Urban and Rural Dimensions of Income Inequality in Vietnam

Thi Cam Van Cao
International University of Japan

Takahiro Akita
International University of Japan

April 2008

国際大学
INTERNATIONAL
UNIVERSITY OF JAPAN

Urban and Rural Dimensions of Income Inequality in Vietnam

Thi Cam Van Cao and Takahiro Akita
International Development Program, Graduate School of International Relations
International University of Japan

Abstract

This study analyzes urban and rural inequalities in Vietnam by applying two techniques of inequality decomposition by population groups and income sources based on two data sets from the nationwide household surveys in 2002 and 2004. It is found that within-sector inequalities in income distribution are substantially higher than that in expenditure distribution because expenditure level is more dependent on location characteristics of a household, while the determinants of income level seems to stay in other characteristics such as education and occupations of household members. Income inequality within the urban sector is higher than that in the rural sector because urban income mainly comes from wage employment and non-farm self-employment, which are more unequal than agricultural income. Interestingly, wage employment appears to be an equalizing income source in both urban and rural areas. Agricultural income is undeniably an inequality-equalizing source. Therefore, much of income inequality stays in the distribution of sources other than wage and agriculture. Based on the review of current policies related to income distribution and decomposition analysis, the paper suggests that income diversification, development of private sector, encouraging rural-urban migration and trade liberalization would be appropriate for increasing income level while restraining increasing inequality.

Urban and Rural Dimensions of Income Inequality in Vietnam[*]

Thi Cam Van Cao and Takahiro Akita
International Development Program, Graduate School of International Relations
International University of Japan

1. Introduction

Since the beginning of this century, the Vietnamese economy has sustained high economic growth rates while markedly reducing poverty during its transition to a market-oriented economy. Since 2002, the GDP growth rate has been consistently above 7% and has accelerated from 7.0% in 2002 to 8.4% in 2005 (World Bank, 2006a). The industrial sector has shown the strongest growth at above 10% annually, followed by the services sector with annual growth at 8%, while the agricultural sector has maintained an average annual growth rate of 3.5-4.0% per year (World Bank, 2006b). Strong growth in all three sectors has had a positive impact on poverty reduction, which is one of the most important policy goals of the Vietnamese government. According to Fritzen and Brassard (2005), the poverty headcount ratio consistently declined from 58% in 1993 to 29% in 2002.

One of the key achievements has been the development of a vibrant business sector that has served as one of the factors in bringing about rapid poverty alleviation in Vietnam. A sizeable and growing business sector enables a larger part of the population to take part in more economically productive activities and, thus, raise income levels and living standards. Especially, with the promulgation of private ownership and official encouragement of private investment, private enterprises have expanded notably, and they currently provide wage employment to 21% of the total labor workforce (World Bank, 2006a).

In addition to increasing income levels, the more important implication in the rapid expansion business sector is that it has led to a marked increase in the demand for labor. This has translated into two types of mobility: a geographical move from rural to urban areas, and an occupational move from the agricultural labor force to

non-farm self-employment and wage employment. These types of changes in the labor force are inevitable in a rapidly growing and industrializing economy as the population shifts from the informal structures of the agricultural sector to the formal structures of modern industries. However, it is critical to take into account the distributional effects that accompany such economic shifts and labor mobility, as Vietnam has begun to grapple with increasing inequalities between the rural and urban sectors, and between different geographic regions of the country (Fritzen, 2002).

Fritzen and Brassard (2005) states that the increase in inequality in Vietnam during 1993-1998 was due to a widening gap between the urban and rural sectors, which is consistent with many other studies (Glewwe, Gragnolati and Zaman, 2000; Helbergs, 2003). However, increases in inequality in the subsequent period (1998-2002) were mainly attributable to inequalities within each sector, as opposed to between them. According to Fritzen and Brassard (2005), the change in the cause of inequality is primarily due to increasing returns to human capital and regular wage employment among households within the same sector, either urban or rural.

Wage employment is a direct result of the aforementioned occupational move, and the increase in wage employment has contributed to poverty reduction in Vietnam. According to World Bank (2006b), in 2004, earnings from wage employment was the single most important factor contributing to income growth of the poor: wages accounted for nearly half of all income growth of the lowest income quintile between 2002 and 2004. However, it is unclear whether wage employment has positive or negative effects on income distribution. This is due to the fact that while wage employment provides additional income opportunities for the poor, it arguably provides even more income opportunities for the rich. In certain scenarios, as the economy develops, the gap in wages between low-skilled and high-skilled employment widens, and wage employment may indeed contribute to income inequality.

There are a large number of studies on inequality in Vietnam, however, most of them tend to use household expenditure. There are few studies that use household income and, thus, few studies conducted from the perspective of income-generating sources.

In addition, at the time of this study, most studies utilized household survey data from either 1992-93 or 1997-98; few used the household survey data from 2002 and /or 2004 as the main data source.

This study analyzes income inequality both *between* and *within* the urban and rural sectors. The urban-rural disparity is examined by dividing the population into two subgroups according to location: urban areas or rural areas. Income inequalities within each sector are examined by disaggregating household income into different income sources to measure the contribution of each source to overall inequality. The study contributes to existing literature in the following ways. (1) It mainly utilizes household income data, which is supplemented by household expenditure data as necessary. (2) It decomposes inequality by income sources in both urban and rural sectors. In this respect, this paper builds upon the study by Gallup (2002), which is one of the few comprehensive studies on income sources in Vietnam. (3) It provides an update of inequality analysis in Vietnam based on the latest available data from 2004.

The rest of this paper is organized as follows. Section 2 briefly reviews the existing literature on inequality between and within urban and rural sectors as well as different income sources in Vietnam. Section 3 reviews economic reforms and policies related to inequality in Vietnam since 1986. Section 4 presents two techniques to decompose inequality measures by population groups and by income sources. The data sets of Vietnam's household surveys used in the study are also explained in section 4. Section 5 presents the decomposition results and a discussion of the results. Finally, section 6 provides concluding remarks and policy implications.

2. Literature Review

The Vietnam Living Standard Surveys have been conducted in consistence with Living Standards Measurement Study household surveys, which are designed by the World Bank to measure and understand poverty in developing countries. There have been four rounds of such household surveys in Vietnam since 1992: the Vietnam Living Standard Survey (VLSS) of 1992-93 and 1997-98, and the Vietnam Household Living Standard Survey (VHLSS) of 2002 and 2004. The VHLSS's are

similar to the VLSS's except that most of the modules are simplified and the smallest geographic unit is each of the 61 provinces; in contrast, the VLSS's control for seven regions only.

The four household surveys provide good-quality data to measure and understand multiple aspects of household welfare and behavior and serve as valuable data sets for studying Vietnam's growth, poverty and inequality in a manner that is consistent with studies of other developing and transitional economies. Since the time when these data sets have been made available, a large number of studies on income inequality in Vietnam have been conducted. This section reviews a number of those studies that utilize the data sets and focus on spatial inequality, mainly urban-rural disparity, and the sources of income in Vietnam. At the time of this study, most other studies had been mainly based on the first three rounds of the surveys.

Using the first three rounds of the household surveys, VLSS 1992-93, VLSS 1997-98 and VHLSS 2002, many studies analyze the trend of inequality in Vietnam and come to the same conclusion that inequality in Vietnam is relatively low but is gradually increasing. Vietnam is a relatively egalitarian society when compared to other developing countries in the region. According to the World Bank (2004a), from 1990 to 2002, the Gini coefficients of some developing countries in Southeast Asia were quite high: 0.45 in Malaysia, 0.48 in the Philippines, 0.48 in Singapore, and 0.52 in Thailand. In contrast, the Gini coefficient remained at approximately 0.37 in Vietnam, which is similar to Indonesia, Lao PDR and Cambodia. However, it is clear from statistical evidence that the Gini coefficient and real GDP per capita are strongly correlated at early stages of economic development. This suggests that as real GDP per capita increases, inequality would increase as well in Vietnam.

UNU-WIDER (World Institute for Development Economics Research of the United Nations University) reports that the Gini coefficient in Vietnam increased gradually from 0.34 in 1993 to 0.37 in 1998, and the World Development Indicator reports that the coefficient was 0.38 in 2002. The highest Gini coefficients (0.36 in 1993 and 1998 and 0.38 in 2002) were recorded in the South East region, which includes Ho Chi Minh City, the most developed urban area. The Red River Delta region, which includes Hanoi, the capital and the second most developed city, and the Central

Highlands region recorded a significant increase in inequality from 0.32 in 1993 to 0.36 in 2002 (World Bank, 2004a). Other measures of inequality also indicate a similar increasing trend over this same period. The expenditure ratio of the richest to the poorest quintile increased from 5.0 in 1993 to 5.5 in 1998 and to 6.0 in 2002 (World Bank, 2004a). This is clear evidence of an increasing gap between the rich and the poor. When households were disaggregated into decile groups, the ratios in expenditure of the richest and poorest groups more than doubled: 10.6 in 1996, 12.0 in 1999, and 12.5 in 2002 (Scott and Truong, 2004).

Based on the VLSS data sets and applying different methodologies, a number of studies have investigated various aspects of inequalities between and within the urban and rural sectors in Vietnam. All of the studies conclude that from 1993 to 1998, increasing inequality in Vietnam is mainly due to the increasing gap between the urban and rural sectors. Glewwe, Gragnolati and Zaman (2000) decomposed inequality into the urban and rural sectors and reported that between-sector inequality increased rapidly: while it accounted for 21% of total inequality in 1993, by 1998, it accounted for 32% of total inequality. Fritzen and Brassard (2005) indicated that between-sector inequality had increased relatively more slowly after 1998 as it accounted for 35% of total inequality by 2002.

Using VLSS 1992-93 and 1997-98, Helbergs (2003) used a regression-based method to decompose inequality into sub-groups based on household characteristics and examined the marginal effect of location while holding other household characteristics constant. According to Helbergs (2003), increasing levels of inequality during Vietnam's reform period appear to be the result of rising spatial inequality as well as increasing returns to higher education - interestingly, only these two factors are significant drivers of inequality during this period. In particular, regional and urban factors together comprised 25% of overall inequality, which is larger than any other group of household characteristics.

Nguyen, Albrecht, Wroman and Westbrook (2006) found that the differences between urban and rural endowments were the primary factors for the urban-rural gap at the bottom quintile of the distribution; in contrast, the differences in returns to those endowments accounted for much of the gap at the top quintile of the

distribution. In other words, poor urban households are better off than their rural counterparts because they posses better initial endowments; while inequality among richer households was due primarily to the difference between urban and rural returns to their endowments.

The period under study from 1993 to 1998 in Nguyen, Albrecht, Wroman and Westbrook (2006) coincided with the increased marketization associated with economic reforms in Vietnam in the 1990s. Therefore, they concluded somewhat prematurely that their results provided evidence of urban-biased policies, which enabled urban households to take better advantage of the reforms. In 1993, the urban-rural gap was mainly due to the fact that urban households were much better endowed initially than rural households. By 1998, this gap had widened due not only to better initial endowments but also because urban households were able to obtain higher returns to their endowments.

Nguyen and Tran (2006) examined income gaps between urban and rural sectors at each quintile, focusing on how urban and rural households were affected by trade liberalization. The paper used the VLSS data sets from 1992-93 and 1997-98; during this period, trade liberalization was one of the major reforms undertaken by the Vietnamese economy. The paper concluded that trade liberalization in fact did bring about significant efficiency gains for the whole economy, but these gains were not distributed equally and were biased against rural and poor households in general. The study explained this phenomenon by noting that because urban households buy more imported goods than their rural counterparts, therefore, they are in a better position to benefit from trade liberalization. Other studies also examined the effect of trade liberalization on income disparity between households in urban and rural sectors and came to a similar conclusion that urban households gained more than rural households from this policy. (Nguyen, Tran, Ghosh and Whalley, 2005; Jensen and Finn Tarp, 2005)

Although existing literature provides a rather comprehensive analysis on the urban-rural gap and inequality from the perspective of population subgroups, there are few studies on inequality from the perspective of income-generating sources in Vietnam. This is due to the fact that most inequality studies of Vietnam tend to use

expenditure or consumption data. The existing literature about income sources in Vietnam does not directly address the issues of inequality and the decomposition of inequality by income sources. However, it is possible to list some references for better understanding the various sources of income in Vietnam.

Gallup (2002), using the VLSS data sets from 1992-93 and 1997-98, evaluated the contribution of wage employment to inequality and income growth. The study examined various aspects of the Vietnamese labor market in the 1990s, including labor force participation and unemployment, the composition of employment, wage growth, regional wage differences, the number of hours worked, and wage employment patterns. One of the most noteworthy findings is that Ho Chi Minh City and Hanoi, the two cities with the largest populations, together comprise fully 25% of all wage jobs in Vietnam, while accounting for only 8% of the country's population. The distribution of wages appeared to equalize to some extent during the 1990s when the wages of the poor grew at 14% per year, which is higher than the wage growth experienced by the middle class and the rich (both at 10% per year). The measures of all inequality indices also show that during 1993-1998 overall wage inequality in Vietnam decreased, despite the fact that wages grew rapidly.

Gallup (2002) measured the contribution of wages to overall income inequality. He found out that wage employment contributed a roughly similar amount to overall income inequality as other non-agricultural employment (mainly, household enterprise and remittances). Besides, agricultural income reduced overall inequality because inequality between agricultural households was much lower than inequality between non-agricultural households, and agricultural income had a lower correlation with other income sources.

While wage income studies normally focus on urban areas, studies of rural income mainly focus on the issue of income diversification. Income diversification in rural households usually refers to the growing importance of non-crop or non-farm income, which includes both off-farm wage labor and non-farm self-employment. Income diversification in Vietnam has been examined in van de Walle and Cratty (2004), which examined off-farm income diversification, and in Minot, Epprecht, Tran and Le (2006), which examined income diversification in the Northern Uplands region of

Vietnam. Van de Walle and Cratty (2004) found a clear association between rural diversification and standards of living. Diversification in income sources helps reduce poverty, thus increasing standards of living. The cross-sectional data suggested a strong association between poverty and a lack of diversification into wage and self-employment activities. If a household takes part in some types of off-farm activities, it is less likely to remain poor. In contrast, households that depend on farming activities as the sole source of income are nationally the poorest household type in rural Vietnam.

Minot, Epprecht, Tran and Le (2006) conducted comprehensive research on income diversification and poverty in the Northern Uplands in Vietnam. The study considered the contribution of each income source to income growth in the region. Income diversification can be decomposed into two changes. The first is the shift from farm-only agricultural activities to higher-value agricultural activities such as livestock, fisheries, and forestry, which represents 16 percent of the growth in overall income. The second is the shift from agricultural activities to non-farm enterprises and wage labor, which represents 27 percent of the overall growth in income.

In addition to wage income and agricultural income, non-farm self-employment has become a substantial income source for households in both rural and urban areas. According to Vilverberg and Haughton (2004), non-farm self-employment currently serves as an important source of employment and income due to the fact that the Vietnamese economy and labor market have not fully developed. Demand for labor in formal sectors (wage employment) is not as high as in a developed economy, and a large number of workers are not equipped with the education and the skills necessary to work in the formal sectors. As a result, non-farm self-employment becomes the only option for such a household member to generate additional income aside from agricultural activities. Thus, non-farm self-employment serves as a bridge between informal employment in the agricultural sector to formal employment in the industrial sector – it provides an attractive alternative to farming, but it is less remunerative than most wage-paying jobs.

3. Overview of Policies on Income Distribution

This section provides a brief overview of government policies and programs in

Vietnam that are related to inequality in the distribution of income and social welfare. It is standard knowledge that the urban and rural sectors have different characteristics in terms of income levels and distribution. As in the case of Vietnam, while rural policy-makers focus on eradicating hunger and reducing poverty, urban policy-makers focus mainly on reducing the income gap between those with different educational levels, housing situations, employment status, etc. National policy-makers, in their turn, must consider the entire country's development as well as balanced development between the urban and rural sectors. In some cases, policies that were intended to promote development throughout the whole in practice turned out to be urban-biased. This is difficult to avoid since economic activities in most countries, particularly in developing countries, tend to concentrate in urban areas, and urban incomes increase more rapidly than rural incomes.

The current national development strategy, which serves as the national development policy framework for the entire country, is the Socio-Economic Development Strategy for 2001-2010 (SED 2001-2010). The strategy emphasizes building "focal economic zones", which have higher-than-average growth rates; these, in turn, will contribute significantly to the growth of the entire country, including poorer regions. Under this framework, some regions will be given a higher priority in public investment and will thus develop more rapidly than other regions. This strategy sets distinct goals and targets for the development of each of the different regions: urban, lowland rural, mid-land and mountain rural, and offshore and island regions. Urban regions are targeted for rapid industrialization and modernization, in order to develop strong industrial and services sectors while also pioneering a knowledge-based economy. In contrast, rural regions are targeted to promote income diversification.

SED 2001-2010 is the basis for the Comprehensive Poverty Reduction and Growth Strategy (CPRGS), approved in 2002, which places the highest priority in promoting rapid and sustainable economic growth while ensuring social progress and equity. For both rural and urban areas, the CPRGS emphasizes creating income generation opportunities for the poor. For rural areas, it emphasizes agricultural diversification. For urban areas, it emphasizes poverty alleviation, particularly among the unemployed, low income, the homeless, and those without equal access to services.

Though the national development policy framework ostensibly aims for a balanced regional development, in reality, the policy seems to have an urban bias. Based on the national framework, a number of policies directly affect the income distribution or the income gap between rural and urban areas. While agricultural development policies have been successful to some extent in raising the income of rural areas and reducing urban-rural disparity, other policies have actually been biased towards the urban sector.

According to Oshima (1998), agricultural reforms have significant impact on income distribution. The land reform in Vietnam was promulgated through Decree No. 10 (Resolution 10) in April 1988, the New Land Law in 1987, and the Amended Land Law in 1993, all of which significantly changed the agricultural management system. Under the reform's guidelines, rural households became the basic decision-making units in agricultural production. Agricultural decollectivization increased households' ability to make their own production choices, which provided strong incentives for 10 million rural households to make long-term investments and expand agricultural production. The reform enabled the agricultural sector to grow rapidly at an annual growth rate of 4% during the past ten years, which is higher than the average agricultural growth rates of developing countries in the same period (Fritzen and Brassard, 2005).

In price liberalization, the government ceased controls on the prices, abolished compulsory sales of agricultural products to the state and thus allowed farmers to dispose of their output on free markets. Farmers had freedom to commercialize their products and free access to essential goods. The price reform has reduced the transaction cost for farmers, which helps reduce inequality between urban and rural areas.

In order to increase the income levels of the rural poor, many national programs have focused on income generation opportunities for the poor, with particular emphasis on employment generation and credit access. The Program on Provision of Credit to the Poor aims at improving credit access for the poor. The Agricultural and Rural Development Bank, set up in 2000 as one of the four largest commercial banks in Vietnam, mainly provides credit in rural areas. The Government also established the

Bank for Social Policy in 2003, which is modeled after the operations of the Vietnam Bank for the Poor. All of these policies are aimed at increasing income opportunities and generating employment outside of the agricultural sector for labors in rural areas.

Fiscal policies appeared to be urban-biased as urban areas and selected regions have received a disproportionate share of public expenditures whereas rural areas have in contrast shouldered a relatively higher tax burden. For example, large-scale infrastructure investments funded through the government's master Public Investment Program (PIP) is biased towards more densely populated lowland and urban areas. Three sub-regions comprised of the three large cities and suburbs of Hanoi, Da Nang, and Ho Chi Minh City located in the Northern, Central and Southern regions, respectively, are designated as "focal economic zones" based on SED 2001-2010.

Furthermore, there is evidence that rural poor households bear a disproportionate share of the tax burden (Fritzen and Brassard, 2005). While direct income taxes such as personal income tax and the real estate tax are generally borne by rich urban households, these actually account for a relatively small share of the government's budget revenues. In contrast, the various taxes, fees and contributions levied on rural residents account for a large share of their household income.

The widening disparity between the urban and rural sectors may be attributed to restrictions on labor mobility between the two sectors. According to World Bank (2004b), the annual rate of urbanization of Vietnam is expected to remain 3 percent, the urban population share is forecasted to rise to 45% by 2020, and Vietnam will be one of the least urbanized East Asian countries. The household registration system and other barriers to employment and social services discourage rural residents from migrating to urban areas for alternate employment that would yield higher returns to their labor. Unregistered migrants from rural areas usually have unstable jobs and have limited access to social services, or must pay more for these services. As industrial development concentrates in urban areas, urban residents have a higher chance of finding employment in the formal sector, and thus, earning higher income. In contrast, rural residents find it difficult to look for higher-paying employment within the rural area itself. Therefore, the gap between urban and rural areas will

inevitably increase.

Another urban-biased policy is trade liberalization. Trade liberalization usually favors manufacturing activities, which are mainly located in urban areas. This is true in all developing and developed countries. In Vietnam, the effective rate of protection for the agricultural sector is about 13 percent, which is far lower than the 80 percent effective rate of protection for the manufacturing sector (Weeks, Nguyen, Rathin and Joseph, 2003). This large difference is typically due to a development strategy seeking to foster industrialization. In Vietnam, trade liberalization is pursued in parallel with industrialization, especially in export-oriented industries; thus, it protects industrial sectors more than agricultural sectors. Exporters of manufactured goods receive preferential tax treatment such as exemption from the value-added tax and special sales tax as well as a low tax rate on profits. In contrast, agricultural exporters do not receive such preferential tax treatment even when they export agricultural products.

In addition to trade liberalization, foreign direct investment policies also appear to have an urban bias. In general, foreign investment tends to flow to urban areas where the infrastructure and skills are more developed and the likelihood of a high return to investment is higher. Thus, in addition to a better initial endowment of infrastructure and higher-skilled workers, urban areas receive more investment and a more rapid increase in income than rural areas.

4. Methodology and Data

4.1 Methodology

4.1.1 Inequality Measures

There are various inequality indices to measure income distribution in a population. A desirable inequality index needs to satisfy four basic properties: (1) anonymity – the index is unaffected by who earns the income but is based on the distribution of income among all individuals; (2) income homogeneity or mean independence – the index remains the same if all individuals' income is changed by the same proportion; (3) population independence – the index remains the same if the number of recipients at each income level is changed by the same proportion; and (4) the Pigou-Dalton

principle − a transfer from a richer to a poorer person that does not reverse their relative income ranks reduces the value of the index. (Shorrocks, 1980).

In this paper, two generalized entropy class of inequality measures and the Gini coefficient are chosen as they satisfy the four desirable properties.

Let us define the following terms:

n is the total number of households in the population;

y_i is the per capita income of household i (i=1, 2, …, n); and

$Y = \sum_i y_i$ is total income of all households.

Theil's entropy index T (the Theil T index) is then defined as (see, for example, Anand, 1983):

$$T = \sum_{i=1}^{n} \left(\frac{y_i}{Y}\right) \log\left(\frac{y_i/Y}{1/n}\right)$$

On the other hand, Theil's second measure L (the Theil L index) is written as (see, for exmple, Anand, 1983):

$$L = \sum_{i=1}^{n} \left(1/n\right) \log\left(\frac{1/n}{y_i/Y}\right)$$

The third inequality measure used in this study is the Gini coefficient, which can be expressed as the covariance of incomes and their ranks. According to Lerman and Yitzhaki (1985), the Gini coefficient of the total income is written as follows.

$$G = \frac{2}{n\mu} \text{cov}(i, y_i)$$

where *i* is the rank of household *i* when the population is ordered by increasing income.

4.1.2 Inequality decomposition by population subgroups

The two Theil indices can be additively decomposed by population subgroups into

between-group and within-group inequality components.[1]

Suppose that all households in the population are grouped into *m* groups, the decomposition equations for T and L are then given as follows:

$$T = \sum_{i=1}^{m} \left(\frac{Y_i}{Y} \right) T_i + \sum_{i=1}^{m} \left(\frac{Y_i}{Y} \right) \log \left(\frac{Y_i / Y}{n_i / n} \right) = T_W + T_B$$

$$L = \sum_{i=1}^{m} \left(\frac{n_i}{n} \right) L_i + \sum_{i=1}^{m} \left(\frac{n_i}{n} \right) \log \left(\frac{n_i / n}{Y_i / Y} \right) = L_W + L_B$$

where T_i and L_i are inequalities within group *i*; Y_i is the total income of group *i*; and n_i is the number of households in group *i*.

The Theil T index uses income shares as weights whereas the Theil L index uses population shares as weights. Therefore, the Theil L index is sensitive to changes at the lower parts of income distribution while the Theil T index is to changes at the upper parts of income distribution.

4.1.3   Inequality decomposition by income sources

Pyatt, Chen and Fei (1980) provides formulation to additively decompose the Gini coefficient by factor components, which shows the relationship between the Gini coefficient of total income and corresponding Gini coefficients of each component of total income.[2]

Suppose that total household income can be divided into *K* mutually exclusive and collectively exhaustive income sources. Then the Gini coefficient of total income can be additively decomposed as follows:

$$G = \sum_{k=1}^{K} w_k C_k = \sum_{k=1}^{K} w_k R_k G_k$$

where w_k is the share of income from source *k*; $C_k = R_k G_k$ is the concentration ratio for

[1] Studies of inequality decomposition by population subgroups include Glewwe (1986), Ikemoto (1991), Mishra and Parikh (1992), Tskloglou (1993), Estudillo (1997), Akita and Lukman (1999), Ikemoto and Uehara (2000), Rao, et al. (2003), Balisacan and Fuwa (2004), Hoang (2006), and Akita and Miyata (2008).
[2] Studies of inequality decomposition by factor components include Adams (1994), Adams (2002), Estudillo (1997), Papatheodorou (1998) and Silber and Ozmucur (2000).

income source k; G_k is the Gini coefficient for income source k, and R_k is the rank correlation ratio for income source k.

Inequality decomposition by income sources enables one to measure the contribution of each income source to the overall income inequality. Based on the decomposition result, it becomes possible to investigate (i) whether inequality from an income source serves to increase or decrease overall inequality, and (ii) how much of the overall inequality is due to a particular income source.

If g_k is defined as the relative concentration ratio of the kth income source in overall inequality, i.e., $g_k = \dfrac{C_k}{G}$, then the above equation can be written as follows,

$$1 = \sum_{k=1}^{K} w_k g_k \quad .$$ If $g_k > 1$, the kth income source is considered to be inequality-increasing; if $g_k < 1$, the kth income source is considered to be inequality-decreasing or inequality-equalizing.

Factor inequality weight, calculated by $w_k g_k = \dfrac{w_k G_k R_k}{G}$, shows the proportion of total inequality accounted for by income source k. As can be seen in the formula, the contribution to total inequality by an income source depends on three components: its share in total income, its own Gini coefficient, and its rank correlation ratio.

4.2 Data

This study uses data sets from the Vietnam Household Living Standard Surveys in 2002 and 2004 (VHLSS 2002, 2004), which cover 30,000 households and 9,000 households, respectively. The data sets satisfy standards for quality of inequality measurements suggested by Deininger and Squire (1996). Those standards are (i) households or individuals as units of observation; (ii) comprehensive coverage of national population, and (iii) comprehensive measurement of income or expenditure.

As argued in Deaton (1997), expenditure data seems to be preferred to income data to measure the inequality of household welfare because of data quality – the information collected about expenditure data is more accurate and reliable than information on income data. VHLSS 2002 and 2004, however, strictly followed the designs and procedures required in Living Standards Measurement Study (LSMS)

household surveys of the World Bank (described in Grosh and Glewwe, 1996) and collected a wide range of income information. The coverage is so comprehensive that the data collected on household income is considered to be of high quality. Therefore, it is possible to utilize data on household income to measure household living standards and welfare with a high degree of confidence.

Using income data may be more efficient than expenditure data to measure market returns to household factor endowments. Because household income normally consists of expenditures and savings, market returns to factor endowments in the form of savings are also considered. In this paper, income data is firstly used to measure inequality in income distribution among households in urban and rural areas, and then, it is used to investigate the inequalities of various income sources and their contribution to overall inequality. Expenditure data are used to calculate comparable inequality indices. The differences between the inequality indices that are based on income or on expenditure will be discussed in order to provide a better understanding of the indices themselves.

In this study, income data or expenditure data means per capita annual household income or per capita annual household expenditure, respectively. As for income data, annual household income is the total income earned by the household as a whole with income contributed by all household members in the past 12 months from the time of the survey. Income from a particular source is the total income that a household earns in a year from that source. Per capita annual household income as well as per capita annual household income from a particular source is calculated by dividing the total income by the number of household members (household size). Similar calculation is applied to expenditure data.

There are four categories of income source. First, wage income is defined as income from wages and/or the salaries of household members in formal sector jobs. This is the total of all money received as wages, bonuses and in-kind payments from various forms of allowances for primary and any secondary jobs. In the surveys, wages are the only income source that is recorded on an individual level. Second, agricultural income consists of both farm and non-farm agricultural production activities, the latter of which includes forestry, fishing, aquaculture, and the processing of crops

produced by the household. In the surveys, agricultural income is calculated by subtracting total expenditure from total revenue of all agricultural activities conducted by the household. Third, non-farm self-employment income is income from self-employed activities in non-farm, non-forestry and non-aquaculture businesses, which are usually conducted in the form of household enterprises. Finally, other income covered all remaining income, which may include educational subsidies, health subsidies, rental income from a house or land, and other incoming moneys such as domestic or overseas remittances, various kinds of social allowances, interests from savings, coupons, income from leasing a workshop, machinery, etc.

5 Results and Discussions

5.1 Inequality decomposition by population groups

This section investigates the disparity between urban and rural sectors based on both per capita household income and per capita household expenditure, both of which are usually considered standard measures of household welfare. One hypothesis about these different income concepts is that total inequality of income is higher than that of expenditure, though the between-sector component of income-based inequality is lower than that of expenditure-based inequality. (Deininger and Squire, 1996; Shorrocks and Wan, 2005)

Table 1 shows the mean per capita household income and expenditure in the urban and rural sectors for 2002 and 2004. The ratio of mean income values between the urban and rural sectors reflects urban-rural disparity. On average, an individual in urban areas earns and consumes twice as much as an individual in rural areas. In 2004, both ratios of income and expenditure show that urban income was as much as 1.94 times higher than rural income, whereas in 2002, the income ratio was 1.93 and the expenditure ratio was 1.98. With regards to income, urban households earn more than rural households because they have better initial endowments and they receive higher returns to household endowments such as education and experience. With regards to expenditure, rural households consume less than their urban counterparts because the cost of living is lower in rural areas, and the consumption of home-produced goods may sometimes not be counted as expenditure for rural households. As an example, urban households generally spend more on education

and housing: in urban areas, a household has to pay 2.4 times higher than a rural household for education and 3.4 times higher for housing, electricity, water and garbage collection. These comparisons do not even take into account the fact that rural households usually have more members than urban households: a rural household has on average 4.5 members while an urban household has on average 4.2 members (VHLSS 2004).

Table 1

However, in the context of other developing countries in Southeast Asia and East Asia, a ratio of urban-rural mean per capita expenditure of less than 2.0 is relatively low. The comparable ratio is 2.16 in Indonesia in 2002 (Akita and Miyata, 2008), 2.17 in the Philippines in 1991 (Estudillo, 1997), 2.47 in China in 1995, and 2.09 in Thailand in 1981 (Eastwood and Lipton, 2000). All these ratios were calculated based on expenditure data. This may serve as evidence that the urban-rural disparity in Vietnam is not as severe as other countries at comparable levels of development.

Table 2 presents inequality decomposition of two Theil indices in the urban and rural sectors in 2002 and 2004. The following are several observations that can be drawn from the table and additional data as illustrated by tables 3, 4 and 5.

Table 2

Firstly, it is notable that all indices for inequality within the urban sector are correspondingly higher than inequality indices within the rural sector. For example, the Theil L indices for per capita household income within the urban and rural sectors were 0.25 and 0.22, respectively in 2004. The difference was much larger upon examining inequality in per capita household expenditure: the urban and rural sectors' Theil L indices were recorded at nearly 0.20 and 0.15, respectively. These results are consistent with the generalized observation that developing countries' urban sectors have higher income or expenditure inequality than their respective rural sectors (Kuznets, 1955; Estudillo, 1997; Akita and Miyata, 2008). However, the difference is comparatively smaller than other Asian countries[3].

---

[3] Theil L indices for the urban and rural sectors in Indonesia in 2002 were 0.258 and 0.124, respectively (Akita and Miyata, 2002); similarly, Theil L indices in the Phillipines in 1991 were 0.17 and 0.11, respectively (Estudillo, 1997)

Secondly, it is instructive to note the different changes in the two inequality measures. The Theil L index based on per capita income increased slightly from 0.259 in 2002 to 0.274 in 2004; in contrast, the Theil T index appeared to have remained constant at 0.30 in both years. This difference may relate to the sensitivity of each index to income changes at different income groups of the distribution. The Theil L index, using population shares as weights, is less sensitive to income changes at the top of the distribution than the Theil T index, which uses income shares as weights and thus, is more sensitive to income changes among higher income levels. Therefore, there is a possibility that inequality in distribution of per capita household income within poor people increased while that within rich people decreased. As measured based on per capita expenditure, the Theil L index appeared to have remained constant at 0.208 while the Theil T index had a slight decrease from 0.235 in 2002 to 0.228 in 2004. This again may be attributed to a decrease in inequality in expenditure within higher income levels, which actually offsets the increase in inequality within lower income levels.

Thirdly, as can be seen from table 2, inequality in the distribution of per capita household income was higher than inequality in the distribution of per capita household expenditure. For example, the Theil L index based on per capita household income was 0.259 and 0.274 in 2002 and 2004, respectively, and the Theil L index based on per capita household expenditure was lower at approximately 0.21 in both years. Sub-group Theil L indices for the urban and rural sectors also indicate the same pattern: income-based indices were always higher than expenditure-based indices. This appears to be consistent with Deininger and Squire (1996), who state that the expenditure distribution tends to be significantly and systematically more equitable than income distribution.

Finally, we consider the between-sector component of inequality. The data show that the contribution of the between-sector component to income-based inequality was much lower than to expenditure-based inequality. In 2004, the between-sector component accounted for approximately 16% of income-based inequality but as high as 22% for expenditure-based inequality. As can be seen in table 2, between-sector inequalities based on both income measures were almost the same, at 0.045 in 2004, as measured by the Theil L index. Therefore, the difference in the between-sector

component's contribution is completely attributable to the difference in the within-sector component. The within-sector component of income inequality as measured by The Theil L index was 0.228 in 2004, while the comparable measure of expenditure inequality was only 0.162.

Table 3 presents the inequality decomposition by income deciles and reveals the reason why the Theil L index had a slight increase while the Theil T index remained constant in 2002 and 2004. Deciles are determined by dividing the whole population, consisting of 9185 households, into ten groups, each of which contains ten percent of the population, and orders them from the poorest to the richest groups according to per capita household income level. During these two years, inequality within the highest income group (decile 10) decreased substantially from 0.107 to 0.094 and from 0.147 to 0.116 as measured by the Theil L and Theil T indices, respectively. The Theil T index is weighted by income shares, which are as large as over 30% for the highest income group (decile 10). Thus, the decrease in inequality within this group caused the Theil T index to remain almost constant even though the between-group component had increased.

Table 3

Table 4 presents per capita household income, per capita household expenditure, and household savings by ten deciles. Per capita income varies over a larger range than per capita expenditure. Firstly, the ratio between the top and bottom deciles of the per capita income groups is higher than the same ratio of the per capita expenditure groups. On average, a member in a household of the top decile earns as much as 13 times higher than a member in a household of the bottom, but he/she consumes approximately 7 times. Secondly, the percentage shares of income and expenditure of each decile also indicate that the variation in the distribution of per capita income is larger. The income share of the poorest households is smaller than their expenditure share, which were 2.5% and 3.7%, respectively, in 2004. Lower income households have to spend relatively more of their income for survival purposes, and they may even have to borrow money to maintain their minimum consumption for survival. In contrast, the income share of the richest households is much larger than their expenditure share, which were 31.5% and 24.6%, respectively, in 2004. The

difference in income and expenditure shares is much larger for the higher income households because they save more than lower income households. The richest households contribute 45% to total household savings; a member in a household of the top decile saves as much as 45 times higher than a member in a household of the bottom.

Table 4

Table 5 presents per capita household income, per capita household expenditure and household savings of ten deciles in the urban and rural sectors. Urban deciles are obtained by dividing the urban population, consisting of 2,248 households, into ten groups based on per capita household income, and similarly, rural deciles are obtained by dividing the rural population, consisting of 6,937 households, into ten groups based on per capita household income.

Table 5

Within the urban sector, the ratio of mean income between the richest households to the poorest households was over 12, whereas the same ratio based on mean expenditure was half of that. Income shares range from 2.5% for the poorest group to 29.7% for the richest group, while expenditure shares range from 3.5% for the poorest group to 23% for the richest group. The distribution of both income and expenditure was more equal in the rural than in the urban sector, which signifies that inequality within the rural sector is lower than that within the urban sector.

There is an unexpected observation regarding household savings in the urban sector – the mean savings of the lowest income urban households (decile 1) was higher than that of the four higher income groups (deciles 2, 3, 4 and 5). In contrast, the savings of the lowest income rural households was extremely low, accounting for only 0.1% of total savings; this can be attributed to the extremely weak economic conditions of those households. Most of them experienced hunger and barely had enough income for survival; thus, a low savings rate is reasonable for this group. Apart from these two contrary results, household savings in the urban and rural sectors reflected the savings level of the country as a whole, in which high income households accounted for a majority of total savings, thus accounting for why income inequality is higher than expenditure inequality.

5.2 Inequality decomposition by income sources

Household income, as described in sub-section 4.2, consists of four main sources: wage income, agricultural income, non-farm self-employment income, and other income. This sub-section evaluates the contribution of each source to total income and to overall inequality.

5.2.1 Sources of household income

Table 6 presents summary statistics of four sources of household income in 2002 and 2004. Wage income roughly equaled income from agricultural activities, and both had relatively high means among the four income sources. All of the income sources were positively correlated to total income at the 1% significance level. Wage employment and agricultural activities appeared to be the most important sources of income, but their effect on changes in total income was less than other income.

Table 6

Table 7 presents four sources of household income in the urban and rural sectors separately. There are notable differences between the two sectors. In the urban sector, wage income was the largest source of income and was approximately as much as five times larger than agricultural income; in contrast, wage income was equal to only half of agricultural income in the rural sector. The per capita income of an urban household was about twice as much as that of a rural household. However, the urban-rural ratio of per capita income varies across income sources. Per capita income from wage employment or non-farm self employment in urban areas was more than three times higher than in rural areas. On the other hand, per capita income from agriculture in urban areas is only one-third of that in rural areas.

Table 7

The characteristics of these four sources of income can be further examined by looking at the different income groups. Figure 1 plots the shares of each income source in the ten income groups in the urban sector in 2004, and Figure 2 does the same for the rural sector. Because the results for 2002 are very similar, they are omitted.

Figures 1 and 2

In the urban sector, except for the poorest income group, wage income appears to be the most important source of income, and its share varied across income groups from 35% to 43%. For middle income groups (deciles from 4 through 7) in the urban sector, non-farm self-employment income was the second most important income source. This indicates that non-farm self-employment is a relatively important source of income for middle-income households. The share of agricultural income decreases across income groups.

Agricultural income was the most important income source in the rural sector, though its share decreased consistently and significantly across income groups: from 65% for the highest income group to 30% for the lowest income group. Except for the two richest groups (deciles 9 and 10), the second most important income source for rural households was wage income, which accounted for roughly 25% of total income. It is interesting to note that the shares of non-farm self-employment income and other income increase across income groups.

The four income sources for the richest group (decile 10) indicate a different pattern from those in the other deciles. The share of other income was significantly higher than the average in either the urban sector or the rural sector, which was almost the same as that of wage income in the urban sector and that of agricultural income in the rural sector. Thus, rich households' income was relatively more dependent upon rental income from houses and land, interest, shares, coupons, and loans.

On the other hand, for the poorest income group (decile 1) in the urban sector, the share of wage income was lower than that of agricultural income, indicating that poorest households depend mainly on agricultural income even in urban areas. Relatively high share of other income for the poorest income group indicates that urban poor households may have income from other sources such as income and support from charitable organizations, associations, firms, and government subsidies including educational and health subsidies.

5.2.2 The Gini Decomposition by income sources

Table 8 shows the decomposition of the Gini coefficient by four income sources. Consistent with the above results, wage income contributed the largest share to total income (28%), followed by agricultural income (27%). Wage income had a relatively

high Gini coefficient and rank correlation ratio, which were 0.72 and 0.59, respectively, in 2004. This resulted in a relative concentration ratio larger than unity, and wage income served to increase overall inequality. On the other hand, agricultural income served to decrease overall inequality as its relative concentration ratio was less than unity due to a low Gini coefficient and low rank correlation ratio.

Table 8

Factor inequality weight is calculated as the product of income share of each source and its relative concentration ratio and represents the contribution to overall inequality of each income source. Wage income contributed a slightly larger share to overall inequality than its share in total income at 29% of overall inequality. Agricultural income contributed roughly the same share to total income, but because the relative concentration ratio was much lower than unity, agricultural income contributed the least to overall inequality at 11% of overall inequality.

Non-farm self-employment income contributed about 21% to total income but up to 28% to overall inequality in 2004. It appears to be the most unequally-distributed source as its Gini coefficient was as high as 0.83. Other income increased its share to total income significantly from 18% in 2002 to 24% in 2004. It had a relatively high Gini coefficient and rank correlation ratio, and thus served to increase overall inequality. Its contribution to overall inequality was 32%, which was in fact the largest among four income sources in 2004.

The results of the decomposition of a separate Gini coefficient for the urban and rural sectors are presented in table 9. There are clearly different patterns for each income source within the same sector, both urban and rural. Wage income contributed the largest share to total income in the urban sector, accounting for 42% in 2002 and 37% in 2004, while it accounted for about 23% in the rural sector, which was the second largest share after agricultural income. Both the Gini coefficient and rank correlation ratio of wage income within the sectors were lower than those calculated for the whole population. Thus, its relative concentration ratios were also lower at 0.89 and 0.87 in 2004 in the urban and rural sectors, respectively, which were both less than unity; therefore, wage income served to decrease overall inequality within each sector. However, because of its large contribution to total income in the urban

sector, wage inequality accounted for 33% of urban income inequality in 2004. In the rural sector, wage income accounted for 20% of rural inequality in 2004, which was smaller than the other sources of income.

Table 9

The contribution of agricultural income is in direct contrast. In the urban sector, agricultural income was highly unequally distributed with a Gini coefficient nearly 0.9. However, its share in total income was minor at less than 10%; therefore, it contributed little to overall inequality. On the other hand, in the rural sector, agricultural income was the most equally distributed with a Gini coefficient of 0.52. As an income source, agricultural income served to decrease overall inequality, but because its share in total rural income was as high as over 40%, agricultural income contributed a lot to overall inequality within the rural sector: 30% in 2002 and 28% in 2004.

Non-farm self-employment appeared to be neutral to income inequality in the urban sector because its relative concentration ratio was almost equal to unity. However, non-farm self-employment contributed to the increase in overall inequality in the rural sector as it was the most unequally distributed income source: its Gini coefficient was 0.85, and it was highly correlated with total income with a rank correlation ratio at over 0.6. In this transitional period in Vietnam, many rural residents do not have enough skills to work in the formal sector, which is also relatively undeveloped in the rural sector. Thus, non-farm self-employment is a feasible choice for rural residents to escape from relatively low income agricultural work.

Finally, other income served to increase overall inequality in both urban and rural sectors, as its relative concentration ratio was much larger than unity. Its contribution to overall inequality was the largest in 2004, at 37% in the urban sector and 29% in the rural sector.

6 Conclusions

This paper has attempted to utilize income data as a measurement of living standards for Vietnamese households in order to investigate the level of urban-rural disparity

and to examine urban and rural inequalities from the perspective of various income sources. The study is conducted based on large data sets from nationwide comprehensive household surveys – the Vietnam Household Living Standards Surveys of 2002 and 2004.

Since the dramatic reform promulgated by *doi moi* starting in 1986, Vietnam has experienced problems associated with urban-biased policies in public finance, restrictions in labor mobility and trade liberalization that have contributed to the development of the urban sector at the expense of the rural sector. These are similar to the urban-biased policies implemented in China, which have had the consequence of severe urban-rural disparity and wage inequality throughout the country (Yang, 1999; Yang and Zhou, 1999). However, certain government policies that promoted agricultural reforms such as land decollectivization and price liberalization have contributed to ameliorate the disparity in income growth between the urban and rural sectors in Vietnam. In addition, the increasing importance of wage employment has not only reduced poverty but has also reduced inequalities within each sector, as confirmed by the main findings in this study.

This study is different from many other studies on inequality in Vietnam in that it uses household income data, and it concludes that income-based inequality is higher than expenditure-based inequality, both for the population as a whole and for urban and rural sectors separately. This is due to the fact that household income varies over a wider range than expenditures, and household savings is indisputably higher in the top income group.

If expenditure data were used as in previous studies, more than 20% of overall inequality can be attributed to the difference in per capita household expenditure between the urban and rural sectors. However, only 16% of overall inequality in per capita household income would have originated from differences in income levels between the two sectors. On the other hand, within-sector inequalities based on income data are substantially higher than that based on expenditure data. The difference reveals that while the gap in expenditure level may be more attributable to the location characteristics of a household, urban versus rural, the gap in income level seems to be due to differences in other characteristics such as education and the

occupations of household members within each sector.

On average, an individual in urban areas earns and consumes twice as much as an individual in rural areas. With regards to income, urban households earn more than rural households because they have better initial endowments and they receive higher returns to household endowments such as education and experience. With regards to expenditure, rural households consume less than their urban counterparts because the cost of living is lower in rural areas, and the consumption of home-produced goods may sometimes not be counted as expenditure for rural households. However, in the context of other developing countries in Southeast Asia and East Asia, a ratio of urban-rural mean per capita expenditure of 2.0 is relatively low, indicating that the urban-rural disparity in Vietnam is not as severe as other countries at comparable levels of development.

According to the decomposition analysis by income sources, the contribution of wage income to total is only a little higher than its share in total income. Within the urban sector and the rural sector, wage income even serve to reduce overall inequality as its contribution to total inequality is smaller than its share in total income. The occupations that account for wage employment in Vietnam is currently quite homogeneous, so wage differentials across occupations are not currently significant. In addition, state-owned enterprises provide a large share of wage employment both in the urban and rural sectors, and wages in state-owned enterprises are relatively equally distributed. Therefore, it is reasonable that wage income currently serves to ameliorate overall income inequality.

In the rural sector, agricultural income contributes the largest share to total income and decreases overall inequality in that sector. The decreasing share of agricultural income implies that inequality within the rural sector will increase in the future. In addition, the increase in the shares of non-farm self-employment and other income to total income will lead to increasing inequality in the rural sector, as they are inequality increasing sources of income.

Based on the analysis of the inequality decompositions, it is possible to suggest policies for the Vietnamese government to address the problem of inequality in the country. In rural areas, income diversification appears to be an effective way to help

poor households out of hunger and poverty. Government policies that provide access to credit for the poor, education and job training opportunities for formal sector employment, and entrepreneurial support to start household businesses all serve to increase income opportunities for low income groups in the rural sector.

The continued development of the business sector, especially private enterprises, will definitely generate more employment opportunities and thus increase incomes. Household businesses in rural areas can potentially provide employment to large numbers of rural workers and thus increase income for the poor rural household. In urban areas, the development of high-skilled jobs will increase the gap in wage income. Therefore, it is necessary to have appropriate policies to provide as many urban residents as possible with the skills and experience to serve in these jobs.

Encouraging migration from rural to urban areas, especially to industrial zones and export manufacturing zones located in the suburbs of big cities, would help increase income levels for rural areas. Rural migrants to urban centers are usually members of low income households that lack employment and/or agricultural land. Therefore, when these migrants are employed in the urban sector, their remittances to their rural households will help increase the income of the poorer rural households.

It is also clear that trade liberalization and the integration of the Vietnamese economy to the world economy have different distributional effects on urban and rural households. It is imperative that governmental policies recognize this and compensate those groups mostly in rural areas that are negatively affected by trade liberalization.

With these and other distributional policies, it is possible for Vietnam to navigate the transition to a modern, industrial economy with lower rates of income and expenditure inequalities than its peer countries in East Asia and Southeast Asia.

References

Adams, R. H. (1994), 'Non-Farm Income Inequality in Rural Pakistan: A Decomposition Analysis', *Journal of Development Studies* 3 (1): 110-33.

Adams, R. H. (2002), 'Non-farm Income, Inequality, and Land in Rural Egypt', *Economic Development and Cultural Change* 50: 339–63.

Akita, T., and R. A. Lukman (1999), 'Spatial Patterns of Expenditure Inequalities in Indonesia: 1987, 1990, and 1993', *Bulletin of Indonesian Economic Studies* 35 (2): 65-88.

Akita, T., R. A. Lukman and Y. Yamada (1999), 'Inequality in the Distribution of Household Expenditure in Indonesia: A Theil Decomposition Analysis', *The Developing Economies* 37 (2): 197–221.

Akita, T., and S. Miyata (2008), 'Urbanization, Educational Expansion, and Expenditure Inequality in Indonesia in 1996, 1999, and 2002', *Journal of the Asia Pacific Economy* 13(2): 147-167.

Anand, S. (1983), *Inequality and Poverty in Malaysia: Measurement and Decomposition*, A World Bank Research Publication, Oxford University Press, London.

Balisacan, Arsenio M. and Fuwa, Nobuhiko (2004) 'Changes in Spatial Income Inequality in the Philippines', UNU/WIDER Research Paper No. 2004/X, Helsinki.

Deaton, A. (1997), *The Analysis of Household Surveys: a Microeconomic Approach to Development Policy*, Johns Hopkins University Press, London.

Deininger, K., and L. Squire (1996), 'A New Data Set Measuring Income Inequality', *The World Bank Economic Review* 10 (3): 565-91.

Eastwood, R., and M. Lipton (2000), 'Rural-Urban Dimension of Inequality Change' *UNU-WIDER Working Paper* (No. 200), World Institutes for Development Economics Research United Nation University, Helsinki, Finland.

Estudillo, J. (1997), 'Income Inequality in the Philippines, 1961-91', *The Developing Economies* 35 (1): 68-95.

Fritzen, S. (2002), 'Growth, Inequality and the Future of Poverty Reduction in Vietnam', *Journal of Asian Economics* 13: 635-57.

Fritzen, S. and C. Brassard (2005), *Vietnam Inequality Report 2005: Assessment and Policy Choices*, Mekong Economics Ltd. Synthesis Paper of the "DFID Drivers of Inequality in Vietnam" Project.

Gallup, J. (2002), 'The Wage Labor Market and Inequality in Vietnam in the 1990s', *World Bank Policy Research Working Paper* (No. 2896), The World Bank, Washington, D.C.

Glewwe, Paul (1986) 'The Distribution of Income in Sri Lanka in 1969–70 and 1980–81: a Decomposition Analysis', *Journal of Development Economics* 24(2): 255–74.

Glewwe, P., M. Gragnolati and H. Zaman (2000), 'Who Gained from Vietnam's Boom in the 1990's? An Analysis of Poverty and Inequality Trends', *World Bank Policy Research Working Paper* (No. 2275), The World Bank, Washington, D.C.

Grosh, M. and P. Glewwe (1996), 'A Guide to Living Standards Surveys and Their Data Sets' *Living Standard Measurement Study Working Paper* (No. 120), The World Bank, Washington, D.C.

Heltberg, R. (2003), 'Inequality in Vietnam: A Regression-based Decomposition', paper presented at the UNU-WIDER Conference on Inequality, Poverty and Human Well-Being, Helsinki.

Hoang, H. (2006), *Theil Decomposition Analysis of the Inequality in Vietnam: 1993, 1998 and 2002*. Unpublished master's thesis, International University of Japan, Japan.

Ikemoto, Y. (1991), *Income Distribution in Thailand: Its Changes, Causes and Structure*, I.D.E Occasional Papers Series No. 25, Institute of Developing Countries, Tokyo.

Ikemoto, Y., and M. Uehara (2000), 'Income Inequality and Kuznets' Hypothesis in Thailand', *Asian Economic Journal* 14 (4): 421-43.

Jensen, H. T., and F. Tarp (2005), 'Trade Liberalization and Spatial Inequality: a Methodological Innovation in a Vietnamese Perspective', *Review of Development Economics* 9 (1): 69–86.

Kuznets, S. (1955), 'Economic Growth and Income Inequality', *American Economic Review* 45: 1-28.

Lerman, R., and S. Yitzhaki (1985) 'Income Inequality Effects by Income Source: A New Approach and Applications to the United States', *The Review of Economics and Statistics* 67: 151-6.

Minot, N., M. Epprecht, T. T. A. Tran and Q. T. Le, (2006), 'Income Diversification and Poverty in the Northern Uplands of Vietnam', *International Food Policy Research Institute Research Report* (No. 145), IFPRI, Washington, D.C.

Minot, N., B. Baulch and M. Epprecht (2006), 'Poverty and Inequality in Vietnam: Spatial Patterns and Geographic Determinants', *International Food Policy Research Institute Research Report* (No. 148), IFPRI, Washington, D.C.

Mishra, Padmaja and Parikh, Ashok (1992) 'Household Consumer Expenditure Inequalities in India: a Decomposition Analysis', *Review of Income and Wealth* 38(2): 225-236.

Nguyen, B., J. Albrecht, S. Wroman, and M. Westbrook (2006), 'A Quantile Regression Decomposition of Urban-Rural Inequality in Vietnam', *ADB Working Paper* (No. 2006.2), Asian Development Bank, Manila, Philippines.

Nguyen, C., and K. D. Tran (2006), 'The Impact of Trade Liberalization on Household Welfare in Vietnam', *MPIA Working Paper* (No. 2006-02), MIMAP-Vietnam Project, International Development Research Centre, Canada.

Nguyen, C., K. D. Tran, M. Ghosh, and J. Whalley (2005), 'Adjustment Costs in Labour Markets and the Distributional Effects of Trade Liberalization: Analytics and Calculations for Vietnam', *Journal of Policy Modeling* 27: 1009–24.

Oshima, H. T. (1998), 'Income Distribution Policies in East Asia', *The Developing Economies* 36 (4):359-86.

Papatheodorou, C. (1998), 'Inequality in Greece: An Analysis by Income Source',

Distributional Paper (No. 39), Suntory and Toyota International Centres for Economics and Related Disciplines, London School of Economics, London.

Pyatt, G., C. Chen, and J. Fei (1980), 'The Distribution of Income by Factor Components', *Quarterly Journal of Economics* 95 (3): 451-73.

Rao, V.V. Bhanoji, Banerjee, D.S. and Mukhopadhaya, Pudarik (2003) 'Earnings Inequality in Singapore', *Journal of the Asian Pacific Economy* 8(2): 210-228.

Scott, S., and C. Truong (2004), Behind the Numbers: Social Mobility, Regional Disparities, and New Trajectories of Development in Rural Vietnam. In P. Taylor (Eds.), *Social Inequality in Vietnam and the Challenges to Reform.* Institute of Southeast Asian Studies, Singapore.

Shorrocks, A. F. (1980), 'The Class of Additively Decomposable Inequality Measures', *Econometrica* 48 (3): 613-26.

Shorrocks, A. F., and G. Wan (2005), 'Spatial Decomposition of Inequality', *Journal of Economic Geography* 5: 59-81.

Silber, J., and S. Ozmucur (2000), 'Decomposition of Income Inequality Evidence from Turkey', Topics in Middle Eastern and North African Economies, Electronic Journal No. 2, Middle East Economic Association and Loyola University Chicago.

Tsakloglou, Panos (1993) 'Aspects of Inequality in Greece: Measurement, Decomposition and Intertemporal Change, 1974, 1982', *Journal of Development Economics* 40(1): 53–74.

van de Walle, D., and D. Cratty (2004), 'Is the Emerging Non-farm Market Economy the Route out of Poverty in Vietnam?', *The Economics of Transition* 12 (2): 237-74.

Vijverberg, W., and J. Haughton (2004), 'Household enterprises in Vietnam: Survival, growth, and living standards', In Glewwe, P., N. Agrawal, and D. Dollar (Eds.), *Economic Growth, Poverty and Household Welfare: Policy Lessons from Vietnam*, World Bank Regional and Sectoral Studies, The World Bank, Washington, D.C.

Weeks, J., T. Nguyen, R. Rathin and L. Joseph (2003), 'Seeking Equity with Growth', The Macroeconomic of Poverty Reduction: The Case Study of Vietnam, United Nation Development Program.

World Bank. (2004a). Vietnam Development Report 2004 – Poverty. Retrieved October 20, 2006, from the World Bank Web site: http://www.worldbank.org/reference/

World Bank. (2004b). Urbanization Dynamics and Policy Frameworks in Developing East Asia. Retrieved December, 20, 2006 from http://siteresources.worldbank.org/INTEAPREGTOPURBDEV/Resources/Urbanization-Dynamics-2004.pdf

World Bank (2006a). Vietnam Development Report 2006 – Business. Retrieved October 20, 2006, from the World Bank Web site: http://www.worldbank.org/reference/

World Bank (2006b), 'Taking Stock - An Update on Vietnam's Economic Developments and Reforms', Mid-Year Consultative Group Meeting for Vietnam, Nha Trang, June 9 – 10, 2006, World Bank Vietnam.

Yang, D. T. (1999), 'Urban-Biased Policies and Rising Income Inequality in China', *American Economic Review* 89 (2): 306-10.

Yang, D. T. and H. Zhou (1999), 'Rural--Urban Disparity and Sectoral Labour Allocation in China', *Journal of Development Studies* 35 (3): 105-134.

Table 1. Per Capita Household Income and Expenditure

	Population share (%)	Per capita household income		Per capita household expenditure	
		Mean (1000 VND)	Share (%)	Mean (1000 VND)	Share (%)
Year 2002					
Urban Sector	23.3	6,980	37.0	5,720	37.6
Rural Sector	76.7	3,620	63.0	2,890	62.4
Urban/Rural Ratio	100	1.93	100	1.98	100
Year 2004					
Urban Sector	24.5	10,100	38.7	7,620	38.6
Rural Sector	75.5	5,210	61.3	3,920	61.4
Urban/Rural Ratio	100	1.94	100	1.94	100

Table 2. Inequality Decomposition by Urban and Rural Sectors

Household Group	Per capita household income				Per capita household expenditure			
	Theil L		Theil T		Theil L		Theil T	
	2002	2004	2002	2004	2002	2004	2002	2004
Urban Sector	0.234	0.250	0.267	0.268	0.199	0.196	0.212	0.208
Rural Sector	0.211	0.221	0.246	0.247	0.150	0.151	0.167	0.161
All Households	0.259	0.274	0.300	0.304	0.208	0.207	0.235	0.228
Within-sector component	0.216	0.228	0.254	0.255	0.161	0.162	0.184	0.179
(% Contribution)	(83.5)	(83.4)	(84.4)	(83.8)	(77.5)	(78.3)	(78.3)	(78.5)
Between-sector component	0.043	0.045	0.047	0.049	0.047	0.045	0.051	0.049
(% Contribution)	(16.5)	(16.6)	(15.6)	(16.2)	(22.5)	(21.7)	(21.7)	(21.5)

Table 3. Inequality Decomposition by Deciles

Household Group	Number of Households	Income Share (%) 2002	Income Share (%) 2004	Theil L 2002	Theil L 2004	Theil T 2002	Theil T 2004
Decile 1 (Poorest)	915	2.6	2.5	0.025	0.027	0.021	0.025
Decile 2	919	3.9	3.7	0.003	0.003	0.003	0.003
Decile 3	919	4.9	4.7	0.002	0.002	0.002	0.002
Decile 4	919	5.8	5.6	0.001	0.001	0.001	0.001
Decile 5	919	6.8	6.7	0.001	0.001	0.001	0.001
Decile 6	919	8.0	8.0	0.001	0.001	0.001	0.001
Decile 7	918	9.6	9.6	0.002	0.002	0.002	0.002
Decile 8	919	11.8	11.9	0.002	0.002	0.002	0.002
Decile 9	919	15.4	15.8	0.005	0.004	0.005	0.004
Decile 10 (Richest)	919	31.1	31.5	0.107	0.094	0.147	0.116
All Households	9,185	100	100	0.259	0.274	0.300	0.304
Within-group component				0.015	0.014	0.048	0.039
(% Contribution)				(5.7)	(5.0)	(15.9)	(12.7)
Between-group component				0.244	0.260	0.253	0.266
(% Contribution)				(94.3)	(95.0)	(84.1)	(87.3)

Table 4. Income, Expenditure and Savings by Deciles in 2004

Household Group	Number of Households	Per capita household income Mean (1000 VND)	Share (%)	Per capita household expenditure Mean (1000 VND)	Share (%)	Savings Mean (1000 VND)	Share (%)
Decile 1 (Poorest)	915	1,580	2.5	1,771	3.7	168	1.0
Decile 2	919	2,394	3.7	2,832	5.9	386	2.3
Decile 3	919	3,005	4.7	2,832	5.9	283	1.7
Decile 4	919	3,607	5.6	3,225	6.7	470	2.8
Decile 5	919	4,317	6.7	3,735	7.7	714	4.2
Decile 6	919	5,126	8.0	4,258	8.8	1,211	7.2
Decile 7	918	6,184	9.6	5,038	10.4	1,396	8.3
Decile 8	919	7,605	11.9	5,934	12.3	1,791	10.6
Decile 9	919	10,131	15.8	7,211	14.9	2,834	16.8
Decile 10 (Richest)	919	20,158	31.5	11,874	24.6	7,576	45.0
All Households	9,185	6,413	100	4,825	100	1,683	100
D10/D1 Ratio		12.8		6.7		45.0	

(Notes) 1. Deciles are determined based on income data.
2. D10/D1 ratio is the ratio of decile 10 to decile 1.
2. Savings in Vietnam include (1) purchasing gold, silver, gemstones, and foreign currency, (2) depositing in savings account, and (3) buying life insurance and other insurance products.

Table 5. Income, Expenditure and Savings by Deciles in Urban and Rural Sectors in 2004

Household Group	Number of Households	Per capita household income		Per capita household expenditure		Savings	
		Mean (1000 VND)	Share (%)	Mean (1000 VND)	Share (%)	Mean (1000 VND)	Share (%)
Urban Sector							
Decile 1 (Poorest)	223	2,493	2.5	2,688	3.5	1,673	5.1
Decile 2	225	3,849	3.8	3,760	4.9	720	2.2
Decile 3	225	5,081	5.0	4,641	6.1	737	2.3
Decile 4	225	6,097	6.0	5,342	7.0	1,096	3.3
Decile 5	225	7,205	7.1	6,740	8.8	1,214	3.7
Decile 6	225	8,505	8.4	7,260	9.5	4,264	13.0
Decile 7	225	10,059	9.9	7,573	9.9	1,785	5.4
Decile 8	225	12,099	11.9	8,938	11.7	2,800	8.5
Decile 9	225	15,807	15.6	11,683	15.3	4,385	13.4
Decile 10 (Richest)	225	30,113	29.7	17,499	23.0	14,074	43.0
All Households	2,248	10,138	100	7,617	100	3,276	100
D10/D1 Ratio		12.1		6.5		8.4	
Rural Sector							
Decile 1 (Poorest)	693	1,472	2.8	1,682	4.3	17	0.1
Decile 2	694	2,201	4.2	2,226	5.7	134	1.2
Decile 3	695	2,730	5.2	2,600	6.6	225	1.9
Decile 4	692	3,242	6.2	2,898	7.4	283	2.4
Decile 5	693	3,778	7.3	3,330	8.5	450	3.9
Decile 6	695	4,394	8.4	3,717	9.5	831	7.1
Decile 7	694	5,163	9.9	4,138	10.6	1,335	11.4
Decile 8	693	6,249	12.0	4,937	12.6	1,565	13.4
Decile 9	694	7,956	15.3	5,581	14.2	1,949	16.7
Decile 10 (Richest)	694	14,867	28.6	8,093	20.6	4,882	41.8
All Households	6,937	5,206	100	3,921	100	1,167	100
D10/D1 Ratio		10.1		4.8		292.5	

(Notes) See Table 4.

Table 6. Per Capita Household Income by Sources

Source	Mean		Standard Deviation		Correlation	
	2002	2004	2002	2004	2002	2004
Wage Income	1,319	1,810	2,390	3,115	0.39	0.42
Agricultural Income	1,328	1,761	2,096	2,835	0.26	0.23
Non-farm Self-Employ. Income	970	1,325	3,090	3,680	0.58	0.53
Other Income	789	1,517	2,611	3,825	0.56	0.64
Total Income	4,406	6,413	4,726	6,361	1.00	1.00

Table 7. Per Capita Household Income by Sources in Urban and Rural Sectors

Source	Mean		Standard Deviation		Correlation		Urban-Rural Mean Ratio	
	2002	2004	2002	2004	2002	2004	2002	2004
Urban Sector								
Wage Income	2,917	3,766	3,884	4,826	0.38	0.38	3.50	3.20
Agricultural Income	583	751	2,218	2,676	0.21	0.13	0.37	0.36
Non-farm Self-Employ. Income	2,099	2,836	5,244	5,802	0.65	0.53	3.35	3.40
Other Income	1,385	2,774	3,174	5,751	0.42	0.65	2.28	2.50
Total Income	6,983	10,126	6,692	8,986	1.00	1.00	1.93	1.95
Rural Sector								
Wage Income	833	1,176	1,359	1,911	0.22	0.28		
Agricultural Income	1,554	2,087	2,003	2,810	0.44	0.47		
Non-farm Self-Employ. Income	627	834	1,892	2,457	0.45	0.45		
Other Income	608	1,109	2,385	2,824	0.66	0.59		
Total Income	3,622	5,205	3,587	4,637	1.00	1.00		

Table 8. Decomposition of the Gini Coefficient by Income Sources

Source	Share of income from source k w_k		Gini coefficient of income from source k G_k		Rank Correlation Ratio R_k		Relative Concentration Ratio $g_k = (G_k R_k)/G$		Factor Inequality Weight $(w_k G_k R_k)/G$	
	2002	2004	2002	2004	2002	2004	2002	2004	2002	2004
Wage Income	0.30	0.28	0.73	0.72	0.61	0.59	1.13	1.04	0.34	0.29
Agricultural Income	0.30	0.27	0.58	0.61	0.27	0.27	0.40	0.40	0.12	0.11
Non-farm Self-Employ. Income	0.22	0.21	0.83	0.83	0.66	0.65	1.39	1.33	0.31	0.28
Other Income	0.18	0.24	0.79	0.76	0.65	0.72	1.30	1.35	0.23	0.32
Total Income			0.39	0.41					1.00	1.00

Table 9. Decomposition of the Gini Coefficient by Income Sources in Urban and Rural Sectors

| Source	Share of income from source k w_k		Gini coefficient of income from source k G_k		Rank Correlation Ratio R_k		Relative Concentration Ratio $g_k = (G_k R_k)/G$		Factor Inequality Weight $(w_k G_k R_k)/G$	
	2002	2004	2002	2004	2002	2004	2002	2004	2002	2004
Urban Sector										
Wage Income	0.42	0.37	0.62	0.62	0.59	0.55	0.97	0.89	0.41	0.33
Agricultural Income	0.08	0.07	0.86	0.88	0.20	0.13	0.45	0.29	0.04	0.02
Non-farm Self-Employ. Income	0.30	0.28	0.75	0.74	0.54	0.52	1.07	1.00	0.32	0.28
Other Income	0.20	0.27	0.75	0.73	0.59	0.71	1.18	1.34	0.23	0.37
Total Income			0.37	0.39					1.00	1.00
Rural Sector										
Wage Income	0.23	0.23	0.72	0.71	0.47	0.45	0.96	0.87	0.22	0.20
Agricultural Income	0.43	0.40	0.50	0.52	0.49	0.50	0.69	0.71	0.30	0.28
Non-farm Self-Employ. Income	0.17	0.16	0.85	0.85	0.62	0.61	1.48	1.42	0.26	0.23
Other Income	0.17	0.21	0.78	0.76	0.62	0.66	1.36	1.38	0.23	0.29
Total Income			0.36	0.36					1.00	1.00

Figure 1. Income Sources by Decile in Urban Sectors
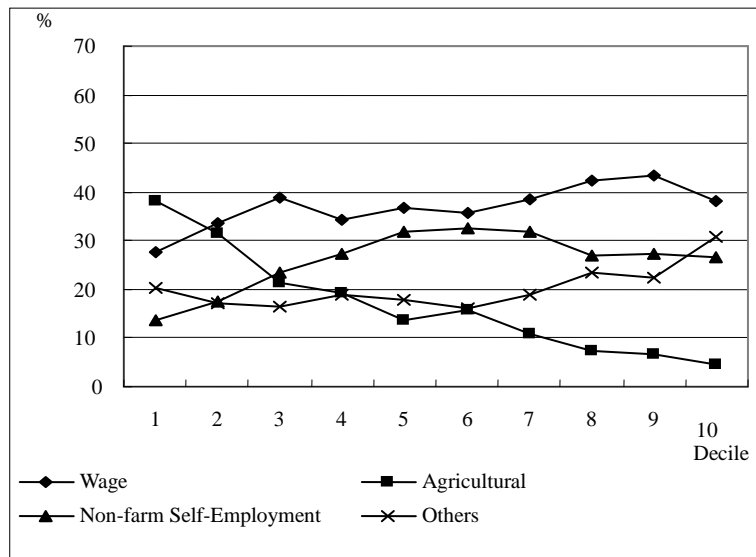
Figure 2. Income Sources by Decile in Rural Sectors