The Recent Economic Performance and Poverty Reduction in Vietnam*

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This study aims to determine the factors of sector gains and labor shifts on poverty of Vietnam, and examine how far the effects of these two factors on poverty reduction have changed over time. The empirical analysis utilizes data from the Vietnam Household Living Standards Survey in 1998 and 2002. As a result, agricultural sector has been central to the strong poverty reduction experienced by Vietnam over the last decade. Around 60% of the aggregate decline in poverty indicators originated from improvement in income of farmers. Lower poverty incidence of all the remaining sectors jointly accounted for around 30% and 20% of the national fall in poverty indices in 1993-1998 and 1998-2002 respectively. In contrast, as a result of quicker movements from low productivity sectors to higher productivity ones, labor shifts evolved as a more important contributing factor to poverty reduction in the same period. The highest concentration and severity of the two farmer groups, and their impressive participation in the reduction of aggregate poverty as pointed out in this study convey a strong message to policy makers, which implies that policies to reduce poverty in Vietnam must continue to reach farmers if a considerably further reduction in poverty is to be achieved.

Keywords: Poverty Reduction, Poverty Measurement,

1. INTRODUCTION

In the 1980's, Vietnam was one of the poorest countries in the world. Economic growth was stagnant and production of rice, the staple food, was not sufficient to feed the growing population. For some essential goods, such as drugs and manufactured products, Vietnam was heavily dependent on subsidized imports from the Soviet Union. Yet this picture began to change in the late 1980s, when the Doi Moi ("renovation") policies were adopted at the Sixth Congress of the Communist Party, held in December 1986. Since that time, Vietnam has achieved outstanding results in its economic performance. The renovation policy created a breakthrough in Vietnam's economic development, the defining event of which was the transition from a centrally- planned to a socialist-oriented market economy. From a stagnating economy characterized by poor macroeconomic performance, and with low growth, high unemployment and hyperinflation, Vietnam has spectacularly turned itself into one of the fastest growing economies in the world. During the ten year period of 1993-2002, the average growth rate of its GDP was approximately 7.5% (General Statistics Office, 2003). Moreover, the Government of Vietnam has successfully translated economic growth into social improvements. In 1993, poverty was rampant among Vietnamese, with 58% of the population living below the poverty line. Five years later, the poverty rate had been brought down to 37%, and it declined further, to 29%, in 2002 (GSO, 2003).

The driving forces behind Vietnam's success story in poverty reduction have somewhat changed over time. In the past, sectoral gains or an increase in income of workers in these same sectors largely accounted for declines in poverty. According to a study by Bales et al. (2001), during the period between 1992 and 1993 and between 1997 and 1998, more than 90% of the reduction in poverty was attributed to sectoral gains, while less than 10% of the improvement in living standards came from labor shifts from lower to higher income earning sectors. The increase in hourly wage has been a key factor in the improvement of household incomes, rather than the shift of labor from low productivity sectors (e.g. agriculture) to those of higher productivity.

In recent years, although there are still opportunities for sectoral gains, labor shifts from low productivity sectors to those of higher productivity, particularly from the agricultural sector to non-farm industries, have received more credit for the further reduction in the number of impoverished Vietnamese (Walle, 1998).

To verify this trend, it is necessary to determine the effects of sectoral gains and labor shifts on poverty, and to examine the extent to which these poverty reducing effects have changed over time. The relative importance of these two factors for income growth and poverty reduction in a single period, and their changes over time, have implications for public policy and investment. Bales et al. (2001) measured poverty level and conducted analysis to figure out sectoral attributes from each industrial sector using data between 1993 and 1998 based on the Vietnamese official statistics on household economy, the Vietnam Household Living Standards Survey (VLHSS). Although the study contributed to explaining the poverty-reducing factors on those two time periods, it is also required to extend the analysis to the recent time period for verifying the newly-found factors, reflecting the rapid changes of the recent Vietnamese economic circumstances. There have been few studies that were conducted in terms of continuous and consistent analysis since Bales et al.'s study. The results from the recent VLHSS data will provide in-depth implications on Vietnamese poverty policies, combined with the previous findings of Bales et al.'s. If most of the income growth and poverty reduction have come from sectoral gains, through the increased output and yields, then investment in research and development deserves priority. If income growth or poverty reduction have derived mostly from the switch from lower to higher income earning sectors, then public policies should be designed to further encourage this structural transition.

2. DATA SET

This study utilizes data from the Vietnam Household Living Standards Survey, which was conducted in 2002 (VLHSS2002). The survey was divided into two parts: an income and expenditure questionnaire using samples from 30,000 households consisting of all indicators (including an income and expenditure section); and an income questionnaire (using samples from 45,000 households) with all the same information as in the income and expenditure questionnaire, excepting the expenditure section. The main contents of the household living standards survey of 2001-2002 reflected the living standards of the members of each household and the socio-economic conditions of the commune/ward, which affected the living standards of people in the region. The following are the specific contents:

- Some features of household member demographics, such as age, sex, ethnic group, and marriage status.
- Household income: income levels, income classified by source (wage, salary; independent agricultural, forestry and fishery activities; independent agricultural, forestry and fishery activity businesses; other inflows); as well as income classified by regions and economic sectors.
- Household expenditure: expense levels, expenses classified by purposes and items (eating, clothing, living, transport, education, health, and culture expenses, as well as other expenses).
- Education level of each household member.
- Type of health-care center, classified by out-patient and in-patient treatment.
- Employment and working hours.
- Houses and furniture, including fixed assets, electricity, water, hygiene.
- Participation in poverty alleviation programs.

The study used data from the employment and expenditure section of the income and expenditure questionnaire (for 30,000 household samples). This questionnaire was used by the VHLSS 2002 to conduct an empirical analysis on labor structure and poverty according to the seven employment sectors in 2002. In the employment section, information on each household member employed was utilized to calculate the labor shares of each of the seven employment sectors. In the expenditure section, per capita household consumption expenditures were also utilized to measure the poverty of the employment groups. There are two reasons for using consumption data instead of income data. First, consumption data is likely to be more reliable than income data because interviewees often feel more comfortable stating their expenditures rather than their income, and, more comfortable to reveal their consumption than true income. Second, income raises living standards only if it is consumed, and past income (savings) or borrowing can be used for consumption purposes. Thus consumption data is likely to reflect a household's welfare level more accurately than would income data (Glewwe et al., 2000)

Results from the study by Bales et al. (2001), which described labor structure and poverty indices according to the seven employment sectors in 1998, together with findings from this study in 2002, were utilized to decompose effects of labor shifts and sector gains on poverty reduction in the period of 1998-2002. This study is a continuous analysis from Bales et al. (2001), so as to figure out what results have changed or not, based on the consistent data sets and methodology. Fortunately, there are no conflicts in the industry code system between the two surveys, the VLHSS 1998 and 2002. The industry code system given to household members working in various employment sectors follows the same International Standard of Industry Classification ISIC Rev.3.1, so that, the results on employment structure and sector structure of poverty between 1998 and 2002 are perfectly comparable. This study targeted only household members between 15 and 65 years old, who participate in the labor force (hereinafter referred to as "worker").

3. METHODOLOGY

3.1. Poverty Lines

The consumption level that separates the poor from the rest of the population is called the poverty line. The first step in determining the so-called poverty line is calculating a consumption-based index to assess the level of consumption, below which an individual will be defined as poor. It is well known that if consumption is divided into two categories, food consumption and non-food consumption, the poorer the people are, the higher the proportion of their overall consumption will be accounted for by food consumption. In determining consumption levels that can be used to separate the poor from the non-poor, food consumption is the most significant measure. Thus a food poverty line (a minimum level of food consumption) is first calculated. A minimum non-food allowance is then calculated and added to the food poverty line to establish the total poverty line.

The poverty line used in this study is the "total poverty line" used in the analysis of the Vietnam Living Standards Survey. The poverty line corresponds to the consumption (including the value of home production and adjusted regional and seasonal price differences) required to purchase 2,100 Kcal per person, per day, using a food basket of households in the third quintile, plus a non-food allowance equal to what households in the third quintile spend on non-food items. The calculation of the Vietnam poverty line was performed in three steps:

- Construction of a basket of food items that provides 2,100 Kcal per person, per day, for one year;
- Calculation of the cost of this basket of food items, which represents the food poverty line;
- Calculation of the total poverty line, in which additional funds for the purchase of non-foods goods is added to the food poverty line.

3.2. Measuring Poverty

This study used the class of poverty measures developed by Foster, Greer and Thorbecke (FGT, 1984). These include the headcount index (which measures the incidence of poverty), the poverty gap (which measures the depth of poverty), and the squared poverty gap (which measures the severity of poverty). FGT (1984) showed that these three poverty measures may all be calculated using the following formula:

$$P_\alpha = \frac{1}{N} \sum_{i=1}^{Q} \left(\frac{Z - Y_i}{Z} \right)^\alpha , \text{ where } \alpha \geq 0$$

Where:

N is total number of workers in the sample population,
Q is number of poor workers (number of workers having a consumption no greater than Z),
Z is the poverty line,

Yi = (Y1, Y2, ..., Yn) are the per worker household consumption expenditures, and α is a non-negative parameter.

The choice of poverty measurement for this particular study followed from their advantages, in that "the FGT class of measures is additively separable, such that the aggregate measure is the population weighted mean of the measures for all sub-groups of a population" (Huppi and Ravallion, 1990). This property allows us to decompose total poverty by groups, including those who remain in the same groups versus those who move between groups. The detailed decomposition formula is presented in the next section. This study will calculate P using the three values of α : $\alpha = 0$, $\alpha = 1$ and $\alpha = 2$.

1) Head Count Ratio (Incidence of Poverty)

When $\alpha = 0$, P_0 is defined as $P_0 = \frac{1}{N} \sum_{i=1}^{Q} \left(\frac{Z - Y_i}{Z} \right)^0$. If $\alpha = 0$, the summation of values inside the bracket equals the number of workers with consumption levels below the poverty line. Thus P_0, or the head count ratio, is simply defined as the percentage of the workers living below the poverty line. This measure appears in almost all poverty analyses thanks to its simple calculation method and convenience in comparing poverty incidence across time, sectors and countries.

2) Poverty Gap Index (Intensity of Poverty)

When $\alpha = 1$, P_1 is defined as $P_1 = \frac{1}{N} \sum_{i=1}^{Q} \left(\frac{Z - Y_i}{Z} \right)^1$. P_1, or poverty gap index, is defined as the aggregate consumption gap of poor workers as a proportion of the poverty line, and normalized by total number of workers. In other words, P_1 is the arithmetic mean of proportionate poverty deficits over total workers.

3) Poverty Squared Gap Index (Inequality of Poverty)

When $\alpha = 2$, P_2 is defined as $P_2 = \frac{1}{N} \sum_{i=1}^{Q} \left(\frac{Z - Y_i}{Z} \right)^2$. P_2, or poverty squared gap index, is defined as the arithmetic mean of the squared proportionate deficits over total workers. This measure is viewed to be superior to the previous two indices for several reasons.

3.3. Model for Empirical Analysis

This study applied this method to decompose the observed reduction in aggregate poverty between 1998 and 2002 in Vietnam. The advantage of this method is the possibility it allows of determining the magnitude of each contributor to poverty reduction, and of ranking their relative importance. Therefore, it is easier to interpret the results and infer policy implications. The decomposition formula is defined as follows:

$$P_{02} - P_{98} = \sum (P_{i02} - P_{i98}) S_{i98} + \sum (S_{i02} - S_{i98}) P_{i98} + \sum (P_{i02} - P_{i98})(S_{i02} - S_{i98})$$

[intra-sectoral effect]   [population shift effect]   [interaction effect]

Where P_{i02} and P_{i98} are sector poverty measures in 2002 and 1998, respectively. S_{i02} and S_{i98} are sector population shares in 2002 and 1998, respectively. There are seven sectors, hence the values range from 1 to 7.

3.4. Aggregation of Employment Sectors

Workers were initially categorized into seven employment sector industries, and consequently, according to their wage or non-wage status. These aggregates are defined as follows:

1. Self-employed farm workers: those who are self-employed in agriculture, forestry and aquaculture;
2. Hired farm workers: those who are hired by agriculture, forestry and aquaculture industries;
3. Self-employed workers in industry and construction: those who are self-employed in mining, processing, electricity, gas and water production industries, as well as distribution and construction industries;
4. Hired workers in industry and construction: those who are hired in mining, processing, electricity, gas and water production industries, as well as distribution and construction industries;
5. Workers in trading, hotels and restaurants: those who work in trades, perform the repair of motor vehicles and motorbikes, and work in hotel and restaurant industries;
6. Workers in government, party and social organizations: those who are engaged in science and technology activities or work in public service providers or agencies such as administration, national defense, education, health sectors, and so on; and
7. Workers in other services: those who are engaged in transportation, communication, finance, cultural and sport activities and all other remaining services.

4. ANALYSIS OF POVERTY

4.1. Economic Performance and Poverty Reduction Policies in Vietnam, 1993-2002

In Vietnam, the ten year socio-economic development strategies established at the beginning of a decade, and adopted at the Communist Party Congresses, are considered as umbrella policy frameworks, under which five-year and annual socio-economic development plans are elaborated and implemented. The ten year socio-economic development strategy for 1991-2000 set the high target of simultaneously achieving three socio-economic objectives: 1) rapid, sustainable and effective growth; 2) macro-economic stability; and 3) establishment of preliminary conditions for higher stages of development after the year 2000, mainly through advancement of human resources, science and technology, improvement of infrastructure, and institutional development.

In order to accomplish the ambitious targets mentioned above, the Government initiated macro-economic and selected structural policy reforms in the late 1980's and early 1990's. Agricultural sector reform ─ the first attempt of Vietnam's Doi Moi ("renovation") program and also the largest contributor to economic growth and poverty reduction in the early 1990's ─ was initiated in 1988. Collective farms were dismantled and households' land use rights

were legitimated. Under the New Land Law, ratified in 1993, land use rights were certified and could be transferred or used as a mortgage for obtaining credits (Litvack and Rondinelli, 1999).

Equally important, in tandem with the property rights reform, the price reform was also introduced by terminating the price control system, which had been in existence for decades under the centrally-planned economy. To secure macroeconomic stability, bold measures were taken to deal with inflation and the state budget deficit in 1989. Burdens on the state budget, such as production and consumption subsidies, were gradually removed and interest rates charged on loans to state owned enterprises were raised above the level of inflation (World Bank, 2000).

The Government also determined to persistently pursue reforms in the areas of banking, state enterprise, external trade liberalization and taxation. External economic cooperation, international trade and foreign investment were all initiated with non-socialist countries. The multiple exchange rate regimes were abolished in 1989. In addition, the government reduced and removed tariff levels and non-tariff barriers to liberate international trade in the late 1980's. However, many import barriers under the form of tariffs, import licenses and quotas were still used by the government to protect domestic industries. In the early 1990's, budget constraints on the state owned enterprises were tightened. These enterprises no longer received fiscal subsidies from the government. Loans to state firms were controlled more carefully and priced appropriately (World Bank, 2000)

Realizing the necessity of external funding to supplement meager domestic savings, the government promulgated the "Investment Law" in 1987, and issued a number of policies related to land rental, tax incentives and labor, to create a favorable investment environment in the following years.

Table 1. Vietnam's Economic Performance

	GDP (trillion dong, 1994 prices)	Economic growth rate (%)	GDP/capita (thousand dong, 1994 prices)	FDI (US$ billion)	Exports (US$ billion)	Imports (US$ billion)
1993	164.0	8.1	2,355	3.3	3.0	3.9
1994	178.5	8.8	2,521	4.5	4.1	5.8
1995	195.6	9.5	2,716	7.7	5.4	8.2
1996	213.8	9.3	2,923	9.7	7.3	11.1
1997	231.3	8.2	3,112	6.1	9.2	11.6
1998	244.6	5.8	3,242	4.9	9.4	11.5
1999	256.3	4.8	3,346	2.3	11.5	11.7
2000	273.7	6.8	3,525	2.7	14.5	15.6
2001	292.5	6.9	3,718	3.2	15.0	16.2
2002	313.2	7.1	3,929	3.0	16.7	19.7

Source: Derived from GSO Statistical Yearbook 2003.

After a few years, the economy started to revive, thanks to constant reforms and open policies. In the ten year period from 1993 to 2002, the growth rate averaged an impressive 7.5%. Although, in the late 1990's, the economy grew at a slower pace due to effects of the Asian financial crisis and underlying structural weakness especially in state enterprises and banking sectors, the real GDP per capita of Vietnam still increased by 4.8%, and the average

economic growth rate increased by 6.3% annually between 1998 and 2002. The output growth was closely associated with a continuing increase in foreign investment inflows and export turnovers. It was estimated that foreign investment inflows into Vietnam from 1993-1998 was equal to 9% of the GDP per year. The Asian financial crisis in 1997 caused a dramatic decline in both the registered and implemented volume of FDI to Vietnam. However, inflows have been growing steadily since the late 1990's at a rate of roughly 10% per year. The ratio of exports to GDP doubled from 24.9% in 1994 to 47.5% in 2002, and foreign trade value exceeded the GDP in 2002 (equal to 103.6% of the GDP). Other macroeconomic indicators were also considerably improved. Inflation fell from triple digit levels at the end of the 1980's to single digit rates by the mid-1990's, and averaged 5% since then. Urban unemployment stabilized at a rate of about 6% (GSO, 2003).

Moreover, the government of Vietnam has successfully translated economic growth into social improvements. It is estimated that in the mid-1980's, seven out of every ten Vietnamese were living in poverty. A little over a decade later, during a decade of rapid economic growth, the incidence of poverty was halved. The proportion of people with per capita expenditures under the total poverty line has dropped dramatically from 58 percent in 1993 to 37 percent in 1998, and 29 percent in 2002. In recent years, almost no other country has recorded such a sharp decline in poverty in such a short period of time.

### 4.2. Analysis of Sources of Poverty Reduction

1) Labor Structural Changes in the Periods of 1993-1998 and 1998-2002

In agriculture, a sharp decline of 12.5 percentage points in the proportion of self-employed farmers, over the period of 1998-2002, can be compared to a mere 4 percentage points over the period of 1993-1998. The share of hired farm workers fluctuated in different directions between 1993-1998 and 1998-2002. There was a decrease in the proportion of hired farm workers from 1993 to 1998, while the opposite occurred during 1998-2002. The Communist Party's resolution on the promotion of large scale farms, which was adopted in 2000, might be an explanation for the share increase in the second period. However, during 1998-2002, the rise in the share of hired farm workers was offset by the excessive fall in the proportion of self-employed farmers, causing the total agricultural employment share (the

Table 2. Labor Structure by Employment Sectors 1993-2002 (%)

No.	Employment sector	1993	1998	2002
1	Self-employed farm workers	65.5	61.6	49.1
2	Hired farm workers	5.0	3.8	6.6
	Agriculture sector	70.5	65.4	55.7
3	Self-employed workers in industry and construction	5.3	5.3	5.0
4	Hired workers in industry and construction	7.0	8.1	12.5
	Industry and construction sector	12.3	13.4	17.5
5	Workers in sales, hotels and restaurants	9.7	11.6	14.4
6	Workers in government, party and social organizations	3.9	4.7	6.4
7	Workers in other services	3.6	4.9	6.0
	Services sector	17.2	21.2	26.8
	Total	100.0	100.0	100.0

Source: Results for 1993 and 1998 were quoted from Bales et al. (2001). Results for 2002 were calculated from VHLSS 2002.

Figure 1. Labor structure, 1993-1998-2002
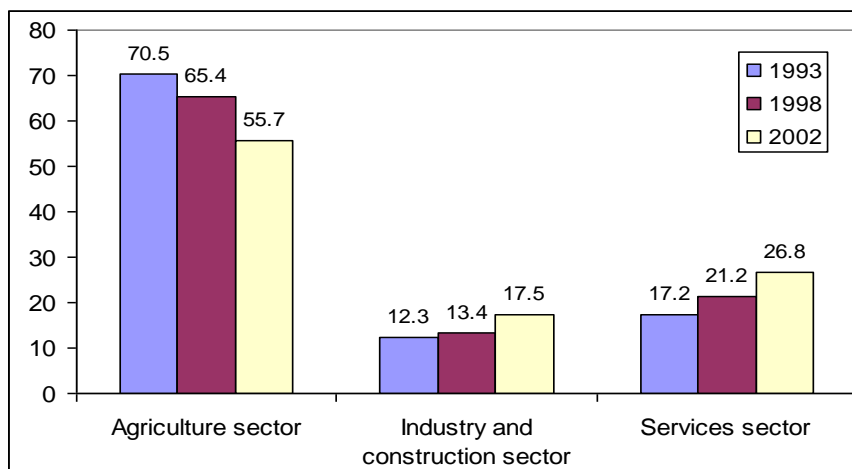
Source: Results for 1993 and 1998 were quoted from Bales *et al*. (2001). Results for 2002 were calculated from VHLSS 2002.

total shares of group 1 and 2) to decrease from 70.5 percent in 1993 to 65.4 percent in 1998, and to 55.7 percent in 2002 (Figure 1). This downward trend in both periods was closely associated with the declining output share of the agriculture sector in the economy, which went from 30% in 1993 down to 26% in 1998, and down to 23% in 2002 (GSO, 2002 & 2003).

The share of self-employed workers in industry and construction remained almost constant over time, hovering at around 5%. The group of hired workers in industry and construction achieved an increase of more than 4 percentage points in its employment share during 1998-2002, which was higher than that of the 1993-1998 periods (about 1 percentage point). Overall, the industry and construction sector's share (the total shares of group 3 and 4) has increased from 12.3% in 1993 to 13.4% in 1998, and to 17.5% in 2002. This fact shows that the shift of agriculture workers to the industry and construction sector was increasing in the period from 1998 to 2002.

The slower progress of restructuring a labor force less dependent on agricultural production during 1993-1998 was attributed to the government's industrial policy in this period. Wishing to transform Vietnam into an industrialized country, the government attempted to promote selected industries through facilitating investments, granting subsidies, regulating concession taxes and discouraging foreign competition. Consequently, the industry and construction sector achieved a remarkably high average annual growth rate (13% at 1994 constant prices) during this period (GSO, 2003). However, the high growth of the industry and construction sector was not accompanied by a commensurate absorbability of labor, since most of the industries under the promotion programs were state-owned and import-substituting, and were capital-intensive. Meanwhile, the small and medium private enterprises that often operate in labor intensive industries were not given equally privileged treatment. As a result, a great potential in job generation through the industry and construction sectors was not fully tapped. In this period, the employment elasticity

accompanying growth in the industry and construction sectors was relatively low compared to other Asian countries.

The shift of workers out of the agricultural sector was accelerated and the employment share of the industry and construction sector improved between 1998 and 2002, thanks to government adjustments to the industrial policy. Since 1997, the government has attached priority to agricultural and rural development, and especially to the exporting of labor-intensive industries such as the garment, textile, footwear, and sea product industries. Public investments were diverted to labor- intensive industries in general, and manufactured exports in particular. Moreover, the promulgation of the "Enterprise Law" in 1999 resulted in a boom in new small and medium sized private enterprises, and created a huge number of new jobs. In less than 3 years after the introduction of the Enterprise Law (from January 2000 to August 2002), more than 40,000 new enterprises, mostly private ones, were established, creating about 800,000 new jobs (Vietnam Government, 2006).

The share of the sales, hotels and restaurants group also increased more rapidly in the second half of the period, from 1993 to 2002, increasing from 9.7% in 1993 to 11.6% in 1998, and to 14.4% in 2002. The other services category together with the government, party and social organizations category experienced a steady increase in employment share, so that the services sector's share (the total shares of group 5, 6 and 7) rose from 17.2% in 1993 to 21.2% in 1998, and to 26.8% in 2002. Similarly, the promulgation of the Enterprise Law in 1999 also triggered employment growth in the services sector. The new legislation was considered as one of the most important factors facilitating the establishment of new business, largely in the private sector, and generating a large number of jobs in small and medium services firms. Its impact on employment of the services sector was even greater than on other industries. Due to constraints in capital and technical know-how, and due to the government bias towards state-owned industrial enterprises, coupled with increasing demand for services along with Vietnam's transition to a market based economy, small trade and services appeared to be an area of comparative advantages for new private firms.

2) Poverty Reduction in the Periods of 1993-1998 and 1998-2002

The results of the poverty decomposition are presented using the three different indices of poverty described above. The poverty incidence among the employed adult population, between the ages of 15 and 65, based on the headcount index, is presented in table 3. It shows an improvement in workers' living standards in all employment sectors over the ten

Table 3. Poverty Head Count Ratio in 1993, 1998 and 2002 (%)

No.	Employment sectors	1993	1998	2002
1	Self-employed farm workers	66.4	47.0	36.7
2	Hired farm workers	67.6	55.4	41.5
3	Self-employed workers in industry and construction	39.5	21.0	11.8
4	Hired workers in industry and construction	36.4	20.6	14.3
5	Workers in sales, hotels and restaurants	24.2	11.2	8.4
6	Workers in government, party and social organizations	21.0	9.1	4.5
7	Workers in other services	30.1	15.4	9.4
	Vietnam overall	53.3	34.6	25.7

Source: Results for 1993 and 1998 were quoted from Bales et al. (2001). Results for 2002 were calculated from VHLSS 2002.

year period. However, it is also clear that poverty was being reduced at a slower rate in some of the employment sectors.

The highest relative drop in the poverty head count ratio was found among workers in government, party and social organizations in the periods of both 1993-1998 and 1998-2002. During 1993-1998, the proportion of people below the poverty line in this group decreased from 21% to 9.1% and, in 2002, only 4.5% of workers in this group had consumption levels below the poverty line. Likewise, the group of self-employed workers in industry and construction, along with hired farm workers, were successful in sustaining poverty reduction progress. The head count ratio of self-employed workers in industry and construction fell from 39.5% in 1993 to 21.0% in 1998, and continued to decline to 11.8% in 2002. Out of one hundred hired farm workers, 67 people were likely to be living in poverty in 1993, while there remained close to 55 and 41 hired farm workers out of one hundred living under the poverty line in 1998 and 2002, respectively.

In contrast to groups of self employed farmers and hired workers in industry and construction, workers in sales, hotels and restaurants and those engaged in other services obtained a large reduction in their poverty head count ratios during 1993-1998 but failed to achieve the same level of reduction in the period from 1998 to 2002. The group of workers in sales, hotels and restaurants experienced the most serious slowdown in alleviating poverty. The head count ratio of this group decreased by 13 percentage points, from 24.2% to 11.2%, during 1993-1998 but by only less than 3 percentage points, from 11.2% to 8.4%, during 1998-2002. During 1998-2002, the poverty head count ratio of the self employed farmers group fell by roughly 10 percentage points, from 47% to 36.7%, averaging only 2.5 percentage points per year, which is lower than the average level of 4 percentage points in the previous period. The head count ratio of the other services group dropped by one half in the period from 1993-1998, from 30.1% to 15.4%, but merely by two fifths, from 15.4% to 9.4%, between 1998 and 2002. As for hired workers in industry and construction, the poverty head count ratio went down dramatically, from 36.4% to 20.6%, during 1993-1998, but a decrease of just over 6 percentage points, from 20.6% to 14.3%, was observed in the next four years. Overall, 25.7% of Vietnam's active labor force could be classed as poor in 2002, compared to 34.6 % in 1998 and 53.3% in 1993. Although the continued reduction in poverty was respectable, it cannot be denied that the national poverty incidence was being reduced at a slower rate.

The reasons behind the downward trend in poverty alleviation are related to the employment sectors both generally and specifically. The slowdown in poverty reduction was obviously associated with the stagnation in economic performance during 1998-2002. While 1993-1998 was viewed as an economic boom period with an annual average growth rate of 8.3%, the next four years, 1998-2002, witnessed an average growth rate of only 6.4% per year (GSO, 2003). Another possible explanation that is equally valid for all the sectors is that, those who escaped poverty in the early 1990's were able to take advantage of the opportunities created through the reform. The people who remained in poverty were those who were harder to reach. Some of these were people with low human capital and/or those living in uplands and remote areas where infrastructure is poor and where, accordingly, access to markets and information is not easy (World Bank, 2000).

Earlier success in poverty alleviation among farmers was achieved thanks to the distribution of land to rural households, in a context in which economic reforms provided the right incentives for increased farm productivity and production. However, the benefits of the land reform and other economic reforms are not inexhaustible and cannot be extended

Table 4. Average growth rate of value added per worker, 1993-1998 and 1998-2002
(%, 1994 constant prices)

Period	Total	Agriculture	Industry and construction	Services
1993-1998	6.40	2.79	10.04	3.98
1998-2002	3.73	4.67	1.41	-3.12

Source: Derived from GSO Statistical Yearbook 2002 and 2003

indefinitely. Moreover, the price fall in the international market between 1999 and 2001 for major agricultural export products that Vietnam exported throughout the world (rice, coffee, rubber, cashew nuts, and pepper) reduced the income of farmers and pushed many of them back into poverty.

A slower pace of poverty reduction in groups of workers in industry and construction; sales, hotels and restaurants; and other services, was possibly attributed to lower growth of productivity in these sectors. During 1998 and 2002, while the output of the industry and construction, and the services sectors almost remained unchanged, and even decreased in 2001 and 2002, the number of laborers absorbed by these sectors steadily increased, making the average growth rate of value added per worker low in industry and construction and even below zero in services, over this period (Table 4). Many ministries and branches have been concerned with speeding up job creation programs, furthering the transition towards a larger share of technical labor, and meeting the requirements of employers in this period of industrialization and modernization. These are basic tasks determining the transition of the economic structure towards a rapid increase in industry (small scale industry), trade, and service, and which attract more labor from rural areas and agriculture sectors.

The headcount index is relatively simple and easy to understand, but it does not give an indication of the depth of poverty. To address this weakness, the same decomposition exercise was performed using the poverty gap index, with results presented in table 5. The data in table 5 clearly suggests that the "distance" to the poverty line was narrowing quite quickly for all groups, but also at a slower pace over time. This slowdown was evident in the groups of self-employed farmers and workers in sales, hotels and restaurants. The poverty gap index of the self-employed farmers group had declined by 7.4 percentage points, from 19.7% to 12.3%, during 1993-1998, but only by 3.2 percentage points, from 12.3% to 9.1%, in the period from 1998-2002. The highest relative drop in the poverty gap index was found among workers in sales, hotels and restaurants during 1993-1998, and was from 8.9% to

Table 5. Poverty Gap Index in 1993, 1998 and 2002 (%)

No.	Employment sector	1993	1998	2002
1	Self-employed farm workers	19.7	12.3	9.1
2	Hired farm workers	22.9	14.9	9.6
3	Self-employed workers in industry and construction	13.7	4.2	2.0
4	Hired workers in industry and construction	12.8	4.4	2.4
5	Workers in sales, hotels and restaurants	8.9	1.8	1.4
6	Workers in government, party and social organizations	6.1	1.7	0.8
7	Workers in other services	10.7	3.4	1.8
	Vietnam overall	16.6	8.7	6.0

Source: Results for 1993 and 1998 were quoted from Bales et al. (2001). Results for 2002 were calculated from VHLSS 2002.

Table 6. Poverty Squared Gap Index in 1993, 1998 and 2002 (%)

No.	Employment sector	1993	1998	2002
1	Self-employed farm workers	8.3	4.7	3.2
2	Hired farm workers	10.2	5.5	3.3
3	Self-employed workers in industry and construction	5.3	1.3	0.5
4	Hired workers in industry and construction	4.9	1.4	0.6
5	Workers in sales, hotels and restaurants	3.3	0.5	0.4
6	Workers in government, party and social organizations	2.2	0.5	0.2
7	Workers in other services	4.2	1.2	0.5
	Vietnam overall	6.8	3.2	2.0

Source: Results for 1993 and 1998 were quoted from Bales et al. (2001). Results for 2002 were
calculated from VHLSS 2002.

1.8%. Nonetheless, this group's gap index was almost unchanged during 1998-2002, and stayed at 1.4% in 2002. Both self-employed and hired workers in industry and construction experienced a nearly two thirds decline in their poverty gap indices from 1993 to 1998, but the decline was only one half from 1998 to 2002.

A similar interpretation can be made from the squared poverty gap indices given in table 6. Results again confirm not only that the proportion of the poor was declining but also that their poverty was less severe in all employment sectors. However, the extent of poverty has been declining more slowly in recent years. This index decreased the most for independent workers in the agricultural sector. Free time in this sector is used in other sectors such as manufacturing and other services, which contribute to rural livelihood. This brings workers more income and their living standards gradually improve as a result. This is a reason why the poverty squared gap index decreased through 1993, 1998 and 2002.

4.3. Comparative Analysis on Effect of Sectoral Gains and Labor Shifts on Poverty Reduction between 1993-1998 and 1998-2002

The causes of reduction in poverty are decomposed into three categories: intra-sectoral effects, which are the improvements in living standards for people within the same sector; population shift effects, which are improvements due to a change of employment sector; and interaction effects. Intra-sectoral gains of all the employment sectors together remained the dominant force behind poverty reduction. In other words, poverty reduction during 1993-2002 was accomplished mainly due to increases in earnings per worker, for workers who remained in the same sector of employment.

However, the total sectoral effect grew less significant relative to the effect of labor shifts. Table 7 provides information on the relative contributions of intra-sectoral gains and labor shifts to aggregate poverty alleviation, expressed as percentages of the reduction in aggregate poverty in the periods of 1993-1998 and 1998-2002. The data shows that while 92% of the reduction in the national head count ratio was achieved due to the sectoral effects during 1993-1998, in the period of 1998-2002 only 78.3% of the national decline came from intra-sectoral gains.

As for the total effect of labor shifts on poverty reduction, though it was far outweighed by the total sectoral effect, the contribution of labor shifts to poverty reduction grew more significant. 25.6% of the decline in the national head count ratio was due to labor shifts

Table 7. Decomposed fall in Poverty Head Count Ratio through the effects of sectoral gains and labor shifts 1993-1998 and 1998-2002 (%)

No.	Employment sectors	1993-1998	1998-2002
1	Self-employed farm workers	60.5	57.1
2	Hired farm workers	3.6	4.7
3	Self-employed workers in industry and construction	6.0	4.4
4	Hired workers in industry and construction	6.9	4.6
5	Workers in sales, hotels and restaurants	8.9	3.0
6	Workers in government, party and social organizations	2.6	1.9
7	Workers in other services	3.4	2.6
	Total sectoral effect	92.0	78.3
	Total effect of labor shifts	8.8	25.6
	Interaction effect	-0.8	-3.9
	Total	100.0	100.0

Source: Results for 1993-1998 were quoted from Bales et al. (2001). Results for 1998-2002 were calculated from VHLSS 1998 and 2002.

between various employment sectors in the period of 1998-2002, compared to 8.8% during 1993-1998.

These intra-sectoral effects show that the drop in poverty among self-employed farmers had the largest influence on aggregate poverty reduction in the periods of both 1993-1998 and 1998-2002, although the influence grew weaker over time. 60.5% and 57.1% of the reduction in the national head count ratio was attributable to intra-sectoral gains during 1993-1998 and 1998-2002, respectively. The self-employed farmer group's great contribution to the reduction in aggregate poverty was due to both the significant decline in its poverty head count ratio and its possession of the largest employment share.

Though the group of hired farmers achieved remarkable declines in their poverty head count ratio during 1993-1998 and 1998-2002, the contribution of this sector to aggregate poverty was modest, accounting for around 4% of the reduction in national head count ratio, due to its small share of the total. Overall, the participation of the two farmer groups in the reduction of aggregate poverty was impressive. 64.1% and 61.8% of the reduction in the aggregate head count ratio could be traced back to income improvements for self-employed and hired farm workers in the periods of 1993-1998 and 1998-2002, respectively.

The slower progress in poverty reduction among workers in sales, hotels and restaurants between 1998 and 2002 reduced the group's intra-sectoral contribution to the aggregate poverty reduction in this period. During 1993-1998, up to 8.9% of the fall in the national head count ratio was attributable to increased earnings per worker in sales, hotels and restaurants. In the period 1998-2002, only 3% of the fall was recorded.

The other sectors contributed slightly to poverty reduction. Improvement in living standards of hired workers in industry and construction accounted for only 6.9% of the fall in the national poverty head count ratio during 1993-1998, and for an even smaller proportion of 4.6% during 1998-2002. Similarly, 6.0% and 4.4% of the decrease in the national poverty head count ratio were credited to the improvement in the incomes of self-employed workers in industry and construction, during the two respective periods.

The government, party and social organization sector showed the smallest contribution to poverty alleviation because of the sector's low poverty concentration and its tiny share of the total labor population.

The intra-sectoral gains of all the employment sectors together remained the dominant force behind poverty reduction. In other words, poverty reduction during 1993-2002 was substantially due to increases in earnings per worker, for workers who remained in the same employment sectors. However, the total sectoral effect grew less significant relative to that of labor shifts. While 92% of the reduction in the national head count ratio was achieved thanks to the sectoral effects during 1993-1998, in 1998-2002, only 78.3% of the national decline came from intra-sectoral gains.

The redistribution of the total sectoral effect and the total effect of labor shifts between the two periods is evident through the shrinking of the former period and the expansion of the latter period. This reallocation is logical because the poverty head count ratios decreased at a slower pace at both the national and sectoral levels, and labor shifts among employment sectors progressed at a quicker pace in 1998-2002 than they did during 1993-1998.

Table 8 and 9 show the results produced through decomposing the changes in the other two poverty measures. Again, improvement in incomes by the self-employed farmer sector remained the key factor in easing the severity of poverty, accounting for nearly 60% of the decline in aggregate gap index and squared gap index. The group of government, party and social organization workers emerged as being least important in limiting the extent of poverty in both periods of 1993-1998 and 1998-2002. The total sectoral effect and the total effect of labor shifts on concentration and severity of poverty also changed in the same direction over the two periods. The transition in labor structure began to play a more important role in reducing the poverty gap index and squared gap index in the period 1998-2002. It contributed to 24.8% of the fall in the national poverty gap index during 1998-2002, compared to only 6.0% between 1993 and 1998. This consistency reinforces our findings.

The problem is to reduce the labor share in the agricultural sector throughout the whole labor force of the national economy. In the period from 1998 to 2002, investment in the rural sector increased, which had a strong influence on the rural economy, while at the same time causing a physical change in the labor structure. Manual labor gradually decreased, while skilled labor increased steadily, along with incomes. As a result, employment and stable income for rural labor were ensured. Poverty reduction factors are represented clearly

Table 8. Decomposed fall in Poverty Gap Index through the effects of sectoral gains and labor shifts, 1993-1998 and 1998-2002 (%)

No.	Employment sectors	1993-1998	1998-2002
1	Self-employed farm workers	54.8	59.8
2	Hired farm workers	5.7	6.0
3	Self-employed workers in industry and construction	7.3	3.5
4	Hired workers in industry and construction	8.8	4.8
5	Workers in sales, hotels and restaurants	11.7	1.4
6	Workers in government, party and social organizations	2.3	1.2
7	Workers in other services	4.1	2.4
	Total sectoral effect	94.5	79.1
	Total effect of labor shifts	6.0	24.8
	Interaction effect	-0.5	-3.9
	Total	100.0	100.0

Source: Results for 1993-1998 were quoted from Bales et al. (2001). Results for 1998-2002 were calculated from VHLSS 1998 and 2002.

Table 9. Decomposed fall in poverty Squared Gap Index through the effects of sectoral gains and labor shifts, 1993-1998 and 1998-2002 (%)

No.	Employment sectors	1993-1998	1998-2002
1	Self-employed farm workers	56.3	64.1
2	Hired farm workers	5.4	6.0
3	Self-employed workers in industry and construction	6.2	2.9
4	Hired workers in industry and construction	8.8	4.4
5	Workers in sales, hotels and restaurants	11.6	1.0
6	Workers in government, party and social organizations	2.3	0.8
7	Workers in other services	4.8	2.2
	Total sectoral effect	95.3	81.4
	Total effect of labor shifts	6.2	23.9
	Interaction effect	-1.5	-5.3
	Total	100.0	100.0

Source: Results for 1993-1998 were quoted from Bales et al. (2001). Results for 1998-2002 were calculated from VHLSS 1998 and 2002.

through the investment in key economic sectors. Take transportation as an example. By 2002, about 80% of the Vietnamese population lived within a 2km distance from the railways, 30% more than in 1993. This provided people with better, faster, and easier access to health centers, schools, and markets. Besides, many jobs were generated which in turn, attracted more labor. Among the various economic sectors, industry, construction and services had made much more profit and the income levels of laborers from these sectors are also higher than those in the agriculture sector. Therefore, the transition of labor from agriculture to industry and service sectors is a poverty reduction factor.

Sectoral gains and labor shifts are the two decisive factors in income and the key causes of the rich–poor disparity. As experience convincingly shows, pure farm work does not bring about great wealth. The poorest households have a higher percentage of man power engaged in self-employed farm work than do the richest households, and conversely, the rich households group has a higher percentage of self-employed non-farm workers than the of the poorest households group. The richest households have the highest percentage of man power involved in piece-work, hired services, non-farming production, and business services.

The effect of sectoral gains on poverty reduction serves as an example: increased plant productivity brought about changes in cultivating methods through new bread and access to agriculture expansion, thus encouraging program improvement in irrigation and favored weather. More and more non-farm work for commune people created conditions favorable for increases in income and changes in the income structure of households. The percentage of households in commune locations with business production establishments or service establishments increased. The percentage of communes with trade villages increased, and the percentage of communes located in areas with business production establishments, services establishments, or trade villages which attracted commune labor increased as well. In general, these increased figures for all regions showed that more work was created for people during crop intervals, contributing to increased household incomes.

5. CONCLUSIONS

In the last decade, Vietnam has pursued a structural transformation which has increased the share of the industry and services sector in total output, though at the expense of the agriculture sector. Structural changes in labor have followed this same direction. Over the ten year period, the share of self-employed farmers in the total of those employed declined by more than 15 percentage points, from 65.5% to 49.1%. In the first few years of implementing the renovation policy, the industrial policy, which favored capital-intensive state-owned industries and import-substituting industries, failed to boost employment growth in the industry and construction sector. During 1993-1998, most of the workers who left the agriculture sector were absorbed by the services sector. This single route movement made the shift in the work force rather slow. Adjustments in the industrial policy, which advocated promotion of labor intensive industries and manufactured exports, accelerated a shift in agricultural workers to manufacturing sectors during 1998-2002. In this period, the industry and construction sector was most successful in raising its employment share.

Vietnam achieved amazing advances in its fight against poverty. Within the ten years from 1993-2002, the poverty head count ratio among workers was halved (from 53.3% to 25.7%), with a spectacular reduction in severe poverty. The highest relative decline in poverty head count ratio was achieved by the group of workers in government, party and social organizations. The poverty head count ratio was reduced by roughly two thirds in the groups of workers in sales, hotels, restaurants, and other services, and in industry and construction. The advances in the agriculture sector were less remarkable but contributed the most to poverty reduction in terms of the absolute number of impoverished individuals. Signs of stagnation in poverty alleviation were noted in four of the seven employment sectors in the period of 1998-2002. As they accounted for a majority of the total workers, their stagnation induced a slower pace in national poverty reduction. The most serious slowdown was observed among the groups of self-employed farm workers and workers in sales, hotels and restaurants. The land distribution policy and other reforms have had diminishing returns in regards to poverty alleviation in the agriculture sector. Low and negative growth rates in the industry and construction sector, and the services sector mitigated their contribution to the aggregate poverty reduction.

Agriculture has been central to the strong poverty reduction experienced by Vietnam over the last decade. Around 60% of the aggregate decline in poverty indicators originated from improvement in farmers' income. The lower poverty incidence for all the remaining sectors jointly accounted for around 30% and 20% of the national fall in poverty indices in 1993-1998 and 1998-2002, respectively. Less impressive accomplishments in poverty alleviation by some sectors, which comprised a vast amount of the poor, scaled down the total sectoral effect on poverty reduction in the period of 1998-2002. In contrast, as a result of a faster migration from low productivity sectors to higher productivity ones, labor shifts evolved into a more important contributing factor on poverty reduction in the same period. Through their total effect, labor shifts increased by more than 15 percentage points in their contribution to poverty reduction, and they accounted for around one fourth of the decline in national poverty indicators during 1998-2002.

Representing the sector with the highest concentration, the impressive participation by the two farmer groups in the reduction of aggregate poverty, as pointed out in this study, conveys a strong message to policy makers in that policies to reduce poverty in Vietnam

must continue to reach farmers if any considerable reduction in poverty is to be achieved in the future.

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