have downward mobility than ethnic minority and rural households.

In the last two columns of these tables, we estimate the absolute and relative income mobility indexes (Fields and Ok, 1996, 1999). The absolute change index is equal to the average of the absolute difference between the 2010 income and the 2014 income. The relative change

index is equal to the average of the absolute change divided by the per capita income in the base year (i.e., 2010 in Table 1).[3] Table 1 shows that female-headed households have lower mobility than male-headed households. Households with young heads are less likely to mobile than those with older heads. Households with high education heads have a higher absolute mobility than those with low education. However, since the base income of households with high education heads is higher, their relative mobility is lower.

Table 1. Income mobility of households during 2010-2014

	% moving up from the 20% bottom in 2010 to a higher quintile in 2014	% moving up from the 40% bottom in 2010 to a higher quintile in 2014	% moving down from the 40% top in 2010 to a lower quintile in 2014	% moving down from the 20% top in 2010 to a lower quintile in 2014	Absolute change in per capita income 2010-2014 (Fields and Ok index)	Relative change in per capita income 2010-2014
Sex of hh. head						
Male	40.5	17.8	11.9	43.0	5652.4	61.9
Female	35.1	11.0	11.9	36.6	4257.6	47.8
Age of hh. head						
Age 15-30	15.6	2.4	16.6	53.0	3440.5	45.5
Age 31-60	39.2	13.2	11.6	37.5	4683.6	51.7
Education of hh. head						
< Primary	31.4	8.1	19.4	48.2	3355.8	55.6
Primary	34.7	8.5	12.6	58.4	4489.3	60.4
Lower-secondary	46.9	11.9	12.1	38.2	4314.8	50.2
Upper-secondary	42.1	19.7	4.7	31.8	5544.7	54.1
Post-secondary	71.3	22.7	3.8	30.9	6348.2	43.3
Rural/urban						
Rural	35.8	10.9	15.0	44.7	4198.6	54.5
Urban	45.2	17.0	3.3	32.0	5656.3	46.0
Ethnicity of hh. head						
Kinh and Hoa	48.7	13.4	9.3	37.9	4964.0	51.2
Ethnic minorities	18.7	5.0	35.7	47.8	2479.9	52.7
Total	36.5	12.6	11.9	38.4	4597.0	51.3

Source: Estimates from VHLSSs 2004 and 2008

Table 2 presents ordinary least squares (OLS) regression of the probability of upward and downward income mobility during the 2010-2014 period. The regression analysis for the 2004-2008 period is presented in Table A.2 in Appendix. Unlike the descriptive analysis is Table 1, an estimated coefficient of an explanatory variable in regression reflects the partial correlation between this variable and the dependent variable once other explanatory variables in

[3] More specifically, the average absolute income change is computed as follows: $I = \frac{1}{n}\sum_{j=1}^{n}\left|Y_j^f - Y_j^i\right|$, and the relative absolute income change is computed as follows: $I = \sum_{j=1}^{n}\left|Y_j^f - Y_j^i\right| / \sum_{j=1}^{n} Y_j^i$, where $Y_j^{i,f}$ is the income level of individual or household j in the initial (i) or final (f) period. n is the number of individuals or households in the data set.

the regression are controlled for. It shows that sex and age of household heads are not strongly correlated with income mobility after other explanatory variables are controlled for.

Compared with Kinh and Hoa, ethnic minorities are more likely to move down but less likely to move up in income mobility. Households with higher education heads are more likely to move up and less likely to move down. They are also more mobile than households with lower education head. However, for households in the bottom quintile and the top quintile, education of household heads is not significant in regression of income mobility. This might be because of a small sample size of the bottom and top quintiles used in the regressions.

Interestingly, household composition is also correlated with income mobility. Households with more children and more elderly tend to have lower income mobility. They are less likely to move up to a higher quintile, but more likely to move down to a lower income quintile. Clearly, more dependents create more burdens for households to increase their income. Agricultural land is not important for income mobility. Having more lands might restrict households to agricultural production, and they are less likely to move.

There are no large differences in income mobility between urban and rural households. Regarding the regional variables, households in South East – the richest region in Vietnam have the highest income mobility than household in other regions. Compared with households in Red River Delta (the reference group), households in North East, South Central Coast, and Central Highland are less likely to move up from the lowest quintile. Households in Southeast are more likely to move up from the 40% bottom. Regarding downward mobility, households in North Central Coast and Central Highland are more likely to move down from the high income quintiles.

Table 2. Regression of income mobility of households during 2010-2014

Explanatory variables	Moving up from the 20% bottom in 2010 to a higher quintile in 2014	Moving up from the 40% bottom in 2010 to a higher quintile in 2014	Moving down from the 40% top in 2010 to a lower quintile in 2014	Moving down from the 20% top in 2010 to a lower quintile in 2014	Absolute change in per capita income 2010-2014 (Fields and Ok index)	Relative change in per capita income 2010-2014
Gender of household head (male=1, female=0)	0.0744	-0.0818**	0.0102	-0.0923	-1,190.39	-0.1685**
	(0.0712)	(0.0323)	(0.0242)	(0.0690)	(727.91)	(0.0719)
Age of household head	0.0027	0.0005	-0.0003	-0.0039	-4.90	-0.0013
	(0.0024)	(0.0011)	(0.0011)	(0.0034)	(14.56)	(0.0022)
Ethnicity of head (Kinh, Hoa=0, ethnic minorities=1)	-0.1904***	-0.0452	0.2439***	-0.0783	-1,440.9***	-0.0895
	(0.0701)	(0.0312)	(0.0488)	(0.1512)	(427.65)	(0.0913)
Hh. Head with educational degree	*Reference*					
Hh. Head with primary education	0.0011	0.0125	-0.0321	0.0916	950.32	0.0295
	(0.0638)	(0.0287)	(0.0316)	(0.1267)	(770.97)	(0.0756)
Hh. Head with lower-secondary degree	0.1078	0.0609*	-0.0175	-0.1144	705.57	-0.0358
	(0.0735)	(0.0352)	(0.0325)	(0.1081)	(447.25)	(0.0646)
Hh. Head with upper-secondary degree	0.1060	0.1182**	-0.0770**	-0.1894	1,497.65**	-0.0780
	(0.1436)	(0.0596)	(0.0371)	(0.1225)	(629.51)	(0.0715)

Explanatory variables	Moving up from the 20% bottom in 2010 to a higher quintile in 2014	Moving up from the 40% bottom in 2010 to a higher quintile in 2014	Moving down from the 40% top in 2010 to a lower quintile in 2014	Moving down from the 20% top in 2010 to a lower quintile in 2014	Absolute change in per capita income 2010-2014 (Fields and Ok index)	Relative change in per capita income 2010-2014
Hh. Head with college, university	0.2276	0.1639***	-0.1086***	-0.1684	2,558.29***	-0.1484**
	(0.1546)	(0.0420)	(0.0314)	(0.1023)	(572.05)	(0.0721)
Household size	-0.0193	0.0201**	-0.0191**	0.0170	-162.43	0.0205
	(0.0170)	(0.0097)	(0.0076)	(0.0209)	(118.18)	(0.0140)
Proportion of children below 15	-0.1223	-0.1418**	0.0367	0.0892	-2,749.3***	-0.1860
	(0.1389)	(0.0676)	(0.0554)	(0.1932)	(898.67)	(0.1365)
Proportion of members above 60	-0.3701***	-0.0862	0.1863***	0.2111	-2,783.0***	-0.1559*
	(0.1381)	(0.0539)	(0.0627)	(0.1498)	(887.03)	(0.0943)
Log of annual crop land	-0.0044	-0.0043	-0.0002	0.0313***	-59.18	-0.0025
	(0.0117)	(0.0040)	(0.0032)	(0.0107)	(80.53)	(0.0072)
Log of perennial crop land	0.0124	-0.0033	-0.0015	-0.0129	-28.50	0.0004
	(0.0085)	(0.0037)	(0.0040)	(0.0107)	(78.35)	(0.0087)
Urban (urban=1, rural=0)	0.0265	-0.0269	-0.0665***	0.0101	-353.33	-0.0589
	(0.1174)	(0.0360)	(0.0238)	(0.0712)	(984.89)	(0.0723)
Red River Delta	*Reference*					
North East	-0.2212**	0.0209	0.0213	0.1452	425.61	0.1483
	(0.1051)	(0.0364)	(0.0347)	(0.0946)	(567.30)	(0.1032)
North West	-0.1416	-0.0612	0.0629	0.1588	-479.45	0.1337
	(0.1257)	(0.0384)	(0.0762)	(0.2708)	(557.96)	(0.1380)
North Central Coast	-0.1529	-0.0013	0.1188***	0.2134*	-492.96	0.0729
	(0.1117)	(0.0359)	(0.0381)	(0.1225)	(488.69)	(0.0748)
South Central Coast	-0.2003*	-0.0098	0.0748*	0.1144	-343.29	-0.0795
	(0.1148)	(0.0352)	(0.0430)	(0.1129)	(543.75)	(0.0592)
Central Highlands	-0.3150***	0.0560	0.0791*	-0.0199	886.50	0.0036
	(0.1154)	(0.0563)	(0.0462)	(0.0970)	(727.88)	(0.0903)
South East	-0.1365	0.1366***	-0.0157	0.0340	2,717.99**	0.0998
	(0.1414)	(0.0478)	(0.0244)	(0.0817)	(1,151.56)	(0.0811)
Mekong River Delta	0.0163	0.0310	0.0328	-0.0482	559.60	0.0117
	(0.1114)	(0.0366)	(0.0278)	(0.0811)	(602.11)	(0.0652)
Constant	0.5351***	0.0683	0.1709**	0.5565**	6,403.48***	0.8131***
	(0.1784)	(0.0814)	(0.0756)	(0.2259)	(1,515.47)	(0.1667)
Observations	403	1,084	1,084	326	1,813	1,813
R-squared	0.177	0.078	0.136	0.120	0.045	0.018

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1.
Source: Estimates from VHLSSs 2004 and 2008

4. INTRA-GENERATIONAL EMPLOYMENT MOBILITY

4.1. Employment structure

In this section, we examine the intra-generational mobility of individuals in terms of employment. Table 3 shows the share of individuals aged 15-60 by occupation during 2004-2014. The definition of employment is similar to Brand-Weiner et al. (2015). The categories are

unskilled manual, skilled manual (e.g. craft and related trades workers, machine operators) and non-manual (e.g. service and sales workers, technicians, managers). The non-manual occupation is considered as highly skilled one. The share of unskilled workers decreased remarkably over time. The proportion of individuals aged 15-60 had unskilled employment was 72.3% in 2004 and 45.9% in 2014.

We also analyse employment status mobility, which defines workers by wage employment and self-employment. It shows the share of self-employed workers decreased from 66.5% in 2004 to 57.8% in 2014. The share of wage workers increased over time, indicating the expansion of formal sector.

Employment is classified by sectors including agriculture, industry and services. Laborers in the agricultural sector tend to have lower skills and income than laborers in the other two sectors. During the 2004-2014 period, the number of agricultural laborers decreased, and they moved to the service and industrial sectors. However, in the recent years from 2010 to 2014, the share of agricultural workers did not decrease. It might be because of the economic slowdown in recent years in Vietnam.

Table 3. Employment of individuals aged 15-60 over time

	Occupation			Employment		Sector		
Year	Unskilled manual	Skilled manual	Non-manual	Self-employed	Wage earner	Agricult-ure	Industry	Service
2004	72.3	15.2	12.5	66.5	33.5	52.7	19.8	27.6
2008	64.6	20.1	15.3	63.5	36.5	49.4	22.1	28.6
2010	48.1	26.8	25.1	60.5	39.5	42.9	25.5	31.6
2014	45.9	28.7	25.3	57.8	42.2	44.5	24.3	31.2

Source: Estimates from VHLSSs 2004, 2008, 2010 and 2014

Table 4 presents employment structure of workers by different characteristics in 2014. Men are more likely to have skilled, wage and non-farm jobs than women. There is no difference in occupation by skills between young and older people. Young people are more likely to have wage jobs in the industrial section then older people. There is a strong correlation between education and employment. People with high education, especially post-secondary school have a substantially higher proportion of skilled and non-manual occupation, wage and non-farm jobs than those with low education.

There is also a large gap in skilled occupation between urban and rural people, and between Kinh/Hoa and ethnic minority people. The share of self-employed and farm workers is also higher in rural and ethnic minority people.

Table 4. Employment of individuals aged 15-60 in 2014

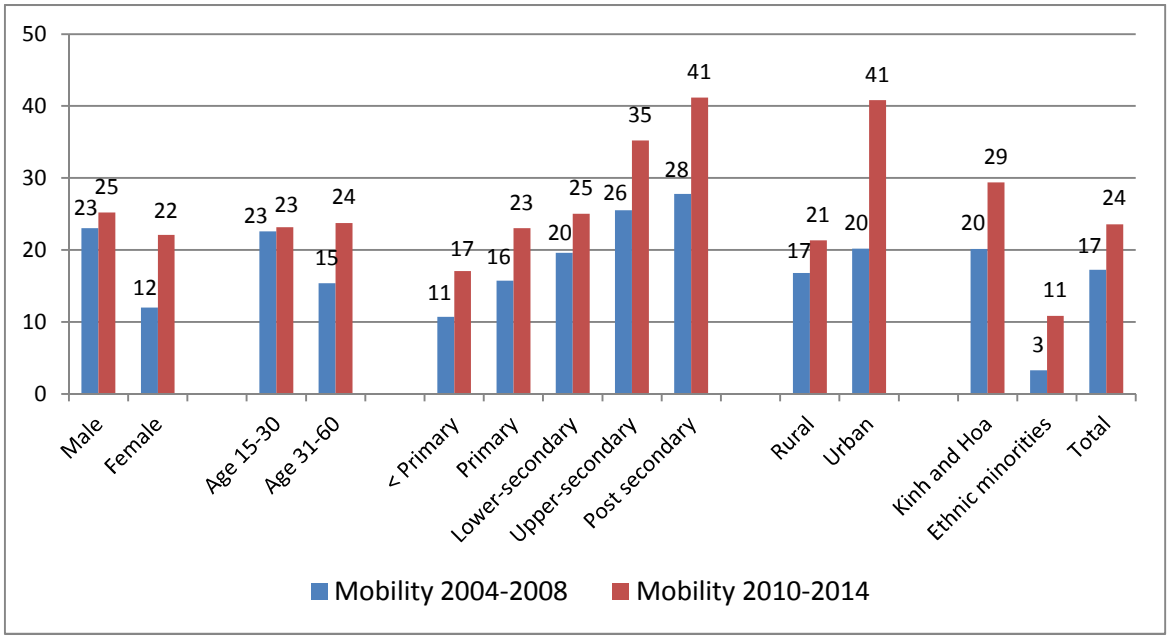
Group	Occupation			Employment		Sector		
	Unskilled manual	Skilled manual	Non-manual	Self-employed	Wage earner	Agricul-ture	Industry	Service
Sex								
Male	43.3	35.8	20.9	51.6	48.4	42.4	28.8	28.8
Female	48.6	21.4	29.9	64.1	35.9	46.5	19.7	33.7
Age								
Age 15-30	46.9	28.8	24.3	46.9	53.1	41.5	29.6	29.0
Age 31-60	45.5	28.7	25.8	62.6	37.4	45.8	22.0	32.2
Education								
Less primary	69.4	21.8	8.8	70.7	29.3	69.5	14.4	16.2
Primary	56.4	30.1	13.4	66.7	33.3	55.3	24.5	20.2
Lower-secondary	53.4	31.5	15.1	68.4	31.6	50.1	27.7	22.2
Upper-secondary	37.3	32.2	30.5	56.8	43.2	33.1	29.5	37.4
Post-secondary	10.2	26.2	63.5	22.7	77.3	11.3	23.7	65.0
Rural/urban								
Rural	54.8	29.2	16.1	63.8	36.2	55.3	23.4	21.3
Urban	22.9	27.6	49.4	42.1	57.9	16.3	26.7	57.0
Ethnicity								
Kinh and Hoa	38.7	32.3	28.9	53.3	46.7	36.8	27.6	35.6
Ethnic minorities	82.1	10.8	7.2	80.3	19.7	82.6	8.0	9.3
Total	45.9	28.7	25.3	57.8	42.2	44.5	24.3	31.2

Source: Estimates from VHLSS 2014

4.2. Mobility of employment

Figure 5 presents the occupation mobility from unskilled to skilled and manual occupation over time using panel data of VHLSSs. Among the unskilled workers in 2004, 17% of them became skilled or non-manual workers in 2008. The upward mobility of occupation increased during the period 2010-2014. 24% of the unskilled workers in 2010 had a skilled manual or non-manual job in 2014. The occupation mobility increased for all the groups of workers including ethnic minorities and Kinh/Hoa, urban and rural people, male and female, young and older, and people with different education levels. However, there is a large gap in occupation mobility between urban and rural people, between Kinh/Hoa and ethnic minority people, and between people with different education levels. Having high education plays an important role to change from unskilled to skill jobs.

Figure 5. The percentage of people moving from unskilled to skilled occupation



Source: Estimates from VHLSSs

In Table 5, we analyse employment mobility during the 2010-2014 period in more details. The analysis of employment mobility during the 2004-2008 period is presented in Table A.3 in Appendix. It shows that 23.6% of unskilled workers in 2010 found skilled or non-manual jobs in 2014. However, there was also downward mobility: 19.7% of killed and non-manual workers in 2010 had unskilled jobs in 2014. The movement between self-employed works and wage works and movement between farm and non-farm sectors were quite low.

There are only small differences in employment mobility between men and women. Regarding age, young people had higher movement from self-employed to employed employment, and lower movement from employed to self-employed employment than older people. Having high education helps people find a skilled or non-manual job and reduce the downward change from a skilled to an unskilled job. Rural people and ethnic minority people are less likely to move up but more likely to move down in employment than urban and Kinh/Hoa people.

Table 5. Employment mobility of individuals during 2010-2014

	Moving up from unskilled to skilled and non-manual	Moving down from skilled and non-manual to unskilled	Moving from self-employed to wage jobs	Moving from wage jobs to self-employed	Moving from agricultural to non-agricultural	Moving from non-agricultural to agricultural
Sex						
Male	25.20	17.01	21.06	19.30	14.65	15.73
Female	22.11	22.97	12.71	22.32	14.35	17.53
Age						
Age 15-30	23.18	15.08	30.64	13.54	16.85	13.28
Age 31-60	23.72	21.15	12.97	23.86	13.82	17.80
Education						
Less primary	17.08	34.24	14.28	24.43	9.03	32.52

	Moving up from unskilled to skilled and non-manual	Moving down from skilled and non-manual to unskilled	Moving from self-employed to wage jobs	Moving from wage jobs to self-employed	Moving from agricultural to non-agricultural	Moving from non-agricultural to agricultural
Primary	23.04	29.90	17.11	28.89	12.38	20.71
Lower-secondary	25.03	24.28	17.84	24.41	19.83	22.97
Upper-secondary	35.22	16.33	14.99	18.58	22.44	8.51
Post-secondary	41.18	5.45	12.82	9.75	16.26	4.61
Rural/urban						
Rural	21.34	25.95	17.63	23.94	13.89	24.55
Urban	40.82	9.74	10.51	12.94	21.72	4.76
Ethnicity						
Kinh and Hoa	29.38	18.75	15.20	18.77	17.25	13.21
Ethnic minorities	10.84	37.12	19.92	31.10	8.09	57.29
Total	23.58	19.69	16.23	20.43	14.49	16.55

Source: Estimates from VHLSSs 2010 and 2014

4.3. Regression of employment mobility

Table 6 presents the regressions of mobility of occupation during the 2010-2014 period. The dependent variables include the change in occupation, employment status and working sectors. The analysis of the 2004-2008 period is presented in Table A.4 in Appendix. It shows that men are less likely to move down from skilled and non-manual occupation to unskilled occupation than women. They are more likely to move from self-employed to employed (wage) work than women.

Age is not correlated with the occupation movement. However, there is a negative relationship between age and the probability of moving from self-employed to wage jobs. As age increases, the probability to move from self-employed to wage jobs decreases at a decreasing rate.

Education plays an important role in labor mobility from unskilled to skilled employment. Compared with the people without education, having post-secondary degree increases the probability of moving up from unskilled to skilled or non-manual occupation by 0.19. It also reduces the probability of moving down from skilled and manual occupation to unskilled occupation by 0.23.

Education is less correlated with the employment and sector movement. The regression results show that education is not correlated with the movement from self-employed to employed works as well as the movement from agricultural to non-agricultural works. However, higher education reduces the movement from employed to self-employed works and from non-agricultural to agricultural works.

Overall, household composition such as household size and age structure is not correlated with employment mobility of household members. However, having more agricultural land increases the movement from employed to self-employed works and the

movement from non-agricultural to agricultural works. Urban and regional variables also matter to mobility of employment, especially the mobility between agricultural and non-agricultural sectors. Urban people tend to move up from unskilled to skilled and non-manual occupation than rural people. Compared with workers in Red River Delta (the reference group), workers in North Central Coast, South Central Coast and Southeast are more likely to move up from unskilled to skilled and non-manual. Workers in northern mountains including North East and North West are less likely to move from self-employed to wage jobs as well as move from agricultural to non-agricultural employment. Workers in Central Highlands are more likely to transit from wage jobs to self-employed employment, but less likely to as move from agricultural to non-agricultural employment.

Table 6. Regression of employment mobility of individuals during 2010-2014

	Dependent variables					
Explanatory variables	Moving up from unskilled to skilled and non-manual	Moving down from skilled and non-manual to unskilled	Moving from self-employed to wage jobs	Moving from wage jobs to self-employed	Moving from agricultural to non-agricultural	Moving from non-agricultural to agricultural
Male=1, female=0	0.0214	-0.0625***	0.0842***	-0.0554**	0.0111	-0.0247
	(0.0227)	(0.0192)	(0.0198)	(0.0239)	(0.0190)	(0.0165)
Age	-0.0021	-0.0086	-0.0183***	-0.0124	0.0050	-0.0159**
	(0.0066)	(0.0086)	(0.0064)	(0.0094)	(0.0057)	(0.0076)
Age squared	0.0000	0.0001	0.0001*	0.0003**	-0.0001*	0.0003**
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Ethnic minorities (yes=1, Kinh, Hoa=0)	-0.0624	0.1356**	0.0386	0.0223	-0.0249	0.2369***
	(0.0457)	(0.0602)	(0.0412)	(0.0415)	(0.0324)	(0.0582)
Having no educational degree	*Reference*					
Having primary education	0.0207	-0.0072	0.0002	0.0640	0.0009	-0.0655*
	(0.0272)	(0.0534)	(0.0275)	(0.0429)	(0.0218)	(0.0379)
Having lower-secondary degree	0.0553*	-0.0896*	0.0066	0.0012	0.0427	-0.0646
	(0.0324)	(0.0536)	(0.0296)	(0.0419)	(0.0270)	(0.0410)
Having upper-secondary degree	0.1331**	-0.1322**	-0.0558	-0.0217	0.0523	-0.1508***
	(0.0558)	(0.0605)	(0.0366)	(0.0531)	(0.0429)	(0.0433)
Having college, university	0.1919***	-0.2303***	-0.0340	-0.1145***	0.0212	-0.1960***
	(0.0672)	(0.0512)	(0.0368)	(0.0410)	(0.0508)	(0.0410)
Household size	-0.0076	0.0003	-0.0196***	0.0063	-0.0030	-0.0161**
	(0.0084)	(0.0105)	(0.0069)	(0.0087)	(0.0062)	(0.0076)
Proportion of children below 15	0.0622	0.0441	-0.0685	-0.0070	-0.0790	0.0582
	(0.0661)	(0.0687)	(0.0562)	(0.0663)	(0.0527)	(0.0575)
Proportion of members above 60	-0.0170	0.0027	-0.1122	0.1649	0.0005	0.1431
	(0.1017)	(0.0978)	(0.0770)	(0.1034)	(0.0954)	(0.0882)
Log of annual crop land	-0.0056	0.0170***	0.0017	0.0092**	-0.0115***	0.0196***
	(0.0057)	(0.0046)	(0.0038)	(0.0045)	(0.0036)	(0.0039)
Log of perennial crop land	0.0014	0.0147**	-0.0037	0.0129***	0.0008	0.0165**
	(0.0042)	(0.0062)	(0.0034)	(0.0049)	(0.0030)	(0.0064)
Urban (urban=1, rural=0)	0.1252*	-0.0023	-0.0564*	-0.0033	0.0047	-0.0232
	(0.0661)	(0.0318)	(0.0339)	(0.0335)	(0.0550)	(0.0245)
Red River Delta	*Reference*					
North East	-0.0801	-0.0370	-0.0746*	0.0612	-0.1994***	0.0112
	(0.0489)	(0.0365)	(0.0415)	(0.0471)	(0.0469)	(0.0343)
North West	-0.0840	-0.1252***	-0.1495**	0.0316	-0.2548***	0.2584***
	(0.0560)	(0.0464)	(0.0592)	(0.0562)	(0.0476)	(0.0755)
North Central Coast	0.0934*	-0.0223	-0.0186	0.0455	-0.1237**	-0.0286
	(0.0512)	(0.0512)	(0.0423)	(0.0424)	(0.0478)	(0.0377)
South Central Coast	0.1258*	-0.0746**	0.0256	-0.0545	-0.1248**	-0.0625**

Explanatory variables	Dependent variables					
	Moving up from unskilled to skilled and non-manual	Moving down from skilled and non-manual to unskilled	Moving from self-employed to wage jobs	Moving from wage jobs to self-employed	Moving from agricultural to non-agricultural	Moving from non-agricultural to agricultural
	(0.0654)	(0.0376)	(0.0451)	(0.0371)	(0.0547)	(0.0265)
Central Highlands	-0.0654	0.0264	-0.0123	0.1496**	-0.2627***	0.0687
	(0.0623)	(0.0637)	(0.0521)	(0.0593)	(0.0504)	(0.0454)
South East	0.1997***	-0.0638	0.0079	-0.0109	-0.1802***	-0.0322
	(0.0722)	(0.0388)	(0.0450)	(0.0397)	(0.0551)	(0.0281)
Mekong River Delta	0.0488	-0.0505	-0.0353	-0.0567	-0.1844***	-0.0334
	(0.0562)	(0.0424)	(0.0369)	(0.0431)	(0.0435)	(0.0365)
Constant	0.2806**	0.4035**	0.7811***	0.2440	0.4182***	0.4624***
	(0.1401)	(0.1628)	(0.1448)	(0.1809)	(0.1315)	(0.1446)
Observations	1,618	1,434	1,721	1,331	1,512	1,540
R-squared	0.105	0.134	0.086	0.123	0.083	0.246

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1.
Source: Estimates from VHLSSs 2010-2014

5. INTER-GENERATIONAL MOBILITY

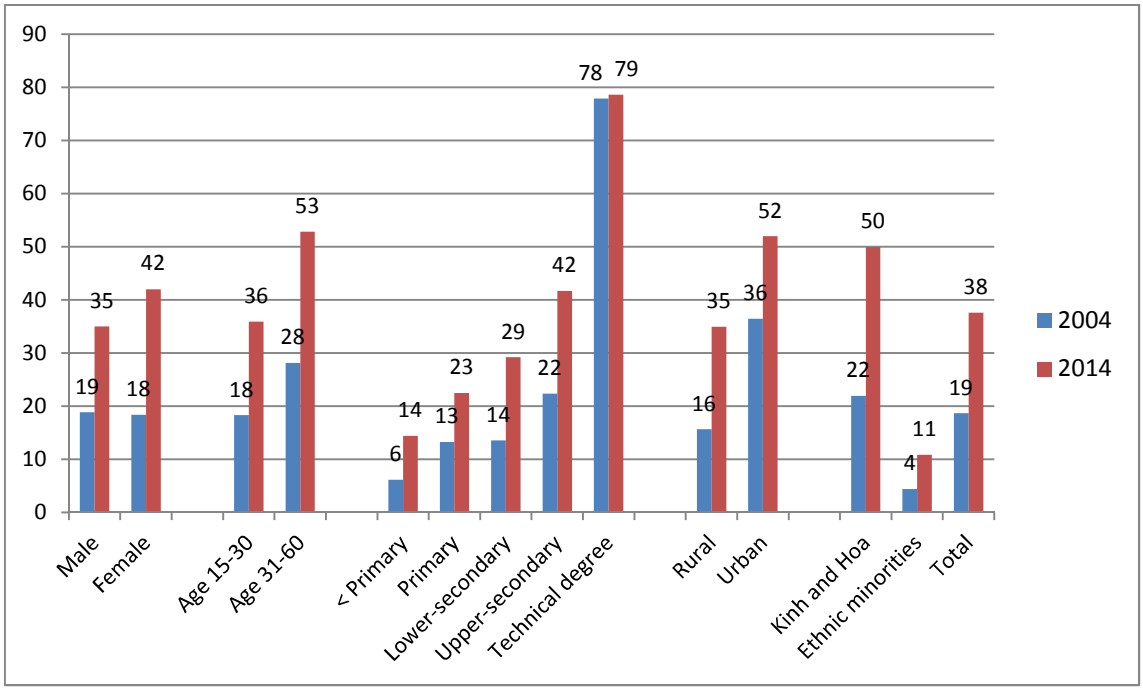
5.1. Inter-generational employment mobility

In this section, we analyse the inter-generational mobility of employment, that is, a correlation between parents' employment and children's employment. We use the sample of children and parents who are still working, and children aged from 15 to 60. We define parent as the one who have higher wages, that is if a mother has higher wages than a father, the mother is defined as the parent and vice versa.

Figure 6 shows that in 2004 among children who had a parent with unskilled occupation, 19% of them were able to find skilled or non-manual jobs. In other words, 81% of children had unskilled occupation like their parents. Occupation mobility greatly improved in 2014. 38% of children with unskilled parents found skilled or non-manual occupation. One reason for this upward mobility is the increase in skilled and non-manual employment during 2004-2014.

The improvement in occupation mobility is higher for female and older people than male and young people. Education plays an important role for improvement in intergenerational mobility of occupational skills. With post-secondary degree, 80% of people whose parents are unskilled have skilled or non-manual occupation. Urban and Kinh/Hoa people are more likely to have skilled and non-manual occupation than rural and ethnic minorities.

Figure 6. Intergenerational mobility from unskilled parents to skilled children



Source: Estimates from VHLSSs 2004 and 2014

Table 7 presents the intergenerational mobility of employment in 2014 by different types of employment and difference characteristics of individuals. This table presents not only upward but also downward intergenerational mobility of employment. The analysis of intergenerational employment mobility in 2004 is presented in Table A.5 in Appendix.

It shows that 27.7% of children with skilled or non-manual parents had unskilled occupation. This is regarded as the downward intergenerational mobility. This downward rate is very high for ethnic minorities. 67% of ethnic minority children had unskilled occupations though parents had skilled or non-manual occupations. Kinh/Hoa and urban people, especially those with high education, have remarkably lower rate of intergenerational skill downward.

Over time, there has been an expansion in the formal sector as well as the non-farm sector. The proportion of wage workers and non-agricultural workers tend to increase over time. As a result, 44.9% of children with self-employed parents found wage jobs. On the other hand, around 22% of children with wage parents had self-employed works. Intergenerational movement from agricultural to non-agricultural sectors is higher than intergenerational movement from non-agricultural to agricultural sectors.

Table 7. Intergenerational mobility of employment in 2014

Characteristics of children	Skill upward: Skilled children and unskilled parents	Skill downward: Unskilled children and skilled parents	Employment upward: wage children and self-employed parents	Employment downward: self-employed children and wage parents	Sector upward: non-agricultural children and agricultural parents	Sector downward: agricultural children and non-agricultural parents
Sex						
Male	35.02	30.14	44.12	20.27	40.05	13.84
Female	42.02	23.97	46.13	24.84	45.44	13.76
Age						
Age 15-30	35.92	28.84	43.66	22.60	40.39	14.32
Age 31-60	52.81	17.69	55.11	16.13	57.81	9.82
Education						
Less primary	14.43	41.38	30.38	21.18	19.76	17.88
Primary	22.51	44.71	37.08	17.04	29.25	14.80
Lower-secondary	29.22	43.71	30.74	39.71	31.56	25.86
Upper-secondary	41.71	29.06	43.64	25.20	50.51	16.78
Post-secondary	78.58	8.42	73.57	10.16	76.91	4.82
Rural/urban						
Rural	34.94	36.17	41.03	26.20	40.52	21.52
Urban	51.99	12.22	59.63	14.17	53.24	3.87
Ethnicity						
Kinh and Hoa	49.91	23.47	54.52	19.54	54.87	11.95
Ethnic minorities	10.86	67.47	17.77	45.43	14.82	45.33
Total	37.62	27.68	44.89	22.02	42.02	13.80

Source: Estimates from VHLSS 2014

5.2. Intergenerational correlations of earnings

An important issue of intergenerational mobility is the estimates of intergenerational correlations of earnings or the intergenerational elasticity. In this study, we use OLS regression to estimate the intergenerational elasticity. More specifically, we regress log of annual wages of children on log of annual wages of parents as follows:

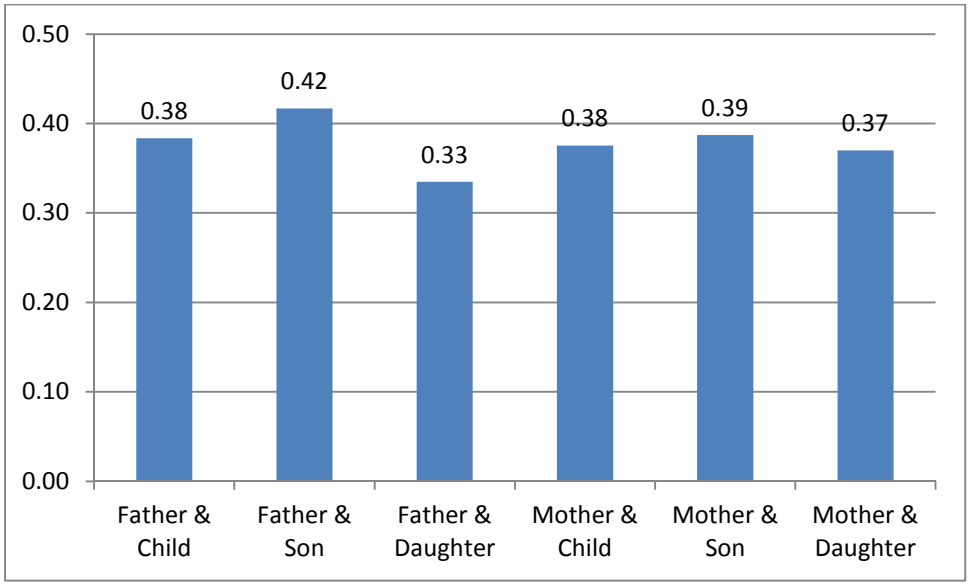
$$Log(wage_{children}) = \alpha + \beta Log\left(wage_{parent}\right) + Age_{children} + Age_{children}^{2} + \varepsilon.$$

The coefficient of log of annual wages of parents is the estimate of the intergenerational elasticity. The above model is widely used to estimate the intergenerational elasticity of earning in empirical studies (Black and Devereux, 2010). Since we do not have data on permanent income in the VHLSSs, we have to use income in the year of surveys. To correct for this life-cycle problem, in which income varies across age, we control age of children in regression. We estimate the intergenerational elasticity using pooled samples of VHLSs 2004, 2008, 2010 and 2014. Tables A6 to A8 in Appendix present the regression results. Figures 7 to 9 presents the estimates of the intergenerational elasticity or the intergenerational coefficient for different groups of people.

Figure 7 presents the intergenerational elasticity between fathers and sons/daughters and the intergenerational elasticity between mothers and sons/daughters. It shows that the intergenerational elasticity is quite similar between different pairs of parents and children. However, the intergenerational elasticity is higher between parents and sons than between parents and daughters. It means that girls tend to have higher income mobility than boys.

In Figure 8, we estimate the intergenerational elasticity of children's wages with respect to one of parents who have higher wages. The intergenerational elasticity is 0.36, which implies that if parents' wage increases by 1 percent, their children's wage increases by 0.36 percent. The higher value of the intergenerational elasticity means the low intergenerational mobility. This value is similar to several countries such as Germany and Japan, but lower than France, the UK and the US and higher than Canada, Australia and the Nordic countries (according to the estimates in Corak, 2013a). Vietnam also has a lower intergenerational elasticity than several countries such as China (0.62 according to Gong et al., 2012), Brazil (0.58 according to Ferreira and Veloso, 2006), and Malaysia (0.54 according to Grawe, 2004).

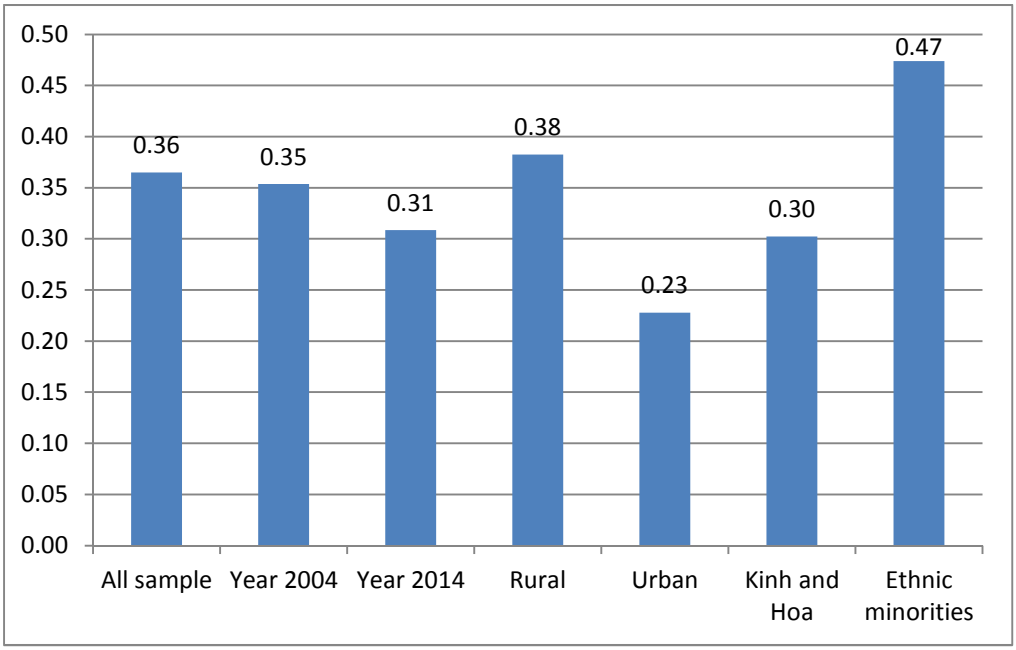
Figure 7. Intergenerational elasticity between father, mother and son, daughter



Source: Estimates from VHLSSs 2004, 2008, 2010, and 2014

Figure 8 shows that the intergenerational mobility was slightly higher in 2014 than 2004. The intergenerational mobility is higher for urban and Kinh/Hoa than rural and ethnic minority people.

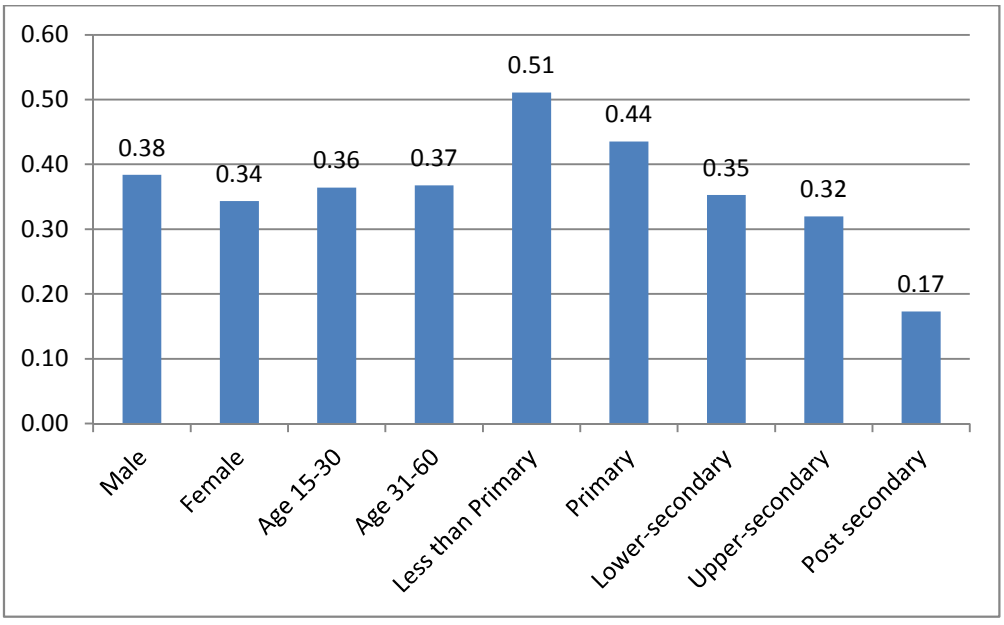
Figure 8. Intergenerational elasticity by rural/urban and ethnicity



Source: Estimates from VHLSSs 2004, 2008, 2010, and 2014

Figure 9 shows a higher intergenerational mobility for women than men. The intergenerational elasticity is very similar between young and older people. Figure 9 shows the important role of education in improving the intergenerational mobility. The intergenerational elasticity for children without education degrees and those with post-secondary degrees is 0.51 and 0.17, respectively.

Figure 9. Intergenerational elasticity by sex, age and education



Source: Estimates from VHLSSs 2004, 2008, 2010, and 2014

5.3. Regression of intergenerational mobility of employment

Finally, Table 8 presents the OLS regression of intergenerational employment mobility using pooled samples of VHLSs 2004, 2008, 2010 and 2014. It shows that men are less likely to have upward intergenerational mobility and more likely to have downward intergenerational mobility than women. There is an invert-U shape between upward intergenerational mobility and age. As age increases, the probability of having a better job than parents increases. However, after achieving a peak, the probability of having a better job than parents decreases with age.

Ethnic minorities have a lower probability of upward intergenerational mobility and higher probability of downward intergenerational mobility than Kinh and Hoa. Education plays an important role in intergenerational employment. Better education increases the upward intergenerational mobility and reduces the downward intergenerational mobility, especially having post-secondary degrees improves the intergenerational employment substantially than having other lower educational degrees.

Urban and regional variables also contribute the intergenerational mobility. Compared with rural people, urban people are more likely to have skilled occupation when having unskilled parents. They are also more likely to have transition from agricultural to non-agricultural employment. Compared with people in Red River Delta (the reference group), people in other regions including North West, North East, Central Coast, Central Highlands and Mekong River Delta have a higher probability of downward intergenerational mobility and a lower probability.

Table 8. Regression of intergenerational employment mobility

Explanatory variables	Dependent variables					
	Skill upward: Skilled children and unskilled parents	Skill downward: Unskilled children and skilled parents	Employment upward: wage children and self-employed parents	Employment downward: self-employed children and wage parents	Sector upward: non-agricultural children and agricultural parents	Sector downward: agricultural children and non-agricultural parents
Male=1, female=0	-0.0263***	0.0241**	0.0210**	-0.0522***	-0.0394***	0.0006
	(0.0080)	(0.0114)	(0.0087)	(0.0127)	(0.0092)	(0.0091)
Age	0.0400***	-0.0837***	0.0585***	-0.0986***	0.0590***	-0.0830***
	(0.0056)	(0.0119)	(0.0071)	(0.0143)	(0.0072)	(0.0094)
Age squared	-0.0006***	0.0015***	-0.0011***	0.0019***	-0.0009***	0.0015***
	(0.0001)	(0.0002)	(0.0001)	(0.0003)	(0.0002)	(0.0002)
Ethnic minorities (yes=1, Kinh, Hoa=0)	-0.1128***	0.1838***	-0.1522***	0.0507*	-0.1702***	0.1543***
	(0.0121)	(0.0317)	(0.0165)	(0.0285)	(0.0159)	(0.0340)
Having no educational degree	*Reference*					
Having primary education	0.0670***	-0.1158***	0.0329*	0.0273	0.0929***	-0.0680***
	(0.0118)	(0.0361)	(0.0172)	(0.0224)	(0.0143)	(0.0240)
Having lower-secondary degree	0.0899***	-0.1324***	0.0202	0.1064***	0.1156***	-0.0526**
	(0.0130)	(0.0360)	(0.0182)	(0.0257)	(0.0157)	(0.0247)
Having upper-secondary degree	0.1446***	-0.1800***	0.0546***	0.0663**	0.1530***	-0.0684***
	(0.0169)	(0.0371)	(0.0210)	(0.0297)	(0.0195)	(0.0259)
Having college, university	0.5079***	-0.3592***	0.3227***	-0.1322***	0.4229***	-0.1519***
	(0.0181)	(0.0356)	(0.0221)	(0.0282)	(0.0199)	(0.0252)

Explanatory variables	Dependent variables					
	Skill upward: Skilled children and unskilled parents	Skill downward: Unskilled children and skilled parents	Employment upward: wage children and self-employed parents	Employment downward: self-employed children and wage parents	Sector upward: non-agricultural children and agricultural parents	Sector downward: agricultural children and non-agricultural parents
Gender of parent (father=1, mother=0)	-0.0201*	0.0277	-0.0512***	0.0245	-0.0235*	0.0113
	(0.0118)	(0.0199)	(0.0140)	(0.0192)	(0.0142)	(0.0124)
Age of parent	-0.0019	0.0003	-0.0119	-0.0144	-0.0111	-0.0090
	(0.0092)	(0.0202)	(0.0112)	(0.0171)	(0.0109)	(0.0137)
Age of parent squared	0.0000	-0.0000	0.0001	0.0002	0.0001	0.0001
	(0.0001)	(0.0002)	(0.0001)	(0.0002)	(0.0001)	(0.0001)
Parent with educational degree	*Reference*					
Parent with primary education	0.0303***	0.0367	-0.0024	0.0582***	0.0153	0.0148
	(0.0115)	(0.0247)	(0.0138)	(0.0214)	(0.0140)	(0.0175)
Parent with lower-secondary degree	0.0430***	0.0051	-0.0105	0.0817***	0.0137	0.0456**
	(0.0136)	(0.0250)	(0.0155)	(0.0245)	(0.0161)	(0.0188)
Parent with upper-secondary degree	0.0228	-0.0128	-0.0221	0.1315***	0.0139	0.0460**
	(0.0241)	(0.0290)	(0.0274)	(0.0318)	(0.0280)	(0.0223)
Parent with college, university	0.0494**	0.0161	-0.0759***	0.1214***	0.0344	0.0743***
	(0.0227)	(0.0262)	(0.0229)	(0.0263)	(0.0264)	(0.0206)
Household size	-0.0008	-0.0025	0.0002	0.0109**	0.0014	0.0038
	(0.0031)	(0.0053)	(0.0037)	(0.0053)	(0.0036)	(0.0040)
Proportion of children below 15	-0.0267	0.0623	-0.1207***	-0.0355	-0.1015**	0.0481
	(0.0342)	(0.0592)	(0.0425)	(0.0573)	(0.0418)	(0.0437)
Proportion of members above 60	0.0528	0.0089	-0.0381	-0.0523	-0.0564	-0.0345
	(0.0627)	(0.0845)	(0.0662)	(0.0994)	(0.0702)	(0.0666)
Log of annual crop land	-0.0030**	0.0152***	-0.0097***	0.0197***	-0.0084***	0.0194***
	(0.0015)	(0.0027)	(0.0020)	(0.0026)	(0.0019)	(0.0022)
Log of perennial crop land	-0.0051***	0.0049*	-0.0113***	0.0222***	-0.0083***	0.0174***
	(0.0013)	(0.0027)	(0.0016)	(0.0032)	(0.0016)	(0.0029)
Urban (urban=1, rural=0)	0.0336*	-0.0120	-0.0116	0.0480**	0.0629**	-0.0327**
	(0.0190)	(0.0218)	(0.0212)	(0.0191)	(0.0250)	(0.0133)
Red River Delta	*Reference*					
North East	-0.1652***	0.0751***	-0.1746***	0.1775***	-0.2347***	0.1119***
	(0.0192)	(0.0258)	(0.0197)	(0.0298)	(0.0210)	(0.0224)
North West	-0.1824***	0.1864***	-0.2094***	0.3084***	-0.2574***	0.0208
	(0.0199)	(0.0444)	(0.0225)	(0.0515)	(0.0239)	(0.0533)
North Central Coast	-0.1989***	0.2184***	-0.1941***	0.2158***	-0.2605***	0.2164***
	(0.0195)	(0.0270)	(0.0202)	(0.0291)	(0.0224)	(0.0238)
South Central Coast	-0.0607***	-0.0223	-0.0313	0.0191	-0.1121***	0.0567***
	(0.0231)	(0.0213)	(0.0235)	(0.0246)	(0.0266)	(0.0186)
Central Highlands	-0.1895***	0.2782***	-0.1838***	0.0862**	-0.3025***	0.1394***
	(0.0239)	(0.0339)	(0.0238)	(0.0394)	(0.0271)	(0.0317)
South East	-0.0348	-0.0457**	-0.0248	-0.0388*	-0.1004***	0.0074
	(0.0228)	(0.0226)	(0.0257)	(0.0222)	(0.0276)	(0.0144)
Mekong River Delta	-0.1427***	0.0500**	-0.1298***	-0.0079	-0.1790***	0.0481***
	(0.0192)	(0.0225)	(0.0195)	(0.0237)	(0.0214)	(0.0172)
Dummy year 2004	*Reference*					
Dummy year 2008	0.0434***	-0.0662***	0.0220	-0.0270	0.0293**	-0.0042
	(0.0106)	(0.0216)	(0.0134)	(0.0190)	(0.0129)	(0.0143)
Dummy year 2010	0.1154***	-0.1228***	0.0396***	-0.0221	0.0320**	-0.0328**
	(0.0129)	(0.0205)	(0.0141)	(0.0195)	(0.0147)	(0.0149)
Dummy year 2014	0.1321***	-0.1279***	0.0547***	-0.0646***	0.0395**	-0.0374***
	(0.0137)	(0.0205)	(0.0152)	(0.0197)	(0.0156)	(0.0138)
Constant	-0.2872	1.5431***	0.0301	1.5362***	-0.0216	1.4027***

Explanatory variables	Dependent variables					
	Skill upward: Skilled children and unskilled parents	Skill downward: Unskilled children and skilled parents	Employment upward: wage children and self-employed parents	Employment downward: self-employed children and wage parents	Sector upward: non-agricultural children and agricultural parents	Sector downward: agricultural children and non-agricultural parents
	(0.2175)	(0.4735)	(0.2674)	(0.3937)	(0.2599)	(0.3261)
Observations	12,268	6,082	13,387	4,963	11,629	6,721
R-squared	0.308	0.267	0.224	0.229	0.276	0.235

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1.
Source: Estimates from VHLSSs 2004, 2008, 2010, and 2014

6. CONCLUSIONS

In this study, we examine intra-generational and intergenerational mobility of employment and income in Vietnam during the 2004-2008 and 2010-2014 periods. We find rather high mobility across income quintiles. 45% of households in the bottom quintile in 2004 moved to a higher income quintiles in 2008. However, the income mobility decreased over time. 37% of households in the bottom quintile in 2010 were able to move to a higher income quintile in 2014.

Compared with Kinh and Hoa, ethnic minorities are more likely to move down but less likely to move up across income quintiles. Households with higher education heads are more likely to move up and less likely to move down. They are also more mobile than households with lower education head. Households with more children and more elderly tend to have lower income mobility. They are less likely to move up to a higher quintile, but more likely to move down to a lower income quintile. Agricultural land is not important for income mobility. Having more lands might restrict households to agricultural production, and they are less likely to move.

There was high mobility by occupational skills but less mobility by employment status and sectors. Among the unskilled workers in 2004, 17% of them became skilled manual or non-manual workers in 2008. The upward mobility of occupation increased during the period 2010-2014. 24% of the unskilled workers in 2010 had a skilled manual or non-manual job in 2014. Men are less likely to move down from skilled and non-manual occupation to unskilled occupation than women. They are more likely to move from self-employed to wage work than women. Education plays an important role in labor mobility from unskilled to skilled employment. Compared with the people without education, having post-secondary degree increases the probability of moving up from unskilled to skilled or non-manual occupation by 0.19. It also reduces the probability of moving down from skilled and manual occupation to unskilled occupation by 0.23. Having more agricultural land increases the movement from

employed to self-employed works and the movement from non-agricultural to agricultural works.

The intergenerational elasticity of earnings for parents and children is estimated at around 0.36. The intergenerational elasticity is very similar for 2004 and 2014. The intergenerational mobility is higher for urban and Kinh/Hoa than rural and ethnic minority people. The analysis shows the important role of education in improving the intergenerational mobility. The intergenerational elasticity for children without education degrees and those with post-secondary degrees is 0.51 and 0.17, respectively.

Intergenerational mobility of occupation has improved in Vietnam. In 2004 among children who had a parent with unskilled occupation, 19% of them were able to find skilled or non-manual jobs. In other words, 81% of children had unskilled occupation like their parents. Occupation mobility greatly improved in 2014. 38% of children with unskilled parents found skilled or non-manual occupation. One reason for this upward mobility is the increase in skilled and non-manual employment during 2004-2014. Education plays an important role for improvement in intergenerational mobility of occupational skills. With post-secondary degree, 80% of people whose parents are unskilled have skilled or non-manual occupation. Urban and Kinh/Hoa people are more likely to have skilled and non-manual occupation than rural and ethnic minorities.

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Appendix

Table A.1. Income mobility of households during 2004-2008

	% moving up from the 20% bottom in 2004 to a higher quintile in 2008	% moving up from the 40% bottom in 2004 to a higher quintile in 2008	% moving down from the 40% top in 2004 to a lower quintile in 2008	% moving down from the 20% top in 2004 to a lower quintile in 2008	Absolute change in per capita income 2004-2008 (Fields and Ok index)	Relative change in per capita income 2004-2008
Sex of hh. head						
Male	52.2	14.4	15.3	41.0	3763.0	55.5
Female	42.6	14.0	13.9	46.3	3693.6	63.3
Age of hh. head						
Age 15-30	33.0	8.2	20.0	60.0	3310.4	63.4
Age 31-60	45.7	14.4	13.9	44.0	3735.2	60.9
Education of hh. head						
< Primary	37.5	9.1	20.1	57.6	2819.9	58.2
Primary	42.9	13.3	13.7	54.7	3357.7	63.7
Lower-secondary	52.5	14.6	15.5	52.5	4004.0	69.4
Upper-secondary	74.7	19.6	7.1	29.2	4140.1	52.5
Post-secondary	82.4	22.5	3.2	32.5	5342.0	55.8
Rural/urban						
Rural	43.8	13.2	16.2	53.6	3346.4	64.3
Urban	55.6	17.6	6.9	32.5	4966.0	54.7
Ethnicity of hh. head						
Kinh and Hoa	56.8	14.4	13.3	44.3	3944.0	60.9
Ethnic minorities	17.3	10.2	25.7	63.5	1898.0	64.0
Total	44.7	14.1	14.3	44.6	3711.6	61.1

Source: Estimates from VHLSSs 2004 and 2008

Table A.2. Regression of income mobility of households during 2004-2008

Explanatory variables	Moving up from the 20% bottom in 2010 to a higher quintile in 2014	Moving up from the 40% bottom in 2010 to a higher quintile in 2014	Moving down from the 40% top in 2010 to a lower quintile in 2014	Moving down from the 20% top in 2010 to a lower quintile in 2014	Absolute change in per capita income 2010-2014 (Fields and Ok index)	Relative change in per capita income 2010-2014
Gender of household head (male=1, female=0)	-0.0449	-0.0378	0.0211	0.0727	7.88	0.0139
	(0.0678)	(0.0311)	(0.0276)	(0.0647)	(378.68)	(0.0570)
Age of household head	-0.0024	-0.0005	0.0022*	0.0009	-18.98	-0.0025
	(0.0027)	(0.0013)	(0.0013)	(0.0034)	(15.38)	(0.0023)
Ethnicity of head (Kinh, Hoa=0, ethnic minorities=1)	-0.3669***	-0.0088	0.1358***	0.2378	-960.57*	-0.1546*
	(0.0672)	(0.0462)	(0.0515)	(0.1593)	(500.02)	(0.0843)
Hh. Head with educational degree	*Reference*					
Hh. Head with primary education	0.0370	0.0454	-0.0424	-0.0093	591.31	-0.0781
	(0.0665)	(0.0317)	(0.0335)	(0.1019)	(419.33)	(0.0652)
Hh. Head with lower-secondary degree	0.1104	0.0744**	-0.0532	-0.0926	1,340.62*	-0.0447
	(0.0775)	(0.0332)	(0.0344)	(0.1037)	(745.91)	(0.1008)
Hh. Head with upper-secondary degree	0.3073**	0.1382**	-0.1319***	-0.3114***	1,399.68*	-0.1377
	(0.1425)	(0.0538)	(0.0408)	(0.1140)	(766.52)	(0.0946)
Hh. Head with college, university	0.3583***	0.1466***	-0.1675***	-0.2855***	2,299.0***	-0.1156
	(0.1104)	(0.0467)	(0.0353)	(0.0993)	(657.70)	(0.0940)
Household size	0.0300*	0.0101	-0.0187**	-0.0515**	-198.00	0.0285
	(0.0155)	(0.0088)	(0.0079)	(0.0236)	(134.35)	(0.0221)
Proportion of children below 15	-0.6010***	-0.2120***	0.1321**	0.3392*	-2,782.8***	-0.3227**
	(0.1418)	(0.0649)	(0.0600)	(0.1823)	(990.49)	(0.1384)
Proportion of members above 60	-0.2995*	-0.1001*	0.0610	0.2406	-2,044.7***	-0.3078***
	(0.1632)	(0.0556)	(0.0672)	(0.1464)	(679.32)	(0.0977)
Log of annual crop land	0.0003	0.0005	-0.0060	0.0107	56.13	0.0054
	(0.0102)	(0.0041)	(0.0038)	(0.0089)	(115.07)	(0.0133)
Log of perennial crop land	-0.0040	0.0103**	-0.0047	-0.0080	113.50*	0.0088
	(0.0101)	(0.0045)	(0.0037)	(0.0112)	(66.44)	(0.0103)
Urban (urban=1, rural=0)	0.0333	0.0280	-0.0904***	-0.0636	1,454.04**	-0.0423
	(0.1191)	(0.0403)	(0.0333)	(0.0747)	(703.23)	(0.0863)
Red River Delta	*Reference*					
North East	-0.0598	-0.0413	-0.0648*	-0.0415	-293.16	0.0018
	(0.0964)	(0.0447)	(0.0389)	(0.0887)	(545.66)	(0.0820)
North West	-0.0526	-0.1849***	0.1826*	-0.4281***	-1,075.02*	-0.0587
	(0.1085)	(0.0417)	(0.1007)	(0.1070)	(558.51)	(0.1209)
North Central Coast	-0.1233	-0.0762**	0.0784	0.0240	-1,335.1***	-0.0382
	(0.0813)	(0.0331)	(0.0500)	(0.1504)	(441.48)	(0.0755)
South Central Coast	0.0979	-0.0300	-0.1004***	-0.0548	-602.60	-0.0460
	(0.0947)	(0.0388)	(0.0364)	(0.1074)	(534.14)	(0.0776)
Central Highlands	-0.0787	0.0542	-0.0099	-0.1219	53.86	0.0625
	(0.1230)	(0.0733)	(0.0578)	(0.1874)	(772.70)	(0.1084)
South East	0.0352	0.0792	-0.0911**	-0.0461	1,172.40	-0.0661
	(0.1148)	(0.0499)	(0.0422)	(0.0844)	(842.05)	(0.1049)
Mekong River Delta	0.1021	0.0186	-0.0970***	-0.1104	2,126.85	0.1912
	(0.1042)	(0.0387)	(0.0326)	(0.0840)	(1,305.45)	(0.1428)
Constant	0.7651***	0.1381*	0.1926**	0.6591***	4,689.8***	0.8377***
	(0.1917)	(0.0838)	(0.0801)	(0.2207)	(1,083.05)	(0.1632)
Observations	397	1,092	1,092	328	1,817	1,816
R-squared	0.238	0.062	0.090	0.142	0.060	0.024

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1.
Source: Estimates from VHLSSs 2004 and 2008

Table A.3. Employment mobility of individuals during 2004-2008

	Moving up from unskilled to skilled and non-manual	Moving down from skilled and non-manual to unskilled	Moving from self-employed to wage jobs	Moving from wage jobs to employed	Moving from agricultural to non-agricultural	Moving from non-agricultural to agricultural
Sex						
Male	23.04	24.61	23.22	24.06	19.52	14.31
Female	11.99	26.43	13.60	24.59	15.46	14.43
Age						
Age 15-30	22.56	24.99	34.25	19.70	23.76	11.47
Age 31-60	15.38	25.43	12.77	26.33	15.33	15.49
Education						
Less primary	10.70	55.72	16.11	32.37	9.87	19.79
Primary	15.72	32.05	18.49	25.69	16.45	17.15
Lower-secondary	19.60	31.71	17.19	30.91	20.47	17.58
Upper-secondary	25.50	21.99	22.73	18.64	27.18	11.10
Post-secondary	27.78	12.10	13.99	12.12	30.21	7.22
Rural/urban						
Rural	16.82	29.00	17.88	27.25	17.27	19.96
Urban	20.16	18.61	16.66	15.08	19.80	4.13
Ethnicity						
Kinh and Hoa	20.13	25.14	17.60	21.98	20.78	13.65
Ethnic minorities	3.28	28.92	18.18	44.90	5.41	34.77
Total	17.24	25.31	17.69	24.24	17.42	14.36

Source: Estimates from VHLSSs 2004 and 2008

Table A.4. Regression of employment mobility of individuals during 2004-2008

Explanatory variables	Dependent variables					
	Moving up from unskilled to skilled and non-manual	Moving down from skilled and non-manual to unskilled	Moving from self-employed to wage jobs	Moving from wage jobs to employed	Moving from agricultural to non-agricultural	Moving from non-agricultural to agricultural
Male=1, female=0	0.0890***	-0.0351	0.0878***	-0.0391	0.0319*	-0.0148
	(0.0165)	(0.0328)	(0.0171)	(0.0255)	(0.0184)	(0.0173)
Age	-0.0085*	-0.0242*	-0.0289***	-0.0102	-0.0112**	-0.0065
	(0.0049)	(0.0128)	(0.0057)	(0.0090)	(0.0051)	(0.0077)
Age squared	0.0001	0.0004**	0.0003***	0.0002*	0.0001	0.0001
	(0.0001)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Ethnic minorities (yes=1, Kinh, Hoa=0)	-0.1264***	-0.0194	-0.0080	0.1705***	-0.1428***	0.1540*
	(0.0246)	(0.0907)	(0.0421)	(0.0550)	(0.0263)	(0.0793)
Having no educational degree	*Reference*					
Having primary education	0.0241	-0.2184***	-0.0201	-0.0342	0.0249	-0.0067
	(0.0225)	(0.0738)	(0.0263)	(0.0463)	(0.0258)	(0.0384)
Having lower-secondary degree	0.0895***	-0.2403***	-0.0454	-0.0126	0.0465	-0.0093
	(0.0255)	(0.0811)	(0.0280)	(0.0494)	(0.0285)	(0.0405)
Having upper-secondary degree	0.1303***	-0.3370***	-0.0167	-0.1246**	0.1031**	-0.0679
	(0.0382)	(0.0885)	(0.0421)	(0.0568)	(0.0445)	(0.0416)
Having college, university	0.1844***	-0.4214***	-0.0400	-0.2088***	0.1945***	-0.1021***
	(0.0528)	(0.0758)	(0.0436)	(0.0475)	(0.0620)	(0.0380)
Household size	0.0063	-0.0040	-0.0162**	0.0062	0.0212***	-0.0014
	(0.0058)	(0.0138)	(0.0066)	(0.0096)	(0.0073)	(0.0074)
Proportion of children below 15	0.0403	0.0557	0.0228	-0.1420*	-0.0039	-0.0110
	(0.0562)	(0.0992)	(0.0566)	(0.0771)	(0.0566)	(0.0611)
Proportion of members above 60	0.1006	-0.1303	-0.0034	0.0343	-0.0508	0.0097
	(0.0873)	(0.1158)	(0.0906)	(0.1124)	(0.1012)	(0.0774)
Log of annual crop land	-0.0089**	0.0092	-0.0006	0.0036	-0.0085**	0.0106**
	(0.0044)	(0.0063)	(0.0034)	(0.0048)	(0.0042)	(0.0048)
Log of perennial crop land	0.0014	0.0033	-0.0042	0.0266***	-0.0101***	0.0097
	(0.0044)	(0.0089)	(0.0036)	(0.0059)	(0.0032)	(0.0063)
Urban (urban=1, rural=0)	-0.0710	-0.0207	-0.0122	-0.0195	-0.0887	-0.0886***
	(0.0438)	(0.0515)	(0.0358)	(0.0411)	(0.0576)	(0.0321)
Red River Delta	*Reference*					
North East	-0.0326	0.1206*	-0.0699*	0.0898**	-0.1170***	0.1441***
	(0.0336)	(0.0687)	(0.0381)	(0.0443)	(0.0370)	(0.0525)
North West	-0.0062	-0.0686	-0.0830	0.0518	-0.1553***	-0.0668
	(0.0361)	(0.1289)	(0.0709)	(0.0990)	(0.0414)	(0.0904)
North Central Coast	-0.0519	0.0834	-0.0109	0.1304**	-0.1820***	0.1309***
	(0.0324)	(0.0722)	(0.0394)	(0.0551)	(0.0394)	(0.0485)
South Central Coast	0.0517	-0.0087	-0.0241	-0.0141	-0.1072**	0.0075
	(0.0451)	(0.0509)	(0.0395)	(0.0461)	(0.0515)	(0.0315)
Central Highlands	-0.0074	0.0191	0.0151	0.0651	-0.1467***	0.1325**
	(0.0497)	(0.1018)	(0.0507)	(0.0616)	(0.0464)	(0.0635)
South East	0.1083*	0.0132	0.0202	0.0328	-0.0965	-0.0085
	(0.0598)	(0.0591)	(0.0428)	(0.0485)	(0.0592)	(0.0275)
Mekong River Delta	0.0390	-0.0374	-0.0670**	-0.0120	-0.1447***	0.0664*
	(0.0380)	(0.0598)	(0.0310)	(0.0442)	(0.0388)	(0.0376)
Constant	0.3240***	0.9156***	0.9777***	0.3120*	0.5364***	0.1678
	(0.1017)	(0.2483)	(0.1189)	(0.1622)	(0.1076)	(0.1363)
Observations	2,264	809	1,898	1,175	1,778	1,295
R-squared	0.100	0.109	0.106	0.129	0.104	0.120

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1.
Source: Estimates from VHLSSs 2004-2008

Table A.5. Intergenerational mobility of employment in 2004

Characteristics of children	Skill upward: Skilled children and unskilled parents	Skill downward: Unskilled children and skilled parents	Employment upward: wage children and self-employed parents	Employment downward: self-employed children and wage parents	Sector upward: non-agricultural children and agricultural parents	Sector downward: agricultural children and non-agricultural parents
Sex						
Male	18.88	43.16	37.18	24.94	32.96	20.41
Female	18.39	45.12	28.85	36.67	31.17	23.47
Age						
Age 15-30	18.34	44.60	33.59	30.36	31.78	22.39
Age 31-60	28.14	31.23	37.06	15.15	47.76	9.46
Education						
Less primary	6.17	68.21	24.96	17.14	18.71	28.12
Primary	13.27	57.67	29.61	29.05	29.21	22.17
Lower-secondary	13.59	63.28	26.11	48.86	28.44	35.06
Upper-secondary	22.35	42.56	39.58	37.88	37.45	19.94
Post-secondary	77.88	7.98	77.73	11.75	84.91	2.85
Rural/urban						
Rural	15.66	53.66	30.43	36.08	30.41	33.18
Urban	36.43	27.48	54.44	19.19	55.34	5.98
Ethnicity						
Kinh and Hoa	21.96	41.97	39.22	28.39	38.69	19.80
Ethnic minorities	4.39	72.65	9.35	45.74	9.49	61.42
Total	18.67	43.98	33.73	29.94	32.22	21.71

Source: Estimates from VHLSS 2004

Table A.6. Regression of log of children's wage on father's and mother's wages

Explanatory variables	Dependent variable is log of wages of children					
	All sample	Male	Female	All sample	Male	Female
Log of father's wage	0.3835***	0.4168***	0.3347***			
	(0.0216)	(0.0253)	(0.0297)			
Log of mother's wage				0.3753***	0.3870***	0.3698***
				(0.0260)	(0.0310)	(0.0352)
Age	0.2606***	0.2560***	0.2670***	0.2114***	0.1997***	0.2322***
	(0.0256)	(0.0309)	(0.0442)	(0.0305)	(0.0348)	(0.0513)
Age squared	-0.0039***	-0.0039***	-0.0039***	-0.0029***	-0.0027***	-0.0035***
	(0.0005)	(0.0006)	(0.0009)	(0.0006)	(0.0007)	(0.0011)
Dummy year 2004						
Dummy year 2008	0.1652***	0.1707***	0.1417*	0.1851***	0.2151***	0.0950
	(0.0476)	(0.0561)	(0.0742)	(0.0579)	(0.0714)	(0.0879)
Dummy year 2010	0.2448***	0.2282***	0.2766***	0.2297***	0.2195***	0.2259**
	(0.0473)	(0.0568)	(0.0731)	(0.0614)	(0.0762)	(0.0876)
Dummy year 2014	0.2808***	0.2572***	0.3211***	0.3215***	0.2688***	0.3787***
	(0.0492)	(0.0580)	(0.0754)	(0.0659)	(0.0792)	(0.0947)
Constant	1.4111***	1.2973***	1.5832***	2.1512***	2.2668***	1.9066***
	(0.3250)	(0.3972)	(0.5171)	(0.3716)	(0.4490)	(0.5820)
Observations	3,774	2,407	1,367	2,577	1,568	1,009
R-squared	0.400	0.420	0.380	0.391	0.390	0.401

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1.
Source: Estimates from the VHLSSs.

Table A.7. Regression of log of children's wage on parent's wages for different groups

Explanatory variables	Dependent variable is log of wages of children						
	All sample	Year 2004	Year 2014	Male	Female	Age 15-30	Age 31-60
Log of parental wages	0.3648***	0.3537***	0.3087***	0.3838***	0.3435***	0.3640***	0.3674***
	(0.0183)	(0.0348)	(0.0445)	(0.0215)	(0.0258)	(0.0187)	(0.0744)
Age	0.2516***	0.2562***	0.2643***	0.2436***	0.2640***	0.2319***	0.5901*
	(0.0217)	(0.0416)	(0.0413)	(0.0253)	(0.0380)	(0.0336)	(0.3117)
Age squared	-0.0037***	-0.0038***	-0.0039***	-0.0036***	-0.0039***	-0.0032***	-0.0082*
	(0.0005)	(0.0009)	(0.0008)	(0.0005)	(0.0008)	(0.0007)	(0.0044)
Dummy year 2004	*Reference*						
Dummy year 2008	0.1263***			0.1507***	0.0640	0.1334***	-0.1129
	(0.0418)			(0.0495)	(0.0654)	(0.0420)	(0.2091)
Dummy year 2010	0.2242***			0.2207***	0.2261***	0.2297***	0.0812
	(0.0424)			(0.0502)	(0.0648)	(0.0428)	(0.1674)
Dummy year 2014	0.2760***			0.2554***	0.2969***	0.2756***	0.2147
	(0.0436)			(0.0508)	(0.0680)	(0.0443)	(0.1764)
Constant	1.6981***	1.7471***	2.3187***	1.7080***	1.6410***	1.8999***	-4.4625
	(0.2720)	(0.5132)	(0.6553)	(0.3266)	(0.4439)	(0.3915)	(5.4997)
Observations	4,959	1,217	1,235	3,129	1,830	4,724	235
R-squared	0.390	0.342	0.317	0.402	0.378	0.382	0.264

Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Estimates from the VHLSSs.

Table A.8. Regression of log of children's wage on parent's wages for different groups

Explanatory variables	Dependent variable is log of wages of children								
	Less than Primary	Primary	Lower-secondary	Upper-secondary	Post secondary	Rural	Urban	Kinh and Hoa	Ethnic minorities
Log of parental wages	0.5107***	0.4354***	0.3526***	0.3198***	0.1729***	0.3825***	0.2277***	0.3022***	0.4738***
	(0.0545)	(0.0381)	(0.0349)	(0.0428)	(0.0286)	(0.0231)	(0.0321)	(0.0183)	(0.0503)
Age	0.1325***	0.2164***	0.3684***	0.5528***	0.3320***	0.2806***	0.2324***	0.2776***	0.0719
	(0.0357)	(0.0347)	(0.0564)	(0.1030)	(0.0629)	(0.0257)	(0.0440)	(0.0231)	(0.0648)
Age squared	-0.0021***	-0.0033***	-0.0062***	-0.0094***	-0.0046***	-0.0046***	-0.0030***	-0.0042***	-0.0007
	(0.0007)	(0.0007)	(0.0012)	(0.0021)	(0.0012)	(0.0005)	(0.0009)	(0.0005)	(0.0015)
Dummy year 2004	*Reference*								
Dummy year 2008	-0.0700	0.0908	0.1929**	-0.0052	0.2433***	0.1653***	0.0906	0.1803***	-0.0409
	(0.0858)	(0.0777)	(0.0889)	(0.1022)	(0.0762)	(0.0493)	(0.0717)	(0.0431)	(0.1035)
Dummy year 2010	0.1932*	0.2271***	0.2666***	0.0325	0.2308***	0.2527***	0.2185***	0.2533***	0.2997***
	(0.1047)	(0.0764)	(0.0885)	(0.1076)	(0.0682)	(0.0512)	(0.0682)	(0.0454)	(0.1007)
Dummy year 2014	0.1229	0.2337**	0.4146***	0.0754	0.2716***	0.3359***	0.2092***	0.3230***	0.3594***
	(0.1070)	(0.0925)	(0.0864)	(0.1052)	(0.0665)	(0.0540)	(0.0706)	(0.0435)	(0.1264)
Constant	2.2645***	1.6888***	0.4495	-1.6510	2.1560***	1.2758***	3.1428***	1.9500***	2.8291***
	(0.5701)	(0.4900)	(0.6957)	(1.2350)	(0.8187)	(0.3327)	(0.5703)	(0.2916)	(0.7873)
Observations	635	1,213	1,133	629	1,349	3,488	1,471	4,257	702
R-squared	0.363	0.375	0.341	0.303	0.234	0.355	0.304	0.362	0.387

Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Estimates from the VHLSSs.