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Urban Poverty in Vietnam: Determinants and Policy Implications

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Abstract[2]

This study examines the profile and determinants of poverty in the two largest cities in Vietnam – Hanoi and Ho Chi Minh. Data used in this study are from the 2009 Urban Poverty Survey. Using the poverty line of 12,000 thousand VND/year, the poverty incidence is estimated at 17.4 percent for Hanoi and 12.5 percent for Ho Chi Minh (HCM) city. There is a large proportion of the poor who are found stochastically poor. Hanoi has higher rates of structurally poverty than HCM city. The proportion of structurally poor and stochastically non-poor is rather small. Overall, the poor have fewer assets than the non-poor. The poor also have poorer housing conditions, especially they have much lower access to tap water than the non-poor. Heads of the poor households tend to have lower education and unskilled works than the heads of the non-poor households.

Keywords: Urban poverty, income, expenditure, household survey, Vietnam.

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1. Introduction

Vietnam is an example of a country where broad-shared economic growth has been prevailing in the 1990s and 2000s. Economic reforms initiated in the late 1980s significantly changed the economy of Vietnam, from severe stagnation in the 1980s to high growth with an average annual rate of Gross Domestic Product (GDP) per capita of around 7 percent during the past two decades. The fact that Vietnam has committed itself to follow the *"growth with equity"* strategy as a principle to the development path suggests that high economic growth would result in remarkable reduction in poverty. According to Vietnam Living Standard Surveys (VHLSS), the proportion of the poor to the population decreased from 58 percent to 14 percent between 1993 and 2008.

However, the pace of poverty reduction appears to have slowed down recently, especially in urban areas. There are some challenges to further reduction of poverty in Vietnam. Firstly, when poverty rate is as low as it is now, a relatively large proportion of the poor are in chronic poverty, which tend to be more resistant to economic growth. In other words, growth elasticity of poverty reduction in Vietnam tends to decrease Secondly, economic growth itself has slowed down since 2008 due to the global economic crisis. As economic growth has been the main driver of poverty reduction in Vietnam (Dollar and Kraay, 2000), lower rate of economic growth may result in even slower poverty reduction. Thirdly, the proportion of households who are just above the poverty line tends to increase, indicating that a growing number of near-poor households are vulnerable to shocks (economic and social) and that protecting the near poor from falling back into poverty is becoming increasingly important for sustaining poverty reduction in Vietnam in the context of the country intensifying her integration into the world economy whereby the economy tends to grow faster but less safely. Fourthly, the integration process also produces the so called agglomeration effects with the resultant acceleration of the urbanization process. There are at least two consequences of this process. (i) urban poverty and urban inequality are becoming a considerably bigger policy issue; and (ii) the urban growth impacts overall poverty both directly - through reducing urban poverty and indirectly - through raising earnings of low income migrant workers and thereby reducing rural poverty. In other words, reducing overall poverty requires that in urban areas, policy

should give due attention not only to the urban poor, but also to the urban low income, who tend to strengthen the rural-urban linkages in Vietnam's development. Furthermore, in the context of Vietnam becoming a lower middle income country, the problem of urban poverty is becoming increasingly complex, with the need to properly take into account various non-income aspects of people's well-being. This further justifies the need to include the low income in this study, as income/expenditure based poverty rates may underestimate urban poverty, as non-income dimensions including pollution, personal safety, working and housing conditions, exposures to abuses are becoming increasingly acute for low income migrants who are technically classified as non-poor by income or expenditure measures. They therefore deserve adequate attention in policy design.

With a view to providing information on the above mentioned emerging issues, this study examines the current profile of the urban poor and the urban low income, especially in Hanoi and Ho Chi Minh cities in Vietnam, and some key structural relationships linking their poverty/income status with their characteristics and policy variables and on this basis proposes policy implications for urban poverty. Although there are a large number of studies on poverty in Vietnam, research evidence on urban poverty is quite scarce. Perhaps the most detailed study of urban poverty is Oxfarm and ActionAid Vietnam (2008), which provides qualitative assessment of poverty. However, this study is based on a participatory approach without representative surveys. It is not possible extrapolate this study's findings beyond sites where the surveys were carried out.

There might be at least two reasons for limited research on urban poverty. Firstly, poverty remains largely a rural phenomenon in Vietnam, hence most poverty-related studies have up to now focused on rural poverty rather than urban poverty. Secondly, household surveys which are used for poverty analysis often have small sample sizes, which does not allow to do any reliable study on urban poverty in Vietnam. VHLSSs are representative for the whole urban population, but not for the urban poor population, because of too small number of observations on the latter. In this context, the Urban Poverty Survey in 2009 with a relatively large sample size can fill in this data gap and will hopefully allow for a reliable measurement and quantitative assessment of urban poverty in Hanoi and Ho Chi Minh cities.

Assessment of urban poverty is of interest to researchers as well as policy makers, particularly because it can potentially provide helpful information for devising poverty reduction policies in the largest cities Hanoi and Ho Chi Minh in particular and in the urban areas in general. Urban poverty and rural poverty can differ in several aspects. Firstly, urban poverty did not experienced reduction during 2000s. According to VHLSSs, the poverty rate was almost unchanged, at nearly 4 percent, during the period 2002-2006. It means that urban poverty is mainly chronic or urban people are more vulnerable to poverty. Secondly, urban poverty can be underestimated using household surveys. People who are sampled in household surveys such as VHLSSs are often from the registered population. Migrants and unregistered people in urban areas who are more likely to be poor are not sampled in household surveys. Thirdly, the urban poor can include a large number of temporary migrants and unregistered people. These groups are more vulnerable to economic shocks and not entitled for social protection policies such as credit subsidy and health insurance. Temporary/circular migration from rural to urban areas makes the urban poverty more complicated, and it is more difficult to devise policies to reduce urban poverty. Fourthly, there is a widening gap in welfare even within urban areas.

The main objectives of this study are to examine characteristics of the poor and to investigate determinants of poverty in urban Vietnam, and the recently emerging issue of rising inequality within urban areas. The paper is structured into 6 sections. Section 2 analyzes the main characteristics of the urban poor. Section 3 examines factors determining poverty, income and consumption expenditure in Hanoi and HCM city. Section 4 presents the analysis of dynamic poverty. Income inequality is analyzed in section 5. Finally, section 6 concludes.

2. Urban poverty and characteristics of the poor

2.1. Data set

This study relies mainly on data the Urban Poverty Survey (UPS) which was conducted by the Hanoi Statistics Office and the Ho Chi Minh City (HCMC) Statistics Office in October 2009. This sample of households and individual persons is representative for Hanoi and HCMC. The main objectives of the UPS are to assess urban poverty in Hanoi and HCMC. It is very interesting that the survey contains information on the migrants and unregistered households and the non-household based population. Data from this survey are quite detailed, including income, consumption, employment, education, health care, risks and so on. The number of observations of the 2009 UPS is 1,637 and 1,712 for Hanoi and Ho Chi Minh city, respectively.

Although not comparable, it is still useful to see how similar/different the urban profile provided by VHLSS 2008 is from a "zoom-in" urban picture by the UPS 2009. In addition, we can also compare the data from the 2009 Population Census and Houseing. This quick look reveals, as shown in Table 1 that the proportion of households having assets tends to be lower in the 2009 UPS than in the 2008 VHLSS. Possibly, the UPS 2009 covered a larger proportion of migrants than the 2008 VHLSS. However, three data sources give relatively similar estimates.

Table 1: Comparison of variables between VHLSS 2008 and UPS 2009

	VHLSS 2008			Population Census 2009			UPS 2009		
	All	Urban	Rural	All	Urban	Rural	All	Urban	Rural
% household living in urban areas	78.3	100.0	0.0	62.8	100.0	0.0	74.3	100.0	0.0
Household demography									
% with male head	59.5	57.5	67.0	63.1	57.3	72.8	60.8	58.1	68.8
Age of head	51.6	52.4	48.9	45.0	44.9	45.1	46.7	47.0	45.7
% household members above 60	11.8	12.8	8.5	9.4	8.4	11.1	9.6	9.8	9.1
% household members below 15	19.3	18.7	21.6	18.5	17.2	20.6	20.5	20.0	21.8
% female members	52.3	52.6	51.2	52.3	52.6	51.8	52.9	53.0	52.6
Household size	4.2	4.1	4.3	3.7	3.7	3.7	3.8	3.7	4.0
% households with assets									
Motorbike	90.1	90.8	87.7	85.3	90.3	76.8	88.7	90.3	84.3
Television	98.0	98.3	96.8	92.0	92.7	90.8	95.2	95.3	95.0
Computer	37.9	43.2	19.0	35.8	48.2	15.0	44.0	50.2	25.7
Fridge	79.6	84.2	62.9	59.9	71.0	41.2	75.0	79.6	61.6
Mobile phone	74.8	80.4	54.6	n.a.	n.a.	n.a.	90.5	92.7	84.2
Desk telephone	75.9	76.6	73.2	59.9	66.3	49.0	67.5	70.1	59.8
Internet connection	23.7	28.6	6.2	n.a.	n.a.	n.a.	30.5	36.4	13.6
Housing									
Living areas per capita (m2)	22.1	22.0	22.5	30.9	34.6	24.5	22.3	23.3	19.4

	VHLSS 2008			Population Census 2009			UPS 2009		
	All	Urban	Rural	All	Urban	Rural	All	Urban	Rural
% housing with tap water	64.5	78.2	14.8	48.3	71.5	9.0	61.1	75.4	19.5
% housing with flush toilet	92.5	96.3	78.6	69.7	90.9	34.0	91.0	97.4	72.5
Education degree of head									
No degree	17.6	16.2	22.8	2.1	1.8	2.6	11.6	9.7	17.2
Primary	20.2	16.2	34.5	16.6	14.1	20.6	17.8	16.6	21.2
Lower secondary	20.0	19.6	21.3	32.4	25.5	44.0	27.5	25.1	34.7
Upper secondary	16.0	18.0	8.7	31.6	35.4	25.3	24.0	24.9	21.2
Post secondary	26.2	30.0	12.7	17.4	23.2	7.4	19.0	23.6	5.7
Occupation of head									
Manager	3.0	3.0	2.9	n.a.	n.a.	n.a.	4.2	5.1	1.5
Technician	11.4	14.0	1.8	n.a.	n.a.	n.a.	15.8	19.1	6.2
Service, clerk, office	7.9	9.1	3.7	n.a.	n.a.	n.a.	19.8	21.0	16.2
Skilled worker	8.5	1.8	32.8	n.a.	n.a.	n.a.	13.1	10.6	20.6
Machine users	15.4	15.2	16.2	n.a.	n.a.	n.a.	10.1	10.5	8.9
Unskilled & Farmers	20.6	20.6	20.9	n.a.	n.a.	n.a.	13.3	9.1	25.4
Not working	33.2	36.4	21.6	n.a.	n.a.	n.a.	23.7	24.6	21.2
Income & expenditure (thousand VND in 2009 price)									
Per capita income	25713	28518	15610	n.a.	n.a.	n.a.	30368	34077	19627
Per capita expenditure	22108	24722	12693	n.a.	n.a.	n.a.	24723	27982	15284
Number of poor households (Obs.)	540	426	114	326226	195102	131124	1748	1155	593

Source: Authors' estimation from the 2009 UPS.

2.2. Urban poverty and characteristics of the poor

Poverty line

Key poverty indicators estimated on the basis of various poverty lines are reported in Table 2. The poverty line used in the paper as the base case is the official poverty line of Ho Chi Minh City, which is set at 12,000 thousand VND per capita per year (Decision No. 23/2010/QDUB issued by Hanoi People's Committee on 29/3/2010 on the poverty line for Ho Chi Minh city during the period 2009-2015). The official poverty line which is set by Hanoi People's Committee is 6,000 and 3,960 thousand for urban and rural areas, respectively (Decision No. 1592/QDUB issued by Hanoi People's Committee on 7/4/2009 on the poverty line for Hanoi during the period 2009-2013). Using this Hanoi poverty line, the poverty rate is only 1.6 percent in Hanoi. There are only 36 poor households in the

sample of Hanoi, which is too small for any meaningful quantitative analysis. Beside this technical problem, the deprivations and hardships of the urban poor, as mentioned earlier, tend to be underestimated if income or expenditure is used to measure the well-being of the urban dwellers. Using the poverty line of 12,000 thousand VND, the poverty incidence is estimated at 17.4 percent for Hanoi and 12.5 percent for HCM city. Table 2 shows also shows the poverty rate using different income poverty. The national poverty line was set by the government in 2006, which is equal to 200 and 260 thousand VND/person/month for rural and urban areas, respectively. Using the price deflator, these poverty lines are equal to 3701 and 4778 thousand VND/person/year, respectively. The income poverty lines of 1.25$ and 2$ PPP/day are also used.[3] The table shows that a better performance of HCM City over Hanoi in every poverty indicator (except the poverty line of City People Committee), which is also robust across different poverty lines. This difference is acceptable, as Hanoi and Ho Chi Minh City are the richest urban centers, presumably considerably outperforming the remaining cities in Viet Nam.

Table 2: Key poverty indicators by different poverty lines

City	National income poverty line	Income poverty line of People Committee	Income poverty line of HCM city	Income poverty line 1.25$ PPP/day	Income poverty line 2$ PPP/day
Poverty line/person/year (thousand VND)	4778 for urban; 3701 for rural	6000, 3960 Hanoi, 12000 HCM	12000	4135	6612
Poverty rate (%)					
Hanoi	1.27	1.56	17.38	1.34	4.57
HCM city	0.31	12.52	12.52	0.29	2.08
Total	0.65	8.71	14.21	0.65	2.95
Poverty gap index					
Hanoi	0.0040	0.0052	0.0531	0.0046	0.0127
HCM city	0.0008	0.0321	0.0321	0.0007	0.0034
Total	0.0019	0.0228	0.0394	0.0021	0.0066
Poverty severity index					
Hanoi	0.0018	0.0023	0.0244	0.0021	0.0059
HCM city	0.0004	0.0116	0.0116	0.0003	0.0012
Total	0.0009	0.0084	0.0161	0.0009	0.0028

Source: Authors' estimation from the 2009 UPS.

[3] Tháng 9/2010, Chính phủ vừa ban hành chuẩn nghèo mới áp dụng cho giai đoạn 2011-2015 là khu vực thành thị: 500.000 đồng/người/tháng và nông thôn: 400.000 đồng/người/tháng

Characteristics of the poor

Table 3 presents the basic characteristics of the poor defined by different poverty lines. Overall, the very poor households are those who have only one or two members with a female and young head. Poor heads are more likely to have low level of education attainment and unskilled/low skilled jobs. The very poor households tend to be migrants in urban areas and live in a dormitory or houses of poor conditions.

Overall the non-poor have more assets than the poor. The proportion of the non-poor having computer, internet connection, and fridge is much higher than the poor. The proportion of households owning a computer is very low for the poor.

Heads of the poor households tend to have lower education and unskilled works than the heads of the non-poor households. For the national poverty line, there are only 0.7 percent of heads in poor households obtaining a post-secondary degree, while 17.1 percent of heads in non-poor households have a post-secondary degree. These findings are also similar to findings from ActionAid (2009).

Households who do not have a registration book (called ho khau), and those who have arrived Hanoi and Ho Chi Minh cities since 2008 are more likely to be poor. The poor have poorer housing conditions, especially they have much lower access to tap water and flush toilet than the non-poor. The poor tend to live in a house without concrete roof. Regarding to employment, the poor are more likely to work for households as unskilled workers. As the poverty line increases, the gap in welfare indicators between the poor and non-poor is reduced.

Table 3 also presents the income and expenditure patterns of the poor in Hanoi and HCM city. The poor have much lower income and consumption than the non-poor. However, the pattern of income as well as consumption is very similar between the poor and non-poor.

Table 3: Characteristics of poor and non-poor in Hanoi and HCM city

Variable	National income poverty line		Income poverty line of People Committee		Income poverty line of HCM city		Income poverty line 1.25$ PPP/day		Income poverty line 2$ PPP/day	
	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor
% household living in urban areas	62.93	76.50	68.83	77.08	54.52	79.80	54.42	76.57	55.57	77.08
Without registration book	65.90	29.60	34.76	29.50	29.03	30.10	62.43	29.65	40.45	29.60
% household members above 60	7.21	8.06	10.79	7.79	10.76	7.62	8.38	8.04	11.36	7.93
% household members below 15	10.26	16.23	18.69	15.93	20.16	15.54	11.64	16.21	18.20	16.10
% female members	55.73	53.34	51.83	53.51	54.53	53.18	56.07	53.34	57.36	53.22
Household size	2.10	3.21	3.24	3.20	3.35	3.18	2.28	3.21	2.85	3.21
% households with assets										
Motorbike	14.43	76.38	55.60	77.67	56.76	78.76	14.88	76.34	38.16	77.06
Television	23.22	79.82	67.57	80.36	70.16	80.69	26.89	79.75	50.40	80.25
Computer	0.00	36.51	11.54	38.47	10.99	40.10	0.00	36.48	6.48	37.17
Fridge	0.00	60.70	35.55	62.42	36.67	63.79	0.00	60.66	21.72	61.42
Mobile phone	32.67	87.06	66.73	88.39	66.22	89.71	31.03	87.04	50.55	87.75
Desk telephone	1.76	54.30	32.36	55.80	39.20	56.08	1.88	54.27	26.71	54.71
Internet connection	0.00	24.96	4.10	26.65	4.36	27.91	0.00	24.94	0.00	25.56
Housing										
Ling in dormitory	28.87	17.37	20.03	17.24	13.70	18.08	27.47	17.39	19.07	17.43
Living areas per capita (m2)	12.26	22.27	21.94	22.19	18.47	22.75	12.78	22.26	14.08	22.45
% housing with concrete roof	21.73	42.06	14.72	44.42	37.04	42.62	26.14	42.01	33.63	42.15
% housing with concrete floor	71.19	89.97	84.82	90.26	82.93	90.87	73.00	89.95	75.97	90.26
% housing with tap water	29.06	56.36	42.17	57.40	35.69	59.30	23.29	56.40	29.51	57.00
% housing with flush toilet	48.09	88.73	79.38	89.17	71.35	91.00	47.70	88.70	59.30	89.32
% households using gas and electricity for cooking	30.83	82.57	67.29	83.46	60.44	85.46	30.00	82.55	47.90	83.24
Characteristics of household head										
% head single	46.10	20.02	27.09	19.63	20.86	20.18	39.45	20.09	34.30	19.79
% with male head	52.99	57.49	53.85	57.79	55.06	57.83	54.59	57.48	55.75	57.51
Age of head	36.25	42.91	43.37	42.79	44.16	42.63	38.97	42.88	41.04	42.90
Head has been arrived since 2008	63.74	16.37	28.55	15.73	24.62	15.61	59.23	16.44	39.09	16.07
Education degree of head										
No degree	27.76	10.95	28.26	9.50	24.00	9.09	29.69	10.94	26.73	10.58

Variable	National income poverty line		Income poverty line of People Committee		Income poverty line of HCM city		Income poverty line 1.25$ PPP/day		Income poverty line 2$ PPP/day	
	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor
Primary	25.75	18.93	31.96	17.78	26.37	17.84	23.42	18.96	21.73	18.91
Lower secondary	29.69	29.09	24.61	29.52	31.33	28.74	25.52	29.13	34.62	28.90
Upper secondary	16.13	23.96	14.62	24.76	16.39	25.06	20.65	23.91	16.61	24.13
Post secondary	0.67	17.07	0.55	18.45	1.91	19.27	0.72	17.06	0.31	17.48
Occupation of head										
Manager	0.00	3.39	1.51	3.54	1.05	3.73	0.00	3.39	3.93	3.34
Technician	0.00	14.80	0.79	15.97	1.58	16.72	2.99	14.77	0.94	15.13
Service, clerk, office	10.05	18.73	15.24	18.97	12.89	19.55	9.68	18.73	9.06	18.97
Skilled worker	7.72	14.96	16.80	14.71	18.19	14.37	7.73	14.96	13.22	14.95
Machine users	5.30	11.98	9.50	12.15	6.97	12.70	3.85	11.99	7.37	12.07
Unskilled & Farmers	61.48	17.23	27.62	16.73	34.30	15.05	57.21	17.30	44.10	16.76
Not working	15.46	18.89	28.54	17.94	25.03	17.88	18.53	18.86	21.37	18.77
Head's employers										
State	1.35	13.37	1.33	14.38	3.43	14.80	0.86	13.37	1.88	13.64
Private	15.78	19.62	17.64	19.76	15.25	20.26	18.06	19.59	16.33	19.69
Households	66.96	41.39	49.58	40.89	54.18	39.67	62.06	41.45	58.85	41.05
Foreign	0.45	6.73	2.92	7.02	2.11	7.39	0.49	6.73	1.56	6.85
Not working	15.46	18.89	28.54	17.94	25.03	17.88	18.53	18.86	21.37	18.77
Head's work with contract	10.87	32.69	13.36	34.28	14.05	35.37	12.80	32.66	12.74	33.15
Other household characteristics										
Receiving pension (yes = 1)	0.00	11.03	3.50	11.63	6.22	11.66	2.00	11.01	5.11	11.13
Borrowing (yes =1)	12.91	21.26	34.93	19.88	35.34	18.95	13.81	21.25	28.34	20.93
Receiving remittances (yes = 1)	59.52	49.67	38.74	50.81	56.15	48.77	61.68	49.66	58.33	49.48
Head having chronic disease	18.66	20.94	25.80	20.45	26.31	20.07	19.97	20.92	27.98	20.67
Being members of an association	34.23	57.85	36.64	59.59	49.03	58.96	41.03	57.77	46.26	58.00
% members having health insurance	20.44	55.67	36.88	57.06	41.17	57.55	23.54	55.62	34.27	56.05
Income										
Per capita income (thousand VND)	2988.3	29106.8	8113.7	30805.1	8392.3	32065.5	2872.7	29091.0	4850.1	29672.6
% income from farm	10.60	2.36	3.80	2.31	8.61	1.47	11.76	2.35	12.60	2.09
% income from non-farm	0.25	22.42	16.86	22.70	14.74	23.37	0.27	22.40	5.55	22.77
% income from wage	66.02	59.73	63.57	59.43	59.87	59.78	62.54	59.76	63.30	59.67

Variable	National income poverty line		Income poverty line of People Committee		Income poverty line of HCM city		Income poverty line 1.25$ PPP/day		Income poverty line 2$ PPP/day	
	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor
% income from pension	0.00	3.37	1.74	3.48	2.93	3.40	1.51	3.35	2.86	3.35
% income from other sources	23.13	12.13	14.03	12.07	13.86	11.99	23.92	12.13	15.69	12.12
Consumption										
Per capita expenditure (thousand VND)	5054.6	21261.1	9881.4	22159.6	9519.0	22922.2	5469.2	21246.7	7791.3	21557.9
% expenditure on food	48.39	59.52	62.22	59.15	60.09	59.31	52.34	59.48	56.58	59.51
% expenditure on housing	4.26	8.02	7.64	8.01	6.31	8.24	4.30	8.02	5.85	8.05
% expenditure on health	4.66	4.03	4.55	3.99	4.80	3.92	4.82	4.03	4.63	4.02
% expenditure on education	1.60	4.89	3.82	4.95	4.22	4.96	1.84	4.88	2.79	4.93
% expenditure on transportation	13.87	11.87	10.86	11.99	11.18	12.01	11.14	11.90	13.46	11.84
% expenditure on other goods	27.22	11.66	10.91	11.90	13.41	11.56	25.55	11.69	16.69	11.65
Number of obs.	54	3295	265	3084	478	2871	50	3299	161	3188

Source: Authors' estimation from the 2009 UPS.

2.3. Relative poverty lines

In addition to the absolute poverty line of per annum income of 12,000 million VND, we also use the relative poverty lines which define the poor as those having the 5 percent and 10 percent lowest income. The advantage of such relative poverty lines is that results of analysis are not sensitive to ad hoc defined absolute poverty lines. Table 4 presents the characteristics of the poor defines using relative poverty lines. Overall the non-poor have more assets, higher education and better jobs than the poor. They also have better housing conditions than the poor households.

There is a difference in characteristics of households between Hanoi and HCM city. The proportion of poor households living in urban areas is lower in Hanoi than in HCM city. The poor in Hanoi are more likely to have unskilled and farm works than the poor in HCM city.

The poor in Hanoi have smaller living areas and less access to tap water and flush toilet than the poor in HCM city. However, the poor in Hanoi are less likely to living a dormitory than the poor in HCM city.

Table 4: Characteristics of poor and non-poor by relative poverty line

Variable	Hanoi				HCM city			
	5% lowest income		10% lowest income		5% lowest income		10% lowest income	
	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor
% household living in urban areas	29.62	64.96	31.43	66.99	79.15	83.00	70.94	83.97
Without registration book	35.45	23.92	25.97	24.30	42.96	32.38	33.54	32.60
% household members above 60	11.47	9.54	10.60	9.52	11.26	7.14	11.40	6.88
% household members below 15	22.54	16.54	24.68	15.91	13.59	15.91	20.43	15.43
% female members	66.60	53.15	64.30	52.56	49.41	53.25	48.73	53.54
Household size	3.26	3.36	3.41	3.34	2.58	3.14	2.98	3.14
% households with assets								
Motorbike	28.47	77.02	42.24	78.48	48.97	77.11	53.91	78.34
Television	55.25	81.48	63.96	82.12	49.00	79.65	67.39	79.82
Computer	0.19	43.82	5.66	45.95	11.39	34.02	9.52	35.53
Fridge	8.40	68.66	24.89	70.55	36.15	57.91	34.03	59.40
Mobile phone	40.75	88.13	53.46	89.64	60.59	87.62	66.98	88.65
Desk telephone	23.84	67.54	41.56	68.24	32.78	48.43	31.20	49.51
Internet connection	0.00	32.30	2.66	34.04	0.00	22.34	1.60	23.52

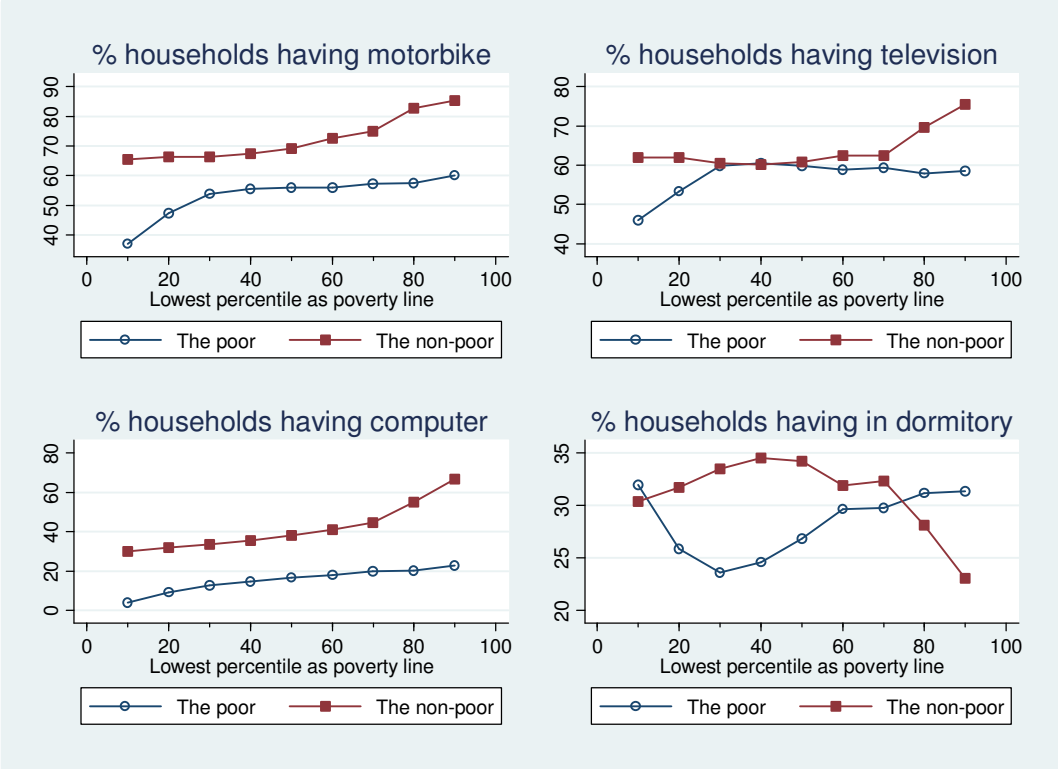
Variable	Hanoi				HCM city			
	5% lowest income		10% lowest income		5% lowest income		10% lowest income	
	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor
Housing								
Ling in dormitory	7.27	8.41	4.51	8.81	27.51	21.86	22.48	21.98
Living areas per capita (m2)	8.56	17.87	10.97	18.17	18.64	24.71	26.64	24.34
% housing with concrete roof	58.99	78.46	66.09	78.86	15.30	24.39	13.12	25.13
% housing with concrete floor	60.03	88.44	69.66	89.11	89.96	91.18	85.68	91.64
% housing with tap water	13.70	68.25	17.27	71.29	46.40	51.50	45.45	51.88
% housing with flush toilet	34.19	86.68	46.04	88.61	81.79	90.65	82.94	91.08
% households using gas and electricity for cooking	25.50	76.62	36.90	78.52	67.81	86.52	67.58	87.66
Characteristics of household head								
Head single	22.04	14.56	15.91	14.81	46.92	22.24	29.79	22.31
% with male head	50.90	57.16	55.05	57.08	56.59	57.78	51.46	58.31
Age of head	44.49	44.64	43.99	44.71	39.10	42.03	42.04	41.94
Head has been arrived since 2008	34.59	16.04	24.34	16.06	41.29	16.07	27.51	15.82
Education degree of head								
No degree	24.60	4.55	20.98	3.70	26.13	13.54	26.98	12.71
Primary	19.99	7.55	16.69	7.14	25.02	24.38	34.03	23.53
Lower secondary	43.83	32.67	45.45	31.77	28.77	27.00	24.16	27.31
Upper secondary	11.39	31.32	13.70	32.31	19.54	20.70	14.13	21.25
Post secondary	0.19	23.92	3.17	25.07	0.54	14.39	0.70	15.20
Occupation of head								
Manager	0.00	3.27	0.00	3.48	6.91	3.38	2.35	3.59
Technician	0.00	19.16	0.00	20.37	1.65	13.21	1.08	13.95
Service, clerk, office	3.80	15.12	5.32	15.66	12.86	20.90	14.80	21.20
Skilled worker	9.36	14.33	18.35	13.59	16.33	15.26	19.95	14.87
Machine users	3.45	6.84	2.62	7.15	10.03	14.65	7.81	15.13
Unskilled & Farmers	64.06	21.24	55.45	19.54	25.94	14.55	28.82	13.61
Not working	19.32	20.05	18.26	20.22	26.27	18.05	25.19	17.66
Head's employers								
State	3.41	20.64	2.64	21.82	0.42	10.27	0.46	10.86
Private	5.14	13.76	8.51	13.91	24.43	22.63	19.99	22.92
Households	70.92	41.20	70.00	39.43	47.17	40.97	52.17	40.15
Foreign	1.21	4.36	0.59	4.63	1.72	8.08	2.19	8.41
Not working	19.32	20.05	18.26	20.22	26.27	18.05	25.19	17.66
Head's work with contract	4.63	36.72	8.39	38.31	18.47	31.50	14.18	32.66
Other household characteristics								
Receiving pension (yes = 1)	8.53	25.32	8.31	26.41	6.84	4.09	3.91	4.19
Borrowing (yes =1)	35.11	20.36	37.58	19.13	21.27	21.23	36.04	19.89
Receiving remittances (yes = 1)	87.39	79.46	87.25	78.97	30.85	34.94	38.00	34.54
Head having chronic disease	35.19	25.13	31.82	24.88	24.44	18.41	20.71	18.39
Being members of an association	64.27	73.43	62.64	74.20	27.77	50.61	36.47	51.19

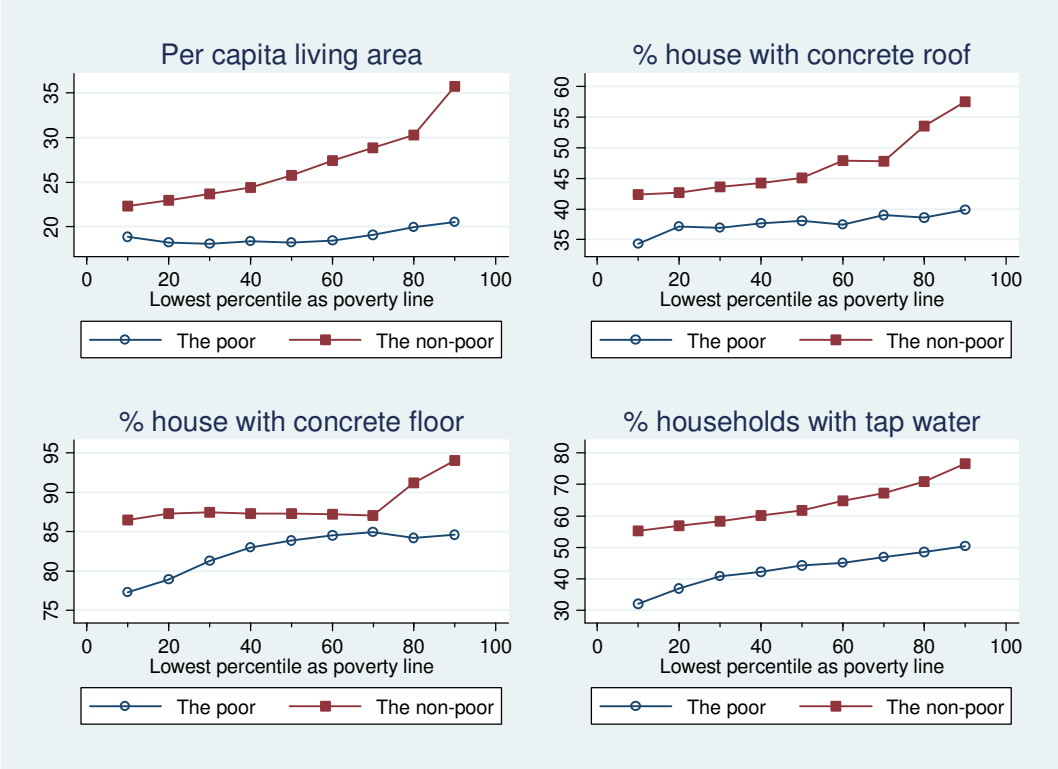
Variable	Hanoi				HCM city			
	5% lowest income		10% lowest income		5% lowest income		10% lowest income	
	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor
% members having health insurance	42.9	62.6	43.6	63.8	28.5	52.9	34.9	53.8
Income								
Per capita income (thousand VND)	4728	29023	6610	30341	5125	30048	7523	31316
% income from farm	23.71	4.08	20.69	3.19	2.06	1.13	3.22	0.97
% income from non-farm	5.22	17.42	5.37	18.17	6.09	25.41	15.97	25.67
% income from wage	54.32	57.63	53.83	57.89	71.06	60.65	62.65	60.79
% income from pension	4.46	8.07	3.80	8.37	3.52	0.99	2.02	0.98
% income from other sources	12.3	12.8	16.3	12.4	17.3	11.8	16.1	11.6
Consumption								
Per capita expenditure (thousand VND)	5680.0	21528	7253	22347	941	21613	9978	22289
% expenditure on food	53.20	55.23	54.04	55.26	58.96	61.62	64.56	61.27
% expenditure on housing	2.69	5.99	3.27	6.13	8.74	9.06	8.22	9.13
% expenditure on health	4.88	4.65	5.07	4.61	4.18	3.72	4.38	3.67
% expenditure on education	3.43	5.80	4.28	5.85	2.20	4.51	3.98	4.48
% expenditure on transportation	11.14	13.19	10.78	13.36	15.39	11.18	10.75	11.35
% expenditure on other goods	24.66	15.15	22.56	14.79	10.54	9.91	8.11	10.09
Number of obs.	87	1550	167	1470	81	1631	168	1544

Source: Authors' estimation from the 2009 UPS.

To examine the sensitivity of the poor's characteristics to the income poverty line, we use different relative poverty lines which are based on income deciles to define the poor and compare characteristics between the poor and non-poor. The figure 1a and 1b present this sensitivity analysis. The horizontal axis is relative poverty lines which are set from the 10^{th} percentile to the 90^{th} percentile of per capita income. The vertical axis measures household's assets, education and occupation of household heads. Several characteristics including television, living in a dormitory, having registration book are quite sensitive to the poverty lines. The difference in these variables between the poor and non-poor varies remarkably as the poverty line increases.

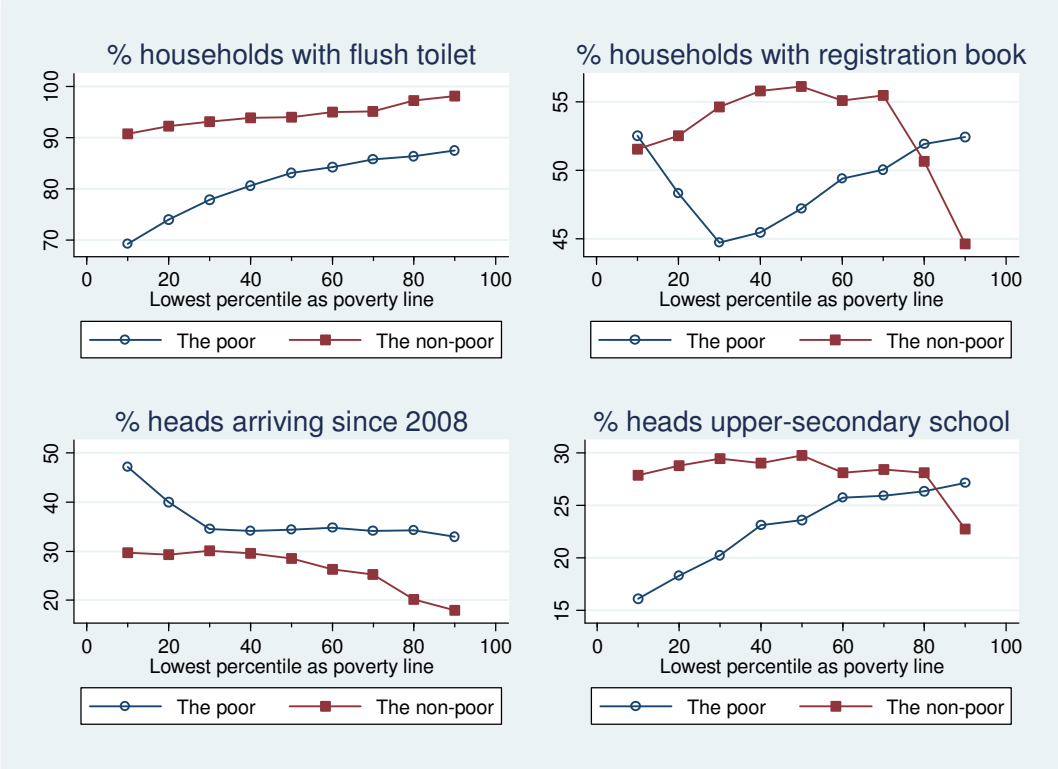
Figure 1a: Characteristics of the poor and non-poor for different poverty line of income deciles

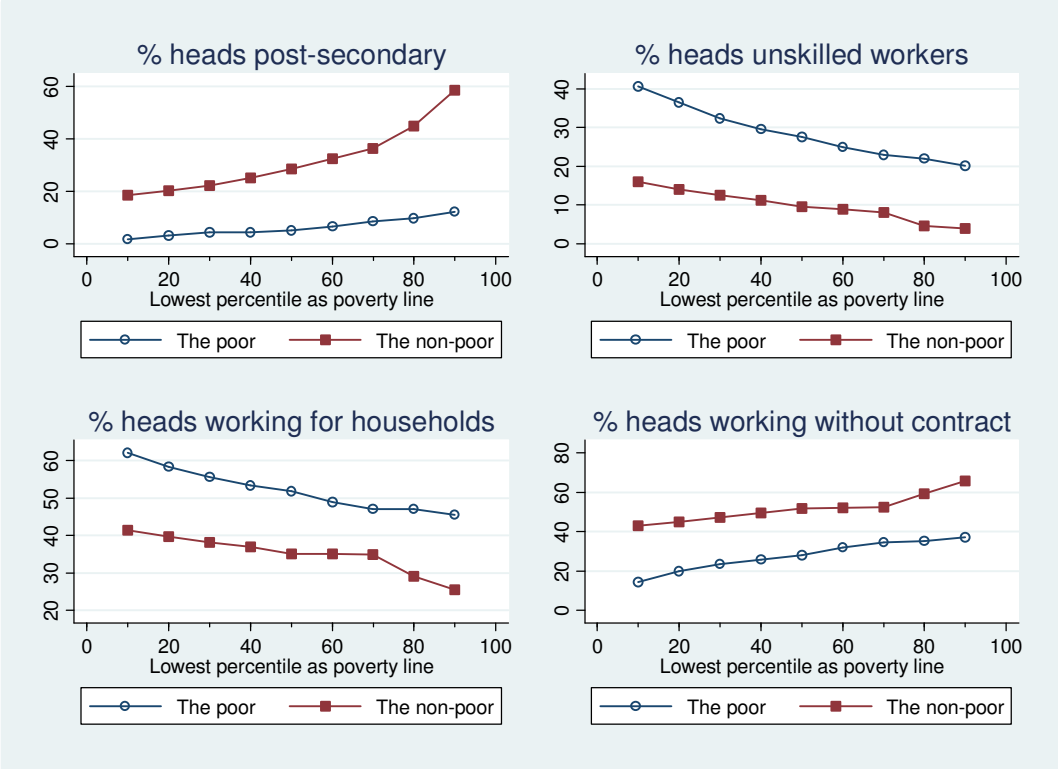




Source: Authors' estimation from the 2009 UPS.

Figure 1b: Characteristics of the poor and non-poor for different poverty line of income deciles





Source: Authors' estimation from the 2009 UPS.

3. Determinants of urban poverty

In this section, we examine the determinants of urban poverty in Hanoi and Ho Chi Minh City. Previous studies on urban poverty in Vietnam including ActionAid (2009) and Vu Quoc Huy (2006). However, both studies do not address the determinants of urban poverty. ActionAid (2009) used data collected from two wards and one commune in Hai Phong City and two wards in Ho Chi Minh City, incorporating both questionnaires and in-depth interviews. While providing insight into the current situation of urban poverty in Vietnam, its low coverage means that the results are hardly useful for in-depth analysis on the determinants and dynamics of poverty. Vu Quoc Huy (2006) on the other hand, used Vietnam Household Living Standard (VHLSS) to calculate poverty headcount and poverty gap in Ha Noi and Ho Chi Minh City. However, the study did little in explaining the causes of poverty. Moreover, while the VHLSS is a very good data source for general purposes, its usefulness in analyzing urban poverty is limited because of its small sample size at the provincial levels. For example, the expenditure module in the VHLSS 2006, which was normally used to estimate poverty - included only 240 households in Hanoi and 300 households in Ho Chi Minh city.

On the other hand, this study uses Urban Poverty Survey 2009, the most up-to-date survey implemented in 2009 in Ha Noi and Ho Chi Minh City. The definition of urban areas used in the survey was adopted from Population and Housing Census of 2009.

3.1. Model specification

To investigate determinants of poverty, we assume the follow function:

$$P(PI = 1 | X) = G(\alpha + X\beta),$$

where *PI* is a binary indicator of poverty status, and *X* is a vector control variables including individual and household characteristics which can affect or be associated with

poverty status. We use a binomial logistic regression model given that the dependent variable is dichotomous: 0 when a household is above and 1 when below the poverty line. The poverty line used in the paper is the official poverty line of Ho Chi Minh City, which is set at 1 million VND per capita per month. We use income data collected by the survey to determine if a household is considered poor or not.

Like other earning variables, poverty status can depend on a set of household characteristics which can be grouped into 5 categories (Glewwe, 1991): (i) Household composition, (ii) Regional variables, (iii) Human assets, (iv) Physical assets, and (v) Commune characteristics. In this study, we also include several policy variables to examine the relation between poverty and social policy variables. The proposed list of control variables is:

- Household composition: fraction of dependent people, fraction of female, age and gender of household head.
- Regional variables: dummy variables of HCM city and urban areas
- Human assets: education and occupation of household members, household head.
- Physical assets: housing characteristics, the number of motorbike per household member.
- Policy variables: chronic disease of heads, registration book, migration and health insurance.

Efforts will be exerted to identify as many as possible policy variables, either direct measures or proxies from the dataset, as they are the ones that are under policy makers' control and therefore are of special interest. It should be noted that some variables such as education and employment can be endogenous in equation. Solving endogeneity is not an easy task, especially without panel data. For these variables, their estimated coefficients reflect association or correlation between poverty and these variables rather than the causal effects of these variables on poverty.

The estimates of the logit regressions are shown in Table 5. We use two models: Model 1 uses relatively exogenous explanatory variables, and Model 2 includes a larger

number of explanatory variables including policy variables which are more likely to be endogenous.

The logit model fitted the data well. The results show that education is an important determinant of poverty, as also indicated by previous research in developing countries. Having higher education degrees leads to larger reduction in the probability of the poverty.

The results show that households with higher proportions of children tend to be poorer. This result is consistent with economic theory because in these households, income earned by working household members must be shared to a larger number of dependents. Households in which the household heads are unmarried tend to be poorer too. Poor households tend to borrow than non-poor households.

Table 5: Logistic regression of poverty

Explanatory variables	HCM poverty line		5% lowest income		10% lowest income	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Urban (yes=1)	-0.6350***	-0.6975***	-0.5248*	-0.6646**	-0.5232**	-0.5935***
	[0.1930]	[0.1915]	[0.3175]	[0.3110]	[0.2180]	[0.2143]
Hanoi (yes=1)	0.3283*	0.4459**	0.1303	0.0696	0.0446	0.0441
	[0.1945]	[0.2099]	[0.3409]	[0.3270]	[0.2326]	[0.2435]
Without registration book	-1.4263***	-1.5382***	-2.4899***	-2.5753***	-1.6112***	-1.6700***
	[0.3799]	[0.3920]	[0.4799]	[0.5030]	[0.4445]	[0.4512]
Head has been arrived since 2008	1.5048***	1.7107***	2.5950***	2.8066***	1.4406***	1.6851***
	[0.3654]	[0.3587]	[0.4574]	[0.4844]	[0.4564]	[0.4395]
% household members above 60	0.5693	0.6394	0.9007	0.9017	1.0029*	1.0475*
	[0.4817]	[0.4936]	[0.6649]	[0.7317]	[0.5414]	[0.5647]
% household members below 15	2.4878***	2.2103***	2.4099***	2.2590***	3.5963***	3.1672***
	[0.5045]	[0.5718]	[0.7418]	[0.8639]	[0.6018]	[0.6701]
% female members	-0.4908	-0.4087	-0.0682	0.0418	-0.4797	-0.443
	[0.3058]	[0.3124]	[0.5067]	[0.5252]	[0.3820]	[0.3955]
Household size	0.0701	0.0719	0.0365	0.0526	0.0366	0.0432
	[0.0711]	[0.0673]	[0.0798]	[0.0821]	[0.0705]	[0.0704]
Having motorbike	-1.0991***	-1.0358***	-1.3024***	-1.3132***	-1.2931***	-1.2328***
	[0.2475]	[0.2500]	[0.3137]	[0.3238]	[0.2793]	[0.2771]
Ling in dormitory	-0.2758	-0.2173	-0.002	0.0769	-0.0518	0.0227
	[0.2722]	[0.2716]	[0.4186]	[0.4167]	[0.3168]	[0.3215]
Log of living areas per capita (m2)	-0.2268**	-0.2365**	-0.3525**	-0.3747**	-0.093	-0.1128
	[0.1147]	[0.1148]	[0.1618]	[0.1575]	[0.1342]	[0.1352]
% housing with concrete floor	0.3824	0.5634**	0.4003	0.4655	-0.0061	0.1434
	[0.2899]	[0.2831]	[0.3840]	[0.3784]	[0.3204]	[0.3120]
% housing with tap water	-0.281	-0.3155	-0.1749	-0.1578	-0.178	-0.1693
	[0.2008]	[0.1931]	[0.3908]	[0.3580]	[0.2359]	[0.2203]
% housing with flush toilet	-0.4834**	-0.5316**	-0.7839**	-0.7557**	-0.5775**	-0.6403**
	[0.2252]	[0.2310]	[0.3277]	[0.3354]	[0.2605]	[0.2625]
Head single	0.4433	0.5845**	1.0827**	1.1419***	0.5710*	0.7466**
	[0.2792]	[0.2827]	[0.4402]	[0.4346]	[0.3176]	[0.3137]

Explanatory variables	HCM poverty line		5% lowest income		10% lowest income	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Gender of head (male=1)	0.1032	0.0451	0.5466	0.509	-0.0003	-0.1011
	[0.2153]	[0.2179]	[0.3528]	[0.3505]	[0.2668]	[0.2682]
Log of age of head	-0.2001	-0.1508	-0.4211	-0.5681	-0.5106	-0.4874
	[0.3423]	[0.3462]	[0.5251]	[0.5207]	[0.3955]	[0.3897]
Head no degree	Base					
Head primary	-0.4938*	-0.4310*	-0.7741**	-0.7178*	-0.5113*	-0.4362
	[0.2533]	[0.2564]	[0.3837]	[0.3958]	[0.2819]	[0.2831]
Head lower secondary	-0.8224***	-0.7452***	-0.7194*	-0.6064	-0.7784***	-0.6600**
	[0.2494]	[0.2621]	[0.3675]	[0.3858]	[0.2902]	[0.2972]
Head upper secondary	-1.0067***	-0.8705***	-1.0165*	-0.7804	-1.0971***	-0.9363***
	[0.2973]	[0.3093]	[0.5248]	[0.5477]	[0.3426]	[0.3459]
Head post secondary	-2.0190***	-1.7029***	-3.8799***	-3.4140***	-1.8899**	-1.4009*
	[0.5522]	[0.5550]	[1.0333]	[1.0135]	[0.8173]	[0.7879]
Head managers	-0.9516	-1.3501	0.9576	0.059	-0.4603	-1.1254
	[1.0108]	[0.9961]	[1.1351]	[1.2646]	[1.1726]	[1.1230]
Head technician	-1.8086***	-2.1447***	-1.7073*	-2.7556*	-2.6545***	-3.2923***
	[0.4975]	[0.7475]	[1.0292]	[1.4573]	[0.8899]	[1.0794]
Head service, clerk, office	-0.7878**	-1.3033**	-1.1038*	-2.1709*	-0.7895**	-1.6273**
	[0.3163]	[0.6532]	[0.5900]	[1.2547]	[0.3885]	[0.7480]
Head skilled worker	-0.4898	-0.8704	-1.0514*	-1.918	-0.3208	-0.9892
	[0.3284]	[0.6374]	[0.5366]	[1.1934]	[0.3703]	[0.7542]
Head machine users	-1.2150***	-1.5309**	-1.3853*	-2.1366	-1.3237***	-1.8300**
	[0.3774]	[0.6911]	[0.7173]	[1.3189]	[0.4745]	[0.8196]
Head unskilled & farmers	-0.2112	-0.6893	-0.3694	-1.444	0.0816	-0.7392
	[0.2730]	[0.6279]	[0.4147]	[1.1322]	[0.3024]	[0.7243]
Head not working	Base					
Head working for State		0.1398		0.2127		-0.4968
		[0.5467]		[1.1468]		[0.7030]
Head working for private		0.7443		1.1022		1.0790*
		[0.4890]		[0.9213]		[0.5720]
Head working for households		0.7288		1.5076		1.2913*
		[0.5642]		[0.9749]		[0.6591]
Head working for foreign	Base					
Head's work with contract		0.4655		0.5885		0.7248*
		[0.3705]		[0.5836]		[0.4302]
Receiving pension (yes = 1)	-0.7141**	-0.541	-0.0533	0.1676	-0.473	-0.2676
	[0.3511]	[0.3632]	[0.6095]	[0.6324]	[0.4506]	[0.4545]
Proportion of working members		-0.9032**		-0.824		-1.2698**
		[0.4368]		[0.7393]		[0.5095]
Borrowing (yes =1)		0.8510***		0.4335		0.8822***
		[0.1815]		[0.3581]		[0.2127]
Receiving remittances (yes = 1)		-0.205		-0.2381		-0.097
		[0.1840]		[0.2914]		[0.2200]
Head having chronic disease		0.3371		0.7295**		0.3687
		[0.2203]		[0.3175]		[0.2516]
Being members of an association		-0.1367		0.1006		0.0846
		[0.2095]		[0.3947]		[0.2490]
Proportion of members having health insurance		-0.9327***		-0.8582		-1.1529***
		[0.3244]		[0.6140]		[0.3786]

Explanatory variables	HCM poverty line		5% lowest income		10% lowest income	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Constant	1.6062	1.7988	0.8236	1.5387	2.1441	2.491
	[1.4491]	[1.4874]	[2.0628]	[2.1676]	[1.6606]	[1.6889]
Observations	3349	3349	3349	3349	3349	3349
R-squared	0.22	0.25	0.24	0.26	0.23	0.27

Robust standard errors in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%

Source: Authors' estimation from the 2009 UPS.

Health problems, indicated by sickness or chronic disease, is a determinant of poverty when the lowest 5% percentiles of income is use a relative poverty line. However, the effect of health problems is not statistically significant in other models. The effect of having health insurance significantly lower the probability of being poor, perhaps by lowering the health financing burden to the households. Receiving pension is negatively associated with lower probability of being poor. This result is consistent with Long and Pfau (2009) who found that receiving social security benefit, which for the most part is pension, is significantly associated with lower probability of being poor for elderly people in Vietnam. On the other hand, receiving remittance seems have no effect on poverty and borrowing increases the likelihood of a household falling into poverty.

Occupation has significant effect on poverty. Generally, a household whose household head work in the private sector is more likely to be poor than those households whose heads work in the State or the foreign-invested sector. Similarly, agricultural households are more likely to be poor than those households in the industrial or service sector.

Regional variables have statistically significant effect in when the income poverty line is 12,000 thousand VND/person/month. Households in Ho Chi Minh City and in the inner cities are less likely to be poor than the ones in Hanoi and in the suburban, respectively.

It is interesting the variable of 'without registration book' is negatively correlated with poverty, but the recent migration to city is positive correlated with poverty. This implies that recent migrants are more likely to be poor, but permanent migrants can tend to be non-poor.

3.3. Determinants of urban income and expenditures

While it is important to determine the factor influencing poverty, it is also necessary to know the factors determining household income per capita as well as expenditure per capita in urban areas. To investigate household and individual characteristics associated with income and expenditure, the following function of per capita income (and also per capita expenditure):

$$\ln(Y) = \alpha + X\beta + \varepsilon ,$$

where Y is per capita income, and X is a vector control variables which are similar as in the above equation of poverty. Again some explanatory variables in the income equation can be endogenous. For these variables, their estimated coefficients reflect association or correlation between poverty and these variables.

Table 6 summarizes the determinants of urban income as well as expenditure in Hanoi and Ho Chi Minh City. The dependent variable is the log of income/expenditure per capita. Independent variables are similar to those in Table 5.

Table 6 indicates that most of the coefficients that determine poverty are also significant in explaining urban household income and expenditure per capita. In particular, inner city, Ho Chi Minh City and education have positive impacts on both household income and expenditure per capita. On the other hand, households with larger household size and higher proportions of elderly, children and females are more likely to have lower income or expenditure. Households whose heads work for wage or agriculture receive lower income or expenditure. In addition, households whose heads are working have higher income/expenditure than those whose heads are not working.

Table 6: Determinants of urban income and consumption expenditure

Explanatory variables	Log of per capita income		Log of per capita expenditure	
	Model 1	Model 2	Model 1	Model 2
Urban	0.2077***	0.2183***	-0.0043	0.0194
	[0.0322]	[0.0317]	[0.0399]	[0.0384]
Hanoi (yes=1)	-0.0316	-0.0254	-0.0575	-0.0595
	[0.0310]	[0.0324]	[0.0368]	[0.0391]
Without registration book	0.1991***	0.1507***	0.1182**	0.1189**

Explanatory variables	Log of per capita income		Log of per capita expenditure	
	Model 1	Model 2	Model 1	Model 2
	[0.0433]	[0.0422]	[0.0489]	[0.0513]
Head has been arrived since 2008	-0.1952***	-0.2300***	-0.4803***	-0.4852***
	[0.0407]	[0.0402]	[0.0749]	[0.0775]
% household members above 60	-0.1324	-0.0616	-0.0625	-0.0723
	[0.0916]	[0.0912]	[0.1088]	[0.1137]
% household members below 15	-0.3530***	-0.1198	-0.1532*	-0.1754*
	[0.0839]	[0.0938]	[0.0855]	[0.0982]
% female members	-0.0336	-0.0068	-0.2186***	-0.2280***
	[0.0493]	[0.0481]	[0.0596]	[0.0605]
Household size	-0.0594***	-0.0470***	-0.0357***	-0.0325***
	[0.0130]	[0.0121]	[0.0126]	[0.0123]
Having motorbike	0.2465***	0.2500***	0.3418***	0.3410***
	[0.0384]	[0.0375]	[0.0413]	[0.0411]
Ling in dormitory	0.0165	-0.0088	0.3004***	0.2783***
	[0.0386]	[0.0386]	[0.0521]	[0.0559]
Log of living areas per capita (m2)	0.1392***	0.1404***	0.1927***	0.1937***
	[0.0196]	[0.0194]	[0.0201]	[0.0198]
% housing with concrete floor	-0.0534	-0.0690*	0.2455***	0.2330***
	[0.0423]	[0.0411]	[0.0537]	[0.0544]
% housing with tap water	0.0247	0.0277	0.1581***	0.1596***
	[0.0321]	[0.0316]	[0.0343]	[0.0343]
% housing with flush toilet	0.0909**	0.1085**	0.3209***	0.2990***
	[0.0436]	[0.0426]	[0.0520]	[0.0538]
Head single	-0.0236	-0.0459	-0.0174	-0.0163
	[0.0503]	[0.0496]	[0.0577]	[0.0589]
Gender of head (male=1)	-0.034	-0.0084	-0.0018	-0.0021
	[0.0322]	[0.0307]	[0.0283]	[0.0287]
Log of age of head	0.1534**	0.1737***	0.0492	0.0796
	[0.0612]	[0.0605]	[0.0805]	[0.0818]
Head no degree	Base			
Head primary	0.1442***	0.1277***	0.0975	0.0966
	[0.0488]	[0.0478]	[0.0837]	[0.0826]
Head lower secondary	0.1919***	0.1852***	0.1710**	0.1598**
	[0.0448]	[0.0446]	[0.0826]	[0.0800]
Head upper secondary	0.2969***	0.2959***	0.2654***	0.2420***
	[0.0516]	[0.0521]	[0.0806]	[0.0777]
Head post secondary	0.5102***	0.5008***	0.3449***	0.3221***
	[0.0709]	[0.0684]	[0.0843]	[0.0828]
Head managers	0.6480***	0.7581***	0.4749***	0.6150***
	[0.1413]	[0.1418]	[0.0962]	[0.1195]
Head technician	0.3758***	0.4691***	0.2395***	0.3780***
	[0.0595]	[0.0947]	[0.0521]	[0.0995]
Head service, clerk, office	0.1285***	0.1914**	0.0372	0.1819*
	[0.0476]	[0.0880]	[0.0449]	[0.1026]
Head skilled worker	0.0453	0.0952	-0.0062	0.1333
	[0.0525]	[0.0894]	[0.0483]	[0.1052]
Head machine users	0.0937*	0.1432	-0.0818	0.0255
	[0.0518]	[0.0880]	[0.0630]	[0.0852]
Head unskilled & farmers	-0.0343	0.0217	-0.1483***	0.0014
	[0.0507]	[0.0883]	[0.0502]	[0.1081]
Head not working	Base			

Explanatory variables	Log of per capita income		Log of per capita expenditure	
	Model 1	Model 2	Model 1	Model 2
Head working for State		-0.2278***		-0.2134***
		[0.0575]		[0.0671]
Head working for private		-0.1249**		-0.0332
		[0.0514]		[0.0556]
Head working for households		-0.1669**		-0.1535*
		[0.0741]		[0.0915]
Head working for foreign	Base			
Head's work with contract		-0.0902		0.0056
		[0.0605]		[0.0591]
Receiving pension (yes = 1)	0.0901*	0.0956**	0.0317	0.0254
	[0.0469]	[0.0456]	[0.0440]	[0.0445]
Proportion of working members		0.4566***		0.0032
		[0.0746]		[0.0702]
Borrowing (yes =1)		-0.1181***		0.0301
		[0.0308]		[0.0289]
Receiving remittances (yes = 1)		0.0391		0.0568*
		[0.0273]		[0.0310]
Head having chronic disease		-0.0705**		-0.0406
		[0.0330]		[0.0461]
Being members of an association		-0.0866***		-0.0105
		[0.0318]		[0.0308]
Proportion of members having health insurance		0.1245**		0.0524
		[0.0484]		[0.0463]
Constant	8.6171***	8.2500***	8.2388***	8.0879***
	[0.2625]	[0.2673]	[0.3029]	[0.3145]
Observations	3349	3349	3349	3349
R-squared	0.39	0.43	0.42	0.42

Standard errors in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%

Source: Authors' estimation from the 2009 UPS.

4. Dynamic aspects of urban poverty

4.1. Methodology

It is difficult to investigate poverty dynamics without panel data. In principle the chronically poor are households whose living standard is below a defined poverty line for a period of several years, while the transiently poor experience some non-poverty years during that period (Hulme and Shepherd, 2003). Even with a widely used approach by (Jalan and Ravallion, 2000) in which poverty is decomposed into two components: the

transient poverty due to the intertemporal variability in consumption, and the chronic poverty simply determined by the mean consumption overtime, longitudinal data with at least three repeated observations are required to estimate the chronic and transient poverty. Unfortunately these kinds of data are not available for urban poverty analysis.

In this study, a variant of poverty dynamics approach by Carter and May (2001) will be used to decompose poverty into structural and stochastic poverty. To incorporate the aspect of poverty dynamics into this definition, let's start with a simple economic model of intertemporal choice in two periods t and t+1. It is assumed that a households i at the time t has a vector of assets, A_{it} that includes physics, human and also social capitals. At the period t households i is assumed to choose consumption (c_{it}) and investment (I_{it}) to maximize their expected welfare. It is expressed in the following form:

$$J^*(A_{it}) \equiv \max_{\{c_{it}, I_{it}\}} u(c_{it}) + J^*(A_{i(t+1)})$$

subject to:

$$c_{it} = F(A_{it}, \theta_{it}) - I_{it}$$
$$A_{i(t+1)} = A_{it} + I_{it} - \Theta_{it}$$
$$A_{i(t+1)} \geq 0$$

where $J^*(A_{it})$ defines the maximum discounted stream of future livelihood that household i expects given a starting asset endowment A_{it} and optimal future behavior. When optimizing the welfare the household faces three constraints. The fist is the budget constraint given by income $F(A_{it}, \theta_{it})$, a function of assets A_{it} and the stochastic income shock θ_{it}. The second constraint shows that the future asset endowment can be reduced due to stochastic asset shocks Θ_{it}. The last constraint assumes that the assets are non-negative, i.e. the household cannot borrow.

Under the usual assumption of diminishing marginal utility of consumption, the household would prefer smoothness rather than fluctuation in consumption over two periods. In order to smooth consumption the household must have perfect access to credit market. The household also would like to borrow in event of income shocks θ_{it}, or asset shocks Θ_{it}. However such a credit market is not available for the poor, especially in developing countries. The way they can cope with adverse shocks is to track their assets.

If a large amount of assets is sold, the remaining assets might not be sufficient to generate income sufficient to sustain not only investment but also consumption in next period. The household can fall into poverty, even poverty trap.

With a note that there is no obvious evidence of consumption smoothing by the poor, Carter and May (2001) decompose the realized (current) consumption, c_{it} into three following components:

$$c_{it} = c_{0i} + c(A_{it}) + \varepsilon_{it}\,.$$

The first component c_{0i} is the steady consumption based on permanent income that the household would enjoy if they can smooth the consumption. Facing the binding borrowing constraint the household might track the current asset $c(A_{it})$, and the third term ε_{it} will become non-zero when the household cannot smooth out shocks. If the household can maintain stable consumption the two later terms in the right-hand side of (4) will be zero. Because the permanent income is generated based on the assets, the first two terms can be grouped into the expected consumption for household i, denoted by $\hat{c}(A_{it})$.

Now denote the money metric poverty line as c_{PL}, and a household is classified poor if their realized consumption is below the poverty line. Carter and May (1999) estimate the asset poverty line, A_{PL} that satisfies the following condition:

$$A_{PL} = \{A \mid \hat{c}(A_{PL}) = c_{PL}\}.$$

The asset poverty line A_{PL} is the combination of assets that are expected to yield the level of welfare equal to the poverty line $c_{PL.}$ A poor household is defined as structurally poor if their asset level is lower than the asset poverty line. The stochastically poor are those whose asset level is above the asset poverty line. Levels of assets that are higher than the asset poverty line are expected to generate consumption level above the poverty line c_{PL} in next period. Thus the stochastically poor can find it easier to escape poverty.

Once the asset poverty line is estimated, one can classify the population into four groups: the structurally and stochastically poor, the stochastically and structurally non-poor. Households are defined as structurally poor if they are observed to be poor and their asset level places them below the poverty line. Households who are poor in terms of their realized living standard but have asset level above the asset poverty line are called

stochastically poor. The stochastically non-poor households are those who are non-poor but have their asset level below the asset poverty line. Finally, the structurally non-poor households are those who are non-poor and have asset level above the poverty line.

4.2. Estimation results

To estimate the asset level of each household, the first step is to run regression of per capita income on asset variables which are expected to generate income of the households in the long-term. Then the predicted per capita income is estimated for each household in the sample. This expected per capita income can be regarded as long-term income which depends on the asset level. Thus it can be a proxy for the asset level of households. The income model is similar to Model 1 in Table 6, but the dependent variable is per capita income instead of log of per capita income. It is assumed that households cannot change the level of these assets at least in short-term. We estimate different models. The estimates of structural and stochastic poverty rates are very similar across models. We use estimates from the first model of all the sample for interpretation.

Table 7: The percentage of the poor

Cities	Poor	Structurally poor	Stochastically poor	Stochastically non-poor	Structurally non-poor
The poverty line of HCM city					
Hanoi	17.38	7.81	9.57	6.96	75.39
HCM city	12.52	2.44	10.09	5.90	80.18
All	14.21	4.30	9.91	6.27	78.52
Poverty line: the lowest 10% income					
Hanoi	7.57	2.92	4.65	4.37	88.06
HCM city	3.65	0.32	3.33	4.69	91.65
All	5.01	1.22	3.79	4.58	90.41
Poverty line: the lowest 20% income					
Hanoi	12.08	5.12	6.97	5.69	82.23
HCM city	9.02	1.12	7.90	5.40	85.58
All	10.08	2.51	7.57	5.50	84.41

Source: Authors' estimation from the 2009 UPS.

Table 7 shows the estimation of different types of poverty. There is a large proportion of the poor who are found stochastically poor. It is noted that the poverty rate is equal to sum of the structural poverty and stochastic poverty rates. For both absolute

and relative poverty lines, Hanoi has higher rates of structurally poverty than HCM city. The proportion of structurally poor and stochastically non-poor is rather small. This poverty structure can be different from the rural poverty structure. Chronic poverty or structural poverty can be much higher in poor areas, especially in mountainous areas.

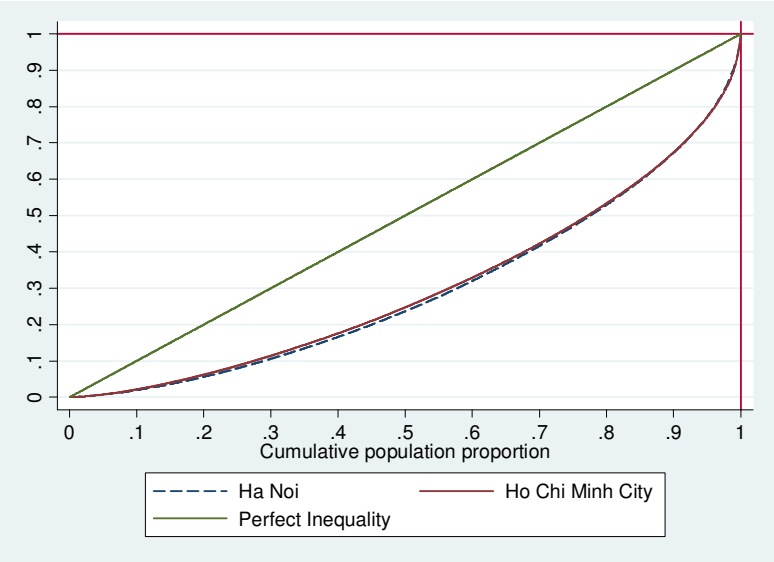
5. Inequality

Inequality is expected to become increasingly a big policy issue in urban areas in the next decade, when Vietnam becomes a low middle income country. The Gini coefficient index is the most commonly used inequality index in the literature and in practice. The Gini index is defined as a ratio of the areas on the Lorenz curve diagram. If the area between the line of perfect equality and the Lorenz curve is A, and the area under the Lorenz curve is B, then the Gini index is A/(A+B). Since A+B = 0.5, the Gini index, G = A/(0.5) = 2A = 1-2B. Practically, the Gini index can be calculated from the individual income in the population:

$$G = \frac{1}{2n(n-1)\bar{Y}} \sum_{i=1}^{n} \sum_{j=1}^{n} \left| Y_i - Y_j \right|$$

where $\bar{Y}$ is the average per capita income or expenditure. The value of the Gini coefficient varies from 0 to 1. The closer the Gini coefficient is to one, the more unequal is income or expenditure distribution.

Figure 1: Lorenz curve in Ho Chi Minh city and Hanoi



Source: Authors' estimation from the 2009 UPS.

Figure 1 shows the Lorenz curve in both cities. The figure indicates that the inequality in both cities are similar, although it is a little higher in Hanoi than in Ho Chi Minh City. Those results are supported by analyzing income-based Gini index as shown in Table 16, which also reports other measures of inequality. However, when expenditure-based Gini index is used, inequality is higher in HCM City than in Hanoi. The former is also higher than the national average estimated from consumption data of VHLSS 2008 while the latter is lower than this national average of expenditure-based Gini. Similarly, the picture is inconclusive when the gaps between the richest and the poorest are analyzed, depending on if income or expenditure measure is used for the calculation of this indicator of inequality. Like Gini index, inequality is higher in HCM City than in Hanoi, when expenditure-based measures of the gap between the richest and the poorest are used.

Table 8: Inequality indexes in Hanoi and Ho Chi Minh city

	Estimate	S.e.	Lower bound	Upper bound
Expenditure Gini Index				
Hanoi	0.326	0.009	0.308	0.344
Ho Chi Minh City	0.432	0.071	0.292	0.571
All	0.400	0.052	0.297	0.503
Income Gini Index				
Hanoi	0.398	0.016	0.366	0.43
Ho Chi Minh City	0.386	0.019	0.349	0.424
All	0.391	0.014	0.365	0.418
Duclos Esteban and Ray Index of polarization (2004)				
Polarization measure for incomes				
Hanoi	0.240	0.010	0.220	0.261
Ho Chi Minh City	0.242	0.010	0.221	0.263
All	0.241	0.007	0.226	0.255
Polarization measure for expenditure				
Hanoi	0.250	0.043	0.165	0.335
Ho Chi Minh City	0.208	0.006	0.196	0.220
All	0.276	0.066	0.145	0.408

Source: Authors' estimation from the 2009 UPS.

Table 9: Income/expenditure gap

	Income		**Expenditure**	
	Mean	*Median*	*Mean*	*Median*
Top 5%/Bottom 5%				
Hanoi	21.48	17.26	12.89	9.62
Ho Chi Minh City	21.69	14.34	32.47	10.06
All	21.64	14.78	26.22	9.93
Top 10%/Bottom 10%				
Hanoi	12.72	9.07	7.79	6.29
Ho Chi Minh City	11.93	8.13	15.13	5.84
All	12.24	8.61	12.63	6.12
Top 20%/Bottom 20%				
Hanoi	6.84	4.80	4.96	4.00
Ho Chi Minh City	6.77	4.80	7.61	3.62
All	6.78	4.75	6.61	3.79

Source: Authors' estimation from the 2009 UPS.

The income Gini estimate in Ho Chi Minh City is 0.386, a little lower than in Ha Noi (0.398). Meanwhile, the income Gini index for both cities is 0.391. Thus, we can conclude that there is little difference in income inequality between the two cities.

On the other hand, the expenditure Gini estimate in Ho Chi Minh City is 0.432, much higher than the one in Hanoi (0.326), Thus, we can conclude that expenditure

inequality in Ho Chi Minh City is quite high, and much higher than in Hanoi although the income inequality in both cities are similar.

The Gini estimate in Ho Chi Minh City is 0.383, a little lower than in Ha Noi (0.393). Meanwhile, the Gini index for both cities is 0.385. In order to understand the underlying factors of Gini index, we decompose the Gini Index by income sources using the approach first proposed by Rao (1969)[4]. The results in Table 14 shows that in both cities, differences in wages are the most important factor creating inequality in income, contributing about 47.8 percent of the Gini index in Hanoi and 42.6 percent in Ho Chi Minh City. Next to wages, non-farm self-employed income is a major source of income inequality, contributing 27.3 percent of the Gini index in Hanoi and 41.3 percent in Ho Chi Minh City. On the other hand, pension and other income are more important contribution to the Gini index in Hanoi (6.6 percent and 21.8 percent respectively) than in Ho Chi Minh city (0.85 percent and 15.1 percent respectively).

It is interesting to compare the decomposition of the Gini Index between the two cities. Non-farm self-employed income plays a much more important role in explaining income disparity in Ho Chi Minh City than in Hanoi. On the other hand, pension and other income are more important in Hanoi than in Ho Chi Minh City in contributing to income disparity. Thus, public policies aimed at reducing inequality should take into account those differences.

Table 10: Decomposition of the Gini index by income sources

	Hanoi		**HCM city**		**All sample**	
	Income share (%)	Contribution to Gini Index (%)	Income share (%)	Contribution to Gini Index (%)	Income share (%)	Contribution to Gini Index (%)
Non-farm self-enployed income	23.20	27.30	33.47	41.31	31.25	38.02
Service income	0.01	-0.02	0.02	-0.03	0.02	-0.03
Pension	8.13	6.63	1.21	0.85	2.70	2.29
Allowance	0.31	-0.23	0.34	0.16	0.33	0.07
Farm income	2.49	-3.26	0.87	-0.01	1.22	-0.76
Other income	15.74	21.78	12.37	15.13	13.10	16.61
Wages	50.11	47.81	51.72	42.58	51.38	43.80

Source: Authors' estimation from the 2009 UPS.

[4] Rao, V.M. (1969), "Two Decompositions of Concentration Ratio" *Journal of the Royal Statistical Society*, Series A 132, 418-425.

6. Conclusions

This study examines determinants of poverty in urban Vietnam and proposes policy implications for urban poverty reduction. More specifically, it aims to examine several issues: (i) poverty estimation for Hanoi and HCM city (ii) analysis of sensitivity of poverty estimates and characteristics of the poor to the selection of poverty lines (iii) determinants of urban poverty, (iv) dynamic aspects of urban poverty, (v) income and consumption inequality in urban Vietnam. Data used in this study are from the 2009 Urban Poverty Survey.

Using the poverty line of 12,000 thousand VND/year, the poverty incidence in Hanoi and Ho Chi Minh city is 17.4 percent and 12.5 percent, respectively. Although Hanoi has higher poverty than Ho Chi Minh city, Hanoi has higher per capita income than Ho Chi Minh city. This is because the income inequality is higher in Hanoi than in Ho Chi Minh city. The income Gini estimate in Ho Chi Minh City is 0.386, lower than in Ha Noi (0.398). However, Ho Chi Minh city has higher consumption expenditure than Hanoi. In addition, the expenditure Gini estimate in Ho Chi Minh City is 0.432, much higher than the one in Hanoi (0.326).

There is a large proportion of the poor who are found stochastically poor. Hanoi has higher rates of structurally poverty than HCM city. The proportion of structurally poor and stochastically non-poor is rather small.

Overall the non-poor have more assets than the poor. The proportion of the non-poor having computer, internet connection, and fridge is much higher than the poor. The poor have poorer housing conditions, especially they have much lower access to tap water than the non-poor. There are only nearly 40 percent of the poor households using tap water, while the non-poor having tap water is around 61 percent. Heads of the poor households tend to have lower education and unskilled works than the heads of the non-poor households.

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