Parliamentary Committee for
Social Affairs

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Development Programme

UNDP
Viet Nam

Impact of HIV/AIDS on household vulnerability and poverty in Viet Nam

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PARLIAMENTARY COMMITTEE FOR
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SOCIO-ECONOMIC IMPACTS

OF HIV/AIDS ON HOUSEHOLD VULNERABILITY AND POVERTY

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FOREWORD

AIDS is a development issue and to address it as such a full understanding of the epidemic's socio-economic impacts is of crucial importance. In countries like Viet Nam, while the prevalence and general macroeconomic impact of HIV is still low, the epidemic has nevertheless the power to reduce and even reverse gains made in poverty reduction by driving families affected with HIV into poverty. Regular monitoring and continuous enriching of the knowledge on the epidemic's socio-economic impacts on household vulnerability and poverty in Viet Nam are, therefore, essential for policies aiming at minimizing (i) the epidemic's potential to reverse Vietnam remarkable achievements in poverty reduction at the national level and (ii) the epidemic's negative impacts on welfare of affected families.

The first study conducted in 2005 had revealed several key areas to be addressed. That report recommended the development of effective prevention programs, preparing the country to face an increased need for care and treatment among people living with HIV (PLHIV), and provided evidence for the need to advocate for a multi-sectoral response to the HIV epidemic within the context of the socio-economic development planning process.

Since then, the HIV epidemic has been increasing its spread in Viet Nam. In December 2008, there were 138,191 cases, including 29,575 AIDS patients, most (82%) among the young economically productive people between 20 and 39 years of age. The estimated number of people living with HIV at the end of 2008 was 231,000. In the same time period, many new programs and policy measures have been introduced. Key results of these were the greater availability of treatment for people living with HIV, particularly of HAART and the increasing number and roles of the self-help groups of people living with HIV. With new infections and increased access to antiretroviral (ARV) treatment, which prolongs life for those infected, the number of people living with HIV is expected to increase to 254,000 in 2010 and 280,000 in 2012.

The present study was commissioned by the Parliamentary Committee for Social Affairs (PCSA) and UNDP, under a project "Strengthening the people-elected bodies leadership and multi-sectoral collaboration for successful implementation of the National HIV/AIDS Strategy", which received financial support from the Swedish International Development Agency (SIDA). The study was conducted by Strategic Consultancy Limited in consortium with Medical Committee Netherlands Vietnam, in order to re-evaluate the situation of, and to update the knowledge on, the epidemic's socio-economic impacts on household vulnerability and poverty in Viet Nam.

As a result, the study provides convincing evidence that efforts being made to mitigate the socio-economic impact of the epidemic are having an effect. It also identifies areas where more efforts are needed. The findings suggest that the impact of HIV on household poverty is significant and results from reduced income because of changes in employment and increased expenditures, especially for health care. The analysis shows that HIV-affected households in rural areas and those with drug users were more vulnerable to the economic impact than non-drug user or urban households. Important positive developments that the survey highlights pertain to the reduction in stigma in the community, including for school-going children from households with HIV. Promising aspects included

the role of self-help groups in increasing self-esteem (identified as a barrier to increasing income in any of several ways) as well as improving knowledge, attitude and behavior both of people living with HIV and of their families.

We believe that the present report offers an-up-to date analysis of the epidemic's socio-economic impacts on household vulnerability and poverty in Viet Nam. By doing so, it aims to contribute to advocacy for the integration of HIV issues into the socio-economic development planning and policy making in order to address the effects of HIV on poverty and welfare of households in Viet Nam. We therefore hope that this study will be of interest and use to all national and international partners engaged in responding to the epidemic in Vietnam, and will inform socio-economic planning for Viet Nam.

CHAIR OF THE PCSA

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DEPUTY COUNTRY DIRECTOR
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We would like to acknowledge and give our sincere gratitude to all government, non-government, and international organizations for their support and assistance. The finalisation of the study has been a collective effort from:

- The Project 00042513 "*Strengthening the Leadership Role and Multisectorial Cooperation of People-elected bodies and Government Agencies at Different Levels for the Successful Implementation of the HIV and AIDS Strategy until 2010"* - Parliamentary Committee for Social Affairs
- The Joint Team on HIV in Vietnam, UNDP
- Strategic Consultancy Company
- Medical Committee of The Netherlands - Vietnam
- Vietnam Administration for HIV/AIDS Control
- UNAIDS
- National Institute for Social Science
- National Institute for Health Policy and Strategy
- Institute for Social Development Studies
- Thang Long University
- The Regional HIV and Development Programme at RCC (UNDP Regional Centre in Colombo)

It is important for us to thank the government organizations and self-help groups in the six provinces. Without their unconditional support in organising the data collection, the fieldwork could not have been completed on time: the Women's Union, Red Cross, Department of Health, and self-help groups including the Sunflower, Green, Smile and Bright Future, among others.

Finally, we would like to thank all the respondents who shared their information without any hesitation; their contributions made this study uniquely rich.

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ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
ART	Anti-retroviral therapy
BCC	Behavior change communication
COI	Cost of illness
FSW	Female sex worker
GDP	Gross domestic product
GFAMT	The Global Fund to Fight AIDS, Tuberculosis and Malaria
GIPA	Greater Involvement of People living with HIV/AIDS
HAART	Highly active anti-retroviral treatment
HCMC	Ho Chi Minh City
HIV	Human immunodeficiency virus
IDU	Injecting drug user
IEC	Information, Education and Communication
MOH	Ministry of Health
MSM	Men who have sex with men
PLHIV	People living with HIV
NGO	Non-Government Organization
PEPFAR	President's Emergency Plan for AIDS Relief
PMTCT	Prevention of mother-to-child transmission
SEDP	Social Economic Development Plan
STI	Sexually transmitted infection
UNDP	United Nations Development Program
VCT	Voluntary Counseling and Testing
VLSS	Vietnam Living Standards Survey

SECTION 1: INTRODUCTION AND BACKGROUND

1. Rationale

The HIV/AIDS epidemic is an important global public health issue. Increasingly, the burden of disease falls on youth who, under normal conditions, are the most economically and socially active and least likely to fall ill and die. The main social and economic impact of HIV/AIDS flows from the increase in premature morbidity and mortality that it causes. HIV infection is life-long. Without treatment, approximately 9 of every 10 persons with HIV will progress to AIDS within 10–15 years, but many progress much sooner. [1] In poor countries, people living with HIV (PLHIV) generally live for 5 to 8 years after infection. Ultimately, they will experience periods of illness with increasing frequency, duration, and severity, until death. Where effective, life-prolonging (but not curative) treatment is available, PLHIV and their families often have to spend a significant amount of money for treatment and care, including appropriate diet and healthy living conditions and environment. These needs take us beyond the epidemiological aspects of HIV to the development issues.

Once HIV begins to spread in a society, certain consequences are inevitable. It has been reported that in the context of a low prevalence setting, the HIV epidemic may have only a minor effect in terms of macroeconomic performance.[2] However, its impact at household level is far more significant because of its effect on social capital, socially productive labor and on expenditures and income, which are the foundations of households, communities, and the nation. Ultimately, the epidemic will have an effect on the extent and depth of poverty at a national level.

[1] Buchbinder SP, Katz MH, Hessol NA, O'Malley PM, Holmberg SD. (1994). "Long-term HIV-1 infection without immunologic progression". AIDS 8 (8): 1123–8. doi:10.1097/00002030-199408000-00014. PMID 7986410

[2] Martin GH, Logan DZ. The impact of HIV / AIDS on household vulnerability and poverty in Ghana. Washington, D.C., Futures Group, 2005.

The 2005 study on the socio-economic impact of HIV on households in Vietnam recommended the development of effective prevention programs, preparing the country to face an increased need for care and treatment among PLHIV, and provided evidence for the need to advocate for a multi-sectoral response to the HIV epidemic within the context of the socio-economic development planning process.

Since then, the HIV epidemic has been increasing spread out. Cumulative data as of 31/12/2008 showed 138.191 cases who still alive, including 29,575 AIDS patients who still alive. There are 41,544 deaths of AIDS. Data from the case reporting system revealed that young, economically productive, people between the ages of 20-39 were the most affected group (82%).[3] As the incidence of HIV infection has been increasing, care and treatment services for PLHIV, particularly HAART, have also become more available. In 2003, there were only 50 AIDS patients receiving ART. Five years later, the number had increased to 16,212, including 15,273 adults and 939 children.[4]

With these developments, it is expected that the socio-economic impact of HIV on household vulnerability and poverty, and the response to the challenges at household level, would change. That was the reason to initiate a new study that, by making use of improved methodologies and new data, could provide a suitable platform to assess, analyze and update, as well as deepen, the findings of the 2005 study.

2. Study objectives

Within the framework of the programme "*Strengthening Leadership and Multisectoral Collaboration in HIV*

[3] Vietnam Administration for AIDS Control. Report on HIV/AIDS prevention and control program in 2008 and plan for 2009 Feb 2009

[4] The Social Republic of Vietnam (2008). The third country report on following up the implementation to the Declaration of commitment on HIV/AIDS. Reporting period January 2006 – December 2007. Hanoi

Prevention and Control" and Project 00042513 *"Strengthening the Leadership Role and Multisectoral Cooperation of People-elected bodies and Government Agencies at Different Levels for the Successful Implementation of the HIV and AIDS Strategy until 2010"*, the Parliamentary Committee for Social Affairs (PCSA) and UNDP expressed the interest in conducting a survey to assess the impact of HIV and AIDS on household vulnerability and poverty in Vietnam. The aim was to obtain updated evidence on the socio-economic impact of HIV and AIDS in Vietnam, especially on the most vulnerable households, primarily to be able to advocate for the integration of HIV and AIDS activities and indicators into socio-economic development planning and policy-making.

The specific objectives of the study were:

- To assess, analyze and update the socio-economic impact of HIV and AIDS on household vulnerability and poverty in Vietnam while reflecting on previous studies, and corroborate information/data on the current socio-economic impact of HIV and AIDS at the household level.
- To analyze the nature and magnitude of the socio-economic impact of HIV and AIDS on individuals and households with a focus on household structure, income, expenditure, health, education, quality of life, and community environment. The analysis of the socio-economic impact of HIV and AIDS on households takes into account gender concerns, and differences between rural and urban settings. The focus of the investigation was on the relationship between HIV and AIDS and the distribution of income and wealth, changes in the structure of employment, social stigma, and social security-related issues such as insurance coverage.
- To provide concrete recommendations on how Viet Nam should respond to prevent and/or mitigate the impact, including citing lessons learned and best practices from other countries, and potential areas for further research.
- To provide up-to-date, evidence-based information on recent survey methodologies on the impact of HIV on household vulnerability and poverty in Viet Nam, and to develop possible projections/scenarios on the expected socio-economic and demographic impact of HIV and AIDS in a 2015-2020 horizon.
- To outline systematic and coherent policy advocacy recommendations that can enhance wider and stronger support for synchronized efforts at all levels to operationalize all HIV and AIDS policies into actions, including integration of HIV and AIDS activities/indicators into the socio-economic development planning/policy making as well as for informing the Mid-term Review of the current SEDP and the development of the future SEDPs.

3. Implications for policy advice and HIV/AIDS financing

A better and updated understanding of the social and economic impact of HIV/AIDS would also inform the implementation of focused support and mitigation interventions alongside targeted prevention activities in order to avert at least some of the social and economic consequences that so many countries have already experienced.

SECTION 2: LITERATURE REVIEW

The study design and results have to been seen in the context of the social and economic development in Vietnam, which has been improving at a good rate over the past years. Any disadvantages experienced by HIV-affected households may be especially noteworthy in the context of the general improvement in living standards and economic situation of the majority of households in Vietnam. In this section we review the economic development as well as the development of the HIV epidemic in Vietnam.

1. Country at a glance

Vietnam is in South East Asia; the borders with China, Laos, and Cambodia each contribute to the exchange of risk factors. In the north, along the Chinese border, drug use is the main driving factor for the spread of HIV, while in the south, on the border with Cambodia, commercial sex work is a main factor in the spread of infection.

Vietnam is divided into 64 provinces and cities and had a population of 85 million in 2007.[5] There are 54 different ethnic groups but one, the Kinh, make up nearly 90% of the population. Intervention and prevention programs are made more difficult by the distances from the main cities to the remote areas and the accompanying logistic and transportation problems. Health care and other services are much weaker in the rural areas where 70% of the population still lives.

Since 1986, when Vietnam shifted from a "centrally planned" to a "socialist-oriented market" economy, it has been growing fast with an annual GDP growth of 8.48% in 2007.[6] The "renovation" created a significant historical breakthrough in the socio-economic and human development of Vietnam. Poverty was reduced from 58% of all households in 1993 to 24% in 2004, more than halving the number of poor households in just over than a decade, following rapid economic growth and agricultural diversification.[7,8,9] These factors, combined with increasing per capita expenditure and improving social indicators, suggest that overall wellbeing has grown. Primary school enrollment rate is now more than 90%. Access to public health, clean water and electricity has improved. Ownership of consumer durables has also increased: 47% of households have a radio, 58% a television, and 76% a bicycle. Details are presented in Table 1 below.

Table 1. *Trends in economic development, social, educational and health indicators*

Indicator	2000	2001	2002	2003	2004	2005	2006
Real growth of GDP (%)	6.7	6.8	7.0	7.24	7.7	8.4	8.17
Poverty rate (%)							
- Poverty line	32		28.9		24.1	19.5	16
- Food poverty line	17.2	13.2	10.9	9.51	7.8	7	
Adult literacy rate		91.2	92.1		93.9		93
Maternal mortality rate (per 100,000 live births)	130	95	91		85	80	75.1
Infant mortality rate (per 1000 live births)	23	31	26	21	18	17.8	16
Life expectancy (years) male/female	69.1	66/70	70/73	67/72	67/72	69/73	71
Vietnam's Human Development Index		109	112	108		108	105
% of commune health stations having doctor		56.3	61.5	65	67.8	69.4	65.1

[5] General Statistics Office of Vietnam. Socio-economic situation for the year 2007. [http://www.gso.gov.vn/default_en.aspx?tabid=501&thangtk=12/2007] (June 20, 2008)

[6] General Statistics Office of Vietnam. Socio-economic situation for the year 2007. [http://www.gso.gov.vn/default_en.aspx?tabid=501&thangtk=12/2007] (June 20, 2008)

[7] Ministry of Foreign Affairs. Outstanding features of Vietnam's exports in recent years. 2005h [http://www.mofa.gov.vn/en/tt_baochi/nr041126171753/ns051026080004] (February 8, 2007)

[8] World Bank. Vietnam Development Report 2004 – Poverty Hanoi: World Bank, 2004.

[9] Socialist Republic of Vietnam. Vietnam achieving the Millennium Development Goals, 2005.

Not only economic but also social development has been going well; Vietnam ranked 105th out of 177 countries in the 2006 Human Development Index.[10] Although per capita GDP remains low, Vietnam has the second highest level of adult literacy (over 90%) in Asia, and one of the highest access levels to health services and to safe water in Asia.[11] Social and health indicators, such as literacy and maternal and child mortality rates, are relatively good in Vietnam compared to the country's level of economic development. However, poverty is still a problem in rural areas (45%), and urban poverty (10-15%) is complex, resulting mainly from high rural to urban migration rates.[12] These factors have influenced the spread of HIV in Vietnam, as will be seen in the following section.

2. HIV epidemic in Vietnam

After the first case of HIV infection was reported in December 1990 in Ho Chi Minh City, no infections were reported in 1991 and only 11 in 1992. But 1993 saw a sharp increase and the numbers have increased slowly but steadily since then. Cumulative data as of 31/12/2008 showed 138.191 cases who still alive, including 29,575 AIDS patients who still alive. There are 41,544 deaths of AIDS. Data from the case reporting system revealed that young, economically productive, people between the ages of 20-39 were the most affected group (82%).[13] People living with HIV are increasingly younger and sexual transmission is becoming more significant. According to the 2007 Estimation and Projection Report, about 220,000 people could be living with HIV in 2007, included 3,750 HIV-infected children.[14]

Studies suggest that in a low prevalence setting such as Viet Nam, an HIV epidemic would have only a minor effect on macroeconomic performance.[15] However, the predicted continuously increasing HIV epidemic will require more effort from the government to combat HIV/AIDS and to increase access to prevention, care and support, and treatment. Moreover, the impact of HIV epidemic at household level may be more significant because of its effect on social capital, socially productive labor and expenditures and income, which are the foundations of households, communities, and the nation.[16] Ultimately, the epidemic will affect poverty at the national level.[17],[18],[19],[20]

Within Vietnam, the local HIV epidemics vary in their timing (Figure 2). Those in HCMC and on the north-east coast started earlier, while epidemics in other parts of the country are more recent. The result is geographic concentration of HIV cases in big cities and provinces, where local epidemics among IDU, FSW and MSM are substantial. Quang Ninh province has the highest HIV prevalence, while Ho Chi Minh City has the highest number of reported HIV cases (as of 31/3/2008, there were 38,245, accounting for 23.5% of HIV cases reported nationwide).[21] To explore the socio-economic impact of HIV on households at different stages of the HIV epidemic, both provinces with the earlier epidemic (such as Quang Ninh, HCMC and Ha Noi) and the newer regions where the number of HIV reported cases has just been rising should be included in the study.

Due to the limitations of available data, the reported figures probably do not reflect the current status of the epidemic. An integrated behavioral and biological survey conducted in high risk cities and provinces in 2006 revealed a very high HIV prevalence rate

[10] http://english.vietnamnet.vn/reports/2005/09/488993/ (Feb 24, 2006) [Human Development Report 2005]
[11] Paul R, Harry M, Steven K. Vietnam: Life expectancy and economic development. Efficient, equity-oriented strategies for health. International Perspective - Focus on Vietnam. 2000
[12] Poverty Reduction and Economic Management Unit. East Asia and Pacific Region. Vietnam Development Report 2000. Attacking Poverty. Country Economic Memorandum. 1999
[13] Vietnam Administration for AIDS Control. Report on HIV/AIDS prevention and control program in 2008 and plan for 2009 Feb 2009
[14] MOH, VAAC (2007). HIV/AIDS estimates and projection in Vietnam 2007-2012.
[15] Martin GH, Logan DZ. The impact of HIV / AIDS on household vulnerability and poverty in Ghana. Washington, D.C., Futures Group, 2005.
[16] NACO, NCAER and UNDP. Socio-economic impact of HIV and AIDS in India, UNDP, New Delhi, 2006.
[17] John Seaman and Celia Petty. Understanding the impact of HIV/AIDS on household economy. Paper work for the Duban meeting, 2005.
[18] Bachmann, MO and Booysen FLR. Health and economic impact of HIV/AIDS on South African Households: A cohort Study. BMC Public Health, 3, 2003, 14-21.
[19] Marisa Casale and Alan Whiteside. The impact of HIV/AIDS on poverty, in equality and economic growth. University of KwaZulu Natal, South Africa. 2006
[20] UNAIDS. Guideline for studies of the social and economic impact of HIV/AIDS. 2000
[21] Vietnam Administration for AIDS Control. HIV case report. March 2008

among injecting drug users, 28.6% nationwide. The rate differed among provinces with a high of 54.5% in Quang Ninh ranging to 36.8% in Dien Bien. Among FSW, the national figure was only 4% but it was higher in Can Tho (33.9%) and Ha Noi (14.3%). In MSM, the limited data suggested rates in Ha Noi and Ho Chi Minh City of 9% and 5%, respectively.[22] Because the HIV epidemic in Vietnam has been recorded mainly among high risk populations, a study on the impact of HIV should explore to what extent a risk behavior, especially drug use, influence the socio-economic status of the households.

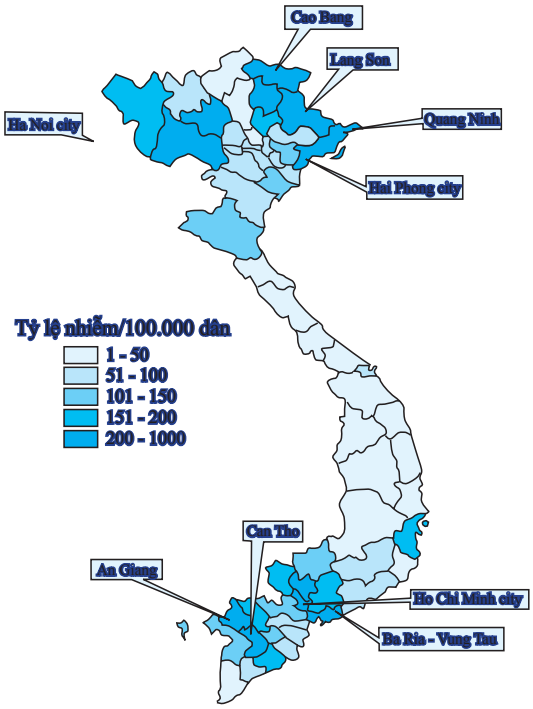

Figure 2. *Distribution of HIV infections by provinces*[23]

Women are increasingly infected and affected by HIV. The first HIV pregnant women were identified in 1993. An increase of HIV prevalence among pregnant women followed, from 0.03% in 1994 to 0.34% in 2007.[24] Of the 1.8-2 million women who give birth annually, the number of HIV positive women was estimated at 4,800 in 2012.[25] Therefore, the study sampling should take into account the distribution of males and females in the PLHIV community.

[22] Vietnam Ministry of Health. HIV/STI integrated biological and behavioural surveillance (IBBS) in Vietnam 2005 – 2006. 2006.
[23] VAAC, 2008
[24] VAAC. HIV sentinel surveillance survey.
[25] MOH, VAAC (2008). HIV estimates and projection in Vietnam 2007-2012

The MOH estimated that the number of PLHIV in need of ARV treatment will increase from 42,480 in 2006 to 72,970 in 2010.[26] The National Action Plan states that 70% of adults and 100% of children who are eligible will be receiving ARV by the year 2010. The MOH (with support from international donors as PEPFAR and GFATM) has made considerable effort during recent years to achieve this target. As a result, significant progress in ARV coverage has been made. By 2007, ARV was available in all 64 provinces. At the end of 2008, 27,059 people were receiving ART, a 10-fold increase since 2005. That included 16,933 adults and 1,069 children (Figure 6). A recent study demonstrated that the ARV treatment program in Viet Nam has been effective: 81% of adults and 93% of children on ARV were still alive 12 months after the initiation of their treatment.[27]

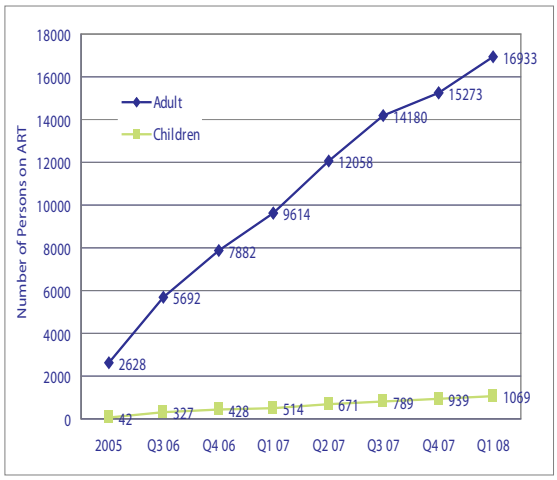

Figure 6. *Numbers of PLHIV on ARV*[27]

Studies in other countries suggested that wide availabilty of ARV would contribute to protecting PLHIV from deepening poverty, since their income can be channeled to productive activities (income generation, education, etc). However, that is not always the case. Availability of ARV free of charge does not mean that PLHIV do not have to pay for any health care. HIV-infected people could only register for the program in public health facilities if they were able to show their TCD4 count test result. The tests

[26] Vietnam Ministry of Health, National Action Plans on HIV/AIDS Care and Treatment to the year 2010, Hanoi, 2006.
[27] Vietnam Administration of HIV/AIDS Control, Report on HIV/AIDS care and treatment program, 2008

cost 200–350 thousand VND (equivalent to 12-21 $US) and the patients have to pay that. Furthermore, there are still problems with diagnosis and treatment of opportunistic infections, side effects, resistance and toxicity of ART, which all require financial contributions from the households of PLHIV. The study, therefore, should gather essential information on not only the cost of ARV but also on the direct and indirect costs of health care among PLHIV, such as cost of testing, medications to treat opportunistic infections, managing side effects, compliance and adherence to drug regimen, access to paediatric formulations for ARV for children, and the effects on family income and expenditure distribution.

3. Relationship between poverty and HIV

The relationship between HIV and poverty is synergistic and symmetrical. While HIV exacerbates poverty through morbidity and mortality in productive adults, poverty facilities the spread of the HIV epidemic as vulnerability increases.[28],[29],[30],[31],[32] HIV impacts households at two main levels: social and economic. A key factor in the impact of HIV is that the illnesses related to HIV/AIDS appear slowly, affecting multiple generations.[33]

Poverty increases risk for HIV infection

Poverty, especially rural poverty, and the absence of access to sustainable livelihoods, are factors in labor mobility of the population including cross border migration and acceleration of the urbanization process, which contributes to create the conditions that sustain HIV transmission. According to an unofficial estimate, as many as 700,000 people move to urban areas every year.[34] A notable side-effect of the rural-urban flow is the participation of migrants in illegal activities. Mobile populations, often young men and women, are isolated from traditional cultural and social networks and in the new conditions they will often engage in risky sexual behaviours, injecting drug use, etc, with obvious consequences for HIV infection. Most female sex workers in big cities migrated from nearby provinces. Many are poor women who may engage in commercial sexual transactions as sex workers, but more often on an occasional basis, as a survival strategy to support themselves and their dependents. The effects of these risky sexual behaviors on poor young women in part account for the higher infection rates in young women. Male migrants are often long-distance truck drivers, construction workers or workers in new economic zones, seafarers, and traders (particularly cross-border), or motor-taxi scooter drivers. Receiving some income but also far from home, these people often get involved in behaviors carrying the risk of HIV transmission.

Economic development seems to have stimulated an increase in illicit drug trade and in drug addiction, and growth of the sex industry, which in Vietnam are called “social evils”. The Golden Triangle is now the most important source for illegal drugs in Vietnam, which has also become a corridor for drug trafficking. As in many countries in Asia, the HIV epidemic appears to be a consequence of the social context: new drugs, new trafficking routes, a mobile population, poverty, a move from smoking opium to injecting heroin, and new and younger injectors with riskier drug use practices.[35],[36]

Impact of HIV on poverty

The strong association between HIV and poverty globally is undeniable.[37] The economic impact of HIV

[28] Bloom E, Canning D, Jaminson DT. Health, wealth and welfare, in Health and Development: Why investing in health is critical for achieving economic development goals. International Monetary Fund, Washington DC, USA, 2004.

[29] Jooma BM. Southern Africa Assessment: Food security and HIV/AIDS. African Security Review, 2005 14(1).

[30] Cohen D. Poverty and HIV/AIDS in Sub-saharan Africa. HIV and development programme. Issue paper no. 27, 1998.

[31] Asian Development Bank. Poverty implications of HIV/AIDS in the Pacific. TAR: STU 38635

32 The Commission on AIDS in Asia. Redefining AIDS in Asia. Crafting an effective response. 2008

[33] Barnet T, Clement C. HIV/AIDS impact: so where have we got to and where next? Development Studies Institute, London School of Economics, London, UK, Progress Report, 2005.

[34] Nguyen T: [Population Redistribution Policy and Migration Trends in Vietnam: Past, Present and Future.] In [Proceedings of the National Conference on Population and Sustainable Development: 20-23 March 2006; Hanoi.] Edited by Committee for Social Affair of the National Assembly; 1998: 50–101.

[35] UNAIDS. Asia IDS epidemic update - Regional summary. 2007

[36] Crofts, N., Reid G., and Deany P.Injecting drug use and HIV infection in Asia. In collaboration with the Asian Harm Reduction Network. AIDS 1998;12 (suppl B):69-78.

[37] UNAIDS. Report on the global HIV/AIDS epidemic. Geneva, 2007

and AIDS on households is described as the 'medical poverty trap', undermining household prosperity. As result of HIV, poor families have a reduced capacity to deal with the effects of morbidity and mortality than do richer ones for several reasons, mainly the absence of savings and other assets which can cushion the impact of illness and death. Increased costs go to drugs for treating opportunistic infections, transportation to health centres, and the costs related to death and funerals. Loss of income comes from reduced household productivity through illness and diversion of labor to caring roles, loss of employment through illness and job discrimination. In the longer term, poor households may never recover even their initial low standard of living. Their capacity is reduced by loss of productive family members through death or migration, and by being forced to sell any productive assets they once possessed.

The results reported from South Africa (Booysen 2003), showed that the incidence of poverty was higher for households affected by HIV/AIDS (35 percent of which were classified as poor) than for those not affected (21 percent were classified as poor). Booysen reported that the income ranking of households affected by HIV/AIDS was more likely to deteriorate and less likely to improve than that of other households.[38]

HIV/AIDS typically begins to affect households when a member is found to have an HIV-related illness and two main types of costs increase. The first is the increased cost of medical treatment for HIV-positive members who are beginning to develop symptoms of AIDS and are experiencing more frequent illness. The second is the cost of a funeral when the affected household member dies. Attempts to measure the direct medical costs of HIV and AIDS to households suggested it could ber as high as 50 to 100% of household income. For other diseases such as malaria and tuberculosis, the direct costs were considerably less, at about 2% and 5 to 21%, respectively, of household income.[39]

The economic impact is not only from increased costs but also from a loss of income. The prolonged HIV-related illness may result in lost income and re-allocation of work and domestic responsibilities. Indirect costs are also inevitable, resulting from: (i) reduced access to education; (ii) reduced future income streams; (iii) loss of capacity for domestic work within households; (iv) reduced capacity for the care of dependents, both the young and the elderly; and (v) the possibility of structural changes within households, that is, the disintegration of families. The intangible costs of trauma and grief also affect households, although they are not easily measured and rarely included in evaluations.[40]

HIV is found among all socio-economic groups, but its economic impact can be expected to be greater among the poor and marginalized.[41] Much of the data come from Africa where the epidemic has been studied in more detail. From the time of diagnosis, households spend considerable amounts of money on consultation, care and treatment, and associated costs. For example, results from a study in Rwanda showed that annual per capita use of outpatient health services was 11 visits per year for PLWHA compared with 0.3 visits for others. Annual per capita health expenditures by households were $63 for HIV/AIDS patients compared to $3 for other households. Moreover, fewer than 30% of households were able to meet the costs of health care from their own resources.[42] People with chronic illness are often unable to work, therefore, leading to income reduction. They also need care from other household members, thus limiting their productive activities and doubling the loss of income. Studies in African countries have

[38] Booysen, Frederick le Roux, 2003, "Poverty Dynamics and HIV/AIDS Related Morbidity and Mortality in South Africa," paper presented at an international conference on "Empirical Evidence for the Demographic and Socio-Economic Impact of AIDS," Health Economics and HIV/AIDS Research Division, University of KwaZulu-Natal, South Africa, March 26–28.

[39] Russell, S., The Economic Burden of Illness for Households in Development Countries: A review of studies focusing on malaria, tuberculosis, and human immunodefi ciency virus/acquired immunodeficiency syndrome. American Journal of Tropical Medicine and Hygiene, 2004. 71 (S2): p. 147-155.

[40] Russell, S., The Economic Burden of Illness for Households in Development Countries: A review of studies focusing on malaria, tuberculosis, and human immunodeficiency virus/acquired immunodeficiency syndrome. American Journal of Tropical Medicine and Hygiene, 2004. 71 (S2): p. 147-155.

[41] Grant M.R, Palmiere A.D. When tea is a luxury: The economic impact of HIV/AIDS in Bulawayo, Zimbabue. African Studies 2003. 62(2).

[42] Anita Alban, Loma Guinness. Socio-economic impact of HIV/AIDS in Africa. Presentation at ADF 2000.

measured a 40% drop in income in HIV- affected households, which had difficulty accessing income generating projects. Among very poor households, the possibility of averting such economic impact is low or non-existent.[43],[44]

Stigma can reduce income gained through formal employment, when the high level of stigmatization of PLHIV leads to discrimination and exclusion, including loss or reduction of employment opportunities. In one study, up to 20% of companies reported that they would dismiss HIV infected employees to avoid anxiety and unrest among the other staff.[45] Because there is a general expectation that women will care for others, women come out the worst in terms of available income generating activities. Wyss et al (2004) found that time lost due to illness by PLHIV was approximately 16 days per month, while uninfected household members spent 8.3 days on average to care for affected family members, reducing their time for other activities and occupations.

Other chronic diseases may have similar effects. In India, diabetes in a low-income family could lead to 25% of family income being spent on treatment.[46] Among the poor, up to 47% of income went to coping with the disease.

Increased poverty is the final consequence of diseases affecting poor households. [47]

4. Social impact of HIV on households

Social impact is defined as "*any sudden shock or slow-acting and cumulative series of events that disrupts existing systems of social support. This includes not only the work of those who collect and allocate material and other forms of support, but also those whose work is in itself supportive of others or those whose work supports and reproduces the system of social support itself*".[48] Social impacts associated with the HIV epidemic are lost lives, family suffering, emotional and physical burdens on care givers, social exclusion and disintegration of family structure and the social support network, and orphans. As HIV is a highly stigmatized infection, households have to deal with strong stigma and discrimination, which further limits their access to all kinds of support. One of the most severe effects of the epidemic is that it robs the family of their 'social security' system; formerly productive family members are removed as income earners when they become ill and die, leaving children and elderly to fend for themselves.[49]

Many studies have documented the stigma and discrimination attached to PLHIV. Several authors divide stigma into 'felt or perceived' stigma and 'enacted' stigma.[50],[51],[52] Felt stigma refers to real or imagined fear of societal attitudes and potential discrimination arising from an undesirable attribute or disease (such as epilepsy or HIV), or association with a particular group. For example, an individual may reduce social contact, deny risk of HIV or decline to access basic support and services for fear of the possible negative reactions of family, friends, community, and service providers. Enacted stigma refers to the real experience of discrimination. For example, revealed HIV-positive status could lead to loss of a lease, employment, health benefits, or friends. Felt stigma can be seen as a survival strategy to contain the risk of the occurrence of enacted stigma, for example, when people fail to disclose or lie about their HIV status in order to avoid being ostracized. In Vietnamese culture, HIV is an infection

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[44] Cross C. Sinking deeper down: HIV/AIDS as an economic shock to rural households. Society in transition, 2001. Vol. 32(1).

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[47] Lan NH. Economic burden of households with diabetes in Hue. Faculty of Public Health, Hue College of Medicine & Pharmacy . Master thesis.

[48] UNAIDS. Guideline for studies of the social and economic impact of HIV/AIDS. 2000

[49] Munthali, Alister C. Adaptive strategies and coping mechanisms of families and communities affected by HIV/AIDS in Malawi. UNRISD HIV/AIDS and Development project. Geneva: United Nations Research Institutes on Social Development. 2003

[50] Brown, L., Trujillo, L., & Macintyre, K. Interventions to Reduce HIV/AIDS Stigma: What Have We Learned? New Orleans: Horizons Project. 2001

[51] Jacoby, A. Felt versus enacted stigma: A concept revisited. Evidence from a study of people with epilepsy in remission. Social Science and Medicine, 38(2), 269-274. 1994

[52] Scrambler, G. Stigma and disease: changing paradigms. Lancet, 352(9133), 1054-1055. 1998

with a high level of stigma and discrimination, often associated with "social evils". It acts as a barrier to seeking support by PLHIV, decreasing their access to adequate care and support.[53,54]

Gender inequality plays a role in the spread of the HIV epidemic in most countries. The Vietnamese epidemic is still concentrated among IDU who are mostly men, suggesting that gendered roles related to risk-taking may increase men's vulnerability to infection with HIV. This concentration on one high risk population may leave other populations under-protected or unprepared for the risks and the consequences of HIV infection. In particular, women will not receive sufficient attention as long as the perception persists that the epidemic is among young males. Condom use is low among married couples; the condom is considered evidence of "an unfaithful man"; women may not have the economic power to negotiate for safe sex. Many women thought that men often have extra-marital sexual relationships.[55,56,57,58]

Several authors have argued that in Asia, women are significantly more likely to experience discrimination than men within the family and the community,[59,60] in the form of ridicule and harassment but also physical assault. Married women are forced to have intercourse with their HIV positive husbands. Vietnamese women are under strong pressure to uphold the moral status of the family, so an infected woman is criticized for having violated a moral social norm.[61] In Vietnam, as in many countries, women are paid less and educated less then men; the difference is even greater among poor families.[62] However, both felt and enacted stigma can be changed. Access to treatment and social support such as self-help groups can help to reduce stigma among women.[63] A recent study showed that Thai women presently have easier access to ARV then men.[64]

HIV in the family affects all children economically, socially and psychologically, but orphaned children are most affected. In India and China, the impact is not only economic but brings grief and stress that can interfere with normal psycho-social development of children. Children in China whose mother, father or parents were HIV-infected HIV were found to more easily engage in 'bad' behaviors such as drinking, smoking and using drug, because of lacking of parental concern. Furthermore, in an AIDS-affected household, children may become care takers, acquiring burdens such as early marriage, dropping out of school to support the family, and/or taking on informal labor. Children's nutritional status often declines[65,66]. Stigma and discrimination is often applied to all members of a household affected by HIV; children may be shunned by playmates, or kept out of school. The 2005 UNDP report showed an issue with school attendance by children from HIV-affected households. The need to look into the effect of the epidemic on the children as part of its social impact is clear.

5. Food security[67] and nutrition

Households affected by HIV and poverty may find it difficult to maintain their food security. Any disease

[53] Pauline Oosterhoff, Thu Anh Nguyen, Yen Pham Ngoc, Hanh Ngo Thuy, Pamela Wright, Anita Hardon. Holding the line: Vietnamese family responses to pregnancy and child desire when a family member has HIV. Culture, Health and Sexuality (in-print)

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[60] Paxton, S., Gonzales, G., Uppakaew, K., Abraham, K. K., Okta, S., Green, C., et al. AIDS-related discrimination in Asia. AIDS Care, 17(4), 413-424. 2005

[61] Khuat Thu Hong, Nguyen Thi Van Anh, & Ogden, J. Understanding HIV and AIDSrelated Stigma and Discrimination. Hanoi: ISDS. 2004

[62] National Committee for the Advancement of Women in Vietnam. Statistics on Women and Men in Vietnam. Hanoi. 2002

[63] Paxton, S. (2002). The paradox of public HIV disclosure. *AIDS Care, 14*(4), 559-567.

[64] Le Coeur S, Collins IJ, Pannetier J, Lelièvre E. Gender and access to HIV testing and antiretroviral treatments in Thailand: why women have more and earlier access? *Soc Sci & Med*, 2009. Special issue on "Women, children and AIDS care". In press.

[65] Greener, Robert, Keith Jefferis, and Happy Siphambe, 2000, "The Impact of HIV/AIDS on Poverty and Inequality in Botswana," South African Journal of Economics, Vol. 68, No. 5, pp. 888–915.

[66] Basanta K. Pradhan, Ramamani Sundar, Shalabh K. Singh. Socio-economic impact of HIV and AIDS in India. 2006

[67] Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy lifestyle.

can lead to competition within a household for limited resources. In Asia, the impact of HIV/AIDS on the household nutrition situation and food security is less likely to concern food availability, and more the diversity and quality of food, along with difficulties in meeting food expenses[108]. In India, the practice of reducing food diversity was more frequent among HIV/AIDS-affected households and was considered a financial coping strategy for vulnerable households. In China, breakfast was often eliminated, especially in poor households. Reduced food quantity and low food quality could affect the health of PLHIV and other household members, especially children, leading to an increased rate of malnutrition and the health issues associated with that.[68]

6. Household coping strategies

Households confronted with all of these problems respond in various ways to try to cope with the effects of HIV. The options open to a household will vary according to the social and economic status they had when the infection was discovered or started to exert its effect. The strategies address both financial and social issues resulting from infection.

Financial coping strategies by households

Diversification is an important strategy to decrease livelihood vulnerability. It means that households build an increasingly diverse portfolio of productive activities and assets in an effort to reduce the risks and effects of failure in any one area, improving their chances of survival and of raising their standard of living.[69]

In response to the socio-economic impact of HIV, households may sell their assets (livestock, equipment, vehicles) to pay for medical care and funeral expenses, which can push them even deeper into poverty.[70,71] Fewer assets may mean reduced future income generation potential and less possibility of recovering any of the losses incurred.[72] Poverty is intensified and there is very little opportunity for the family to regain their initial level of economic well-being, whatever that was.

Borrowing, often from the informal sector, is another strategy to offset the immediate impact of HIV. This is a short-term and usually expensive solution to deal with a long-term problem. [73]

Other informal solutions to manage risks include receiving support from family or from charitable organizations. However, research has shown that temporary loans and micro-credit are usually insufficient to hedge against adverse shocks[74] and may burden the borrower with unpayable debts, unless there is comprehensive and continuous care and support for the families.[75]

Social support

Social capital is vital to households affected by HIV/AIDS, which may not be able to afford health service. Social networks can provide social support and may assist households to start income generating activities. Kinship pressures may suppress willingness of PHLIV to disclose their HIV status and thereby to access basic services. Social structures can therefore either increase the pressure, stress and isolation of the PLHIV or provide support in diverse ways. The roles and responses of different social players need to be investigated to gauge the impact of HIV on the households.

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[70] Grant, M.R. & Palmiere, A.D. When Tea is a Luxury: The Economic Impact of HIV/AIDS in Bulawayo, Zimbabwe. African Studies 2003. 62(2).
[71] Cross, C. Sinking deeper down: HIV/AIDS as an economic shock to rural households. Society in transition, 2001. Vol. 32(1).
[72] Jayne, T.S. Measuring Impacts of HIV/AIDS on African Rural Economies. Informal presentation at SARPN, HSRC, Johannesburg, 13 July 2004.
[73] Wyss, K.; Hutton, G.; N'Diekhor, Y. Costs Attributable to AIDS at Household Level in Chad, AIDS CARE , 16 (7). 2004.
[74] Robalino A.; Jenkins, C.; El Maroufi, K. Risks and Macro-Economic Impacts of HIV/AIDS in the Middle East and North Africa: Why waiting to intervene can be costly. World Bank, Washington, DC, USA. Policy Research Working Paper No 2874. 2002.
[75] Pauline Oosterhoff, Thu Anh Nguyen, Yen Pham Ngoc, Pamela Wright, Anita Hardon. Can micro-credit empower HIV+ women? An exploratory case study in Northern Vietnam. Women's Health & Urban Life (in-print)

SECTION 3: METHODS

The study combined two phases. Firstly, a survey was carried out among selected HIV-affected and nonaffected households in six provinces across the nation to evaluate the socioeconomic impact of HIV on households. The main purpose of this phase is to identify the difference in income and expenditure between two groups of households and their responses to these changes. After that, the second phrase was implemented, with the aim of estimating the impact of HIV/AIDS on poverty in Vietnam by compiling and modeling data from the Vietnam Living Standar Survey 2006 which assumptions were findings of the first-phase survey and the 2007 HIV projections. *(Detail methods were presented in the Annex 2.)*

Phase 1: *A cross-sectional study on "Differences in social situation and income/expenditure among HIV-affected and non HIV/affected households"*

Six cities/provinces with high HIV prevalence (Ha Noi, Lang Son, Quang Ninh, Cao Bang, Ho Chi Minh City, and An Giang) were selected for the study. Three of these - An Giang, Quang Ninh and HCMC had been included in the 2005 assessment. In Lang Son and Cao Bang, the epidemic had started later than in the other sites; these provinces also differed from the others in having a lower level of economic development.

To facilitate the comparison between two studies, the key principles of study method and measurement were similar. However, the previous study revealed several limitations that suggested needed adaptation in the methods. Reviews of several HIV/poverty studies[76] particularly the UNDP surveys in China and India, suggested the following adaptations.

[76] Study methods applied in Cambodia, China, Indonesia, Namibia, Ethiopia, Moldova, Malawi, Mozambique, Swaziland, South Africa, Middle east and North Africa , Botswana, Kenia, Zimbabue, and Ghana

Studies on the impact of HIV have been conducted at different levels: individual, household, firm, institutional, government, and macro-level, using numerous methods.[77] In the past, model-based studies projecting future impact dominated the field. However, data for projecting the impact is often inadequate or too context-specific to allow for generalization. The calculations are generally based on accurate formula, but using inaccurately estimated data that cannot be generalized.[78,79] A careful stratification of sample populations can enhance the quality of cross-sectional studies. Qualitative methods should be used to complement the survey-based methods of data collection.[80,81] Other studies in the region also suggested conducting a household survey to pair and compare affected and non-affected households.[82]

We therefore designed the study as an analytic cross-sectional study, comparing 453 HIV-affected and 453 non-affected households, which were considered as the primary sampling unit. The main element of the design was a combination of the household survey supplemented by information from 36 in-depth interviews with key informants and focus group discussions with service providers, program managers, communities and mass organizations, PLHIV, (I)NGO, activists, researchers, and the HIV

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[80] Frederik Ie R. Booysen, Tanja Arntz. The methodology of HIV/AIDS impact studies: a review of current practices. Social Science & Medicine, Volume 56, Issue 12, June 2003, Pages 2391-2405

81 TOR for the assessment of socio-economic impacts of HIV and AIDS in Cambodia, China, Indonesia, Namibia, Ethiopia, and Moldova.

82 TOR for the assessment of socio-economic impacts of HIV and AIDS in Cambodia, China, Indonesia, Namibia, Ethiopia, and Moldova

Technical Working Group; and secondary data collection for provider assessment. In this study, we used a multi-stage sampling method with carefully developed and piloted questionnaires.

HIV-affected households were selected with support from the Vietnam PLHIV Network and volunteers from GIPA involved self-help groups to recruit the PLHIV. Subjects known to have HIV were referred by peer groups (groups for PLHIV), only after asking for informed consent from their households to take part in the study, and on condition that their HIV status would not be disclosed to other household members. Each household had maximum of two informants, who were adult PLHIV. Individuals who did not live in a household setting were excluded, because the focus of the study was the impact of HIV and AIDS on households. The field investigators were requested to contact PLHIV who were at different stages of infection, so that the full impact of HIV on household economy and the problems of social stigma could be assessed. Furthermore, as the estimated male/female ratio among PLHIV nationwide is thought to be 2:1[83], the field investigators recruited a sample in which two-thirds of respondents were male.

For every HIV-affected household selected, one HIV non-affected household was selected, usually the closest neighbor of the HIV-affected household. This enabled us to compare two groups of households with similar characteristics. The commune staff helped to identify households that had similar economic and social status (type/quality of accommodation and number of family members).

We collaborated with GIPA and the network of PLHIV to ask for collaboration and support to gather interviewees. A very experienced peer educator and counselor acted as team leader.

The data was screened and entered to into EPI INFO 3.4.3. Statistical analysis was done using STATA 10.0. Data analysis was conducted at household and individual levels. The demographic composition, health status and economic status of households and their members were compared with that of non-affected households, and between urban and rural/sub-urban settings, using 2 or exact tests for proportions, and the t test or rank sum test for continuous variables. Regression analyses conducted at individual level were adjusted for intra-household clustering of outcomes, using STATA's "cluster" option.

Phase 2: *"Modeling and projection the economic impacts of HIV/AIDS on households"*

Modelling data were drawn from a nationally representative survey, the 2006 Vietnam Living Standards Survey (VLSS).[84] The projection of HIV/AIDS impact on poverty used as size of target population the results of 'HIV Estimates and Projection 2007'.[85] Supposing that there are differences in coping strategies and poverty risk among HIV affected households at various wealth quintiles and place of residences, we stratified the total number of estimated HIV cases upon the complied data of HIV prevalence and associations.[86] The relevant characteristics of each quintile included population size, people per household, numbers of households per quintile, average income per household and average expenditure per person and per household. The income and expenditure characteristics of an average household were estimated with and without a household member affected by HIV/AIDS.

We developed a linear multivariate model with fixed effects methods to determine the extent of decrease in consumption expenditure, correlated with increase in health spending. The household was considered the sharing unit for income and payments, but the individual was the unit of analysis because we wanted to capture the individual-level variations as well.

The numbers of households to fall into poverty as a result of AIDS was modeled by projecting HIV incidence in each income quintile, using both high and low epidemic growth projections. The incidence for each quintile was combined with household impact

[83] Ministry of Health (2005). HIV/AIDS estimates and projections 2005-2010.

[84] GSO (2007). Vietnam Living Standard Survey 2006.

[85] MOH, VAAC (2008). HIV estimates and projections 2007.

[86] Adapted from the VPAIS 2005 and DHS comparative reports 22 (USAID 2009). Data collected in Hai Phong. Prevalence in quintile 1 has been referred from the HIV economic impact report 2005

data to determine the aggregate or national numbers of people expected to fall into poverty. Poverty projections took into account the dynamic relationship between poverty and consumption expenditure. Moreover, a range assumptions underpinning the analysis was made for GDP growth, cost inflation, population growth, and income distribution.

Study limitations

We recognise certain limitations in the way the study was implemented. One is that by accessing the HIV-affected households through the self-help networks for PLHIV, we will have reduced the probability of finding people either very early in the infection (not yet part of a group or in contact with one) and very late in the infection (ill, staying at home or in hospitals). We also lack data from clinical sites or the government perspective, having focused entirely on the households.

The type of data needed for this assessment is always subject to bias, because it concerns issues that not everyone is willing to share with outsiders. The bias is of two types: recall bias (it is not always easy for respondents to remember exactly how much was spent or even earned) and the bias arising from the tendency of respondents to give inaccurate responses to questions about income and expenses. They may try to give the answers that they think the researcher expects, and they may try to minimize or maximize income or expenditure or health problems, according to their own perception of what would be desirable. Observation can only help to validate these responses to a certain extent.

SECTION 4: FINDINGS

Evidence from the literature review suggested that the impact of the HIV epidemic on poverty would be minor, in a country like Vietnam where the prevalence of infection is low and concentrated mainly in certain population groups. That prediction refers, however, to macroeconomic performance and not to the specific economic costs to the health care and social systems and to the families affected by HIV. At the household level, the impact of HIV epidemic could be significant, because it affects social capital, socially productive labor by family members as well as expenditures and income. Information on these issues will reveal the cost of HIV to households, thus to the nation.

These costs might not be expected to be distributed uniformly around the country, because the duration and extent of the HIV epidemics around the country vary greatly. To include the socio-economic impact of HIV on households at different stages of the epidemic, the study was done in provinces with the earlier epidemic (Quang Ninh, HCMC, Hanoi and An Giang) and those with a more recent epidemic (Lang Son and Cao Bang).

To understand what is happening in HIV-affected households in Vietnam at this time, we used a broader and more inclusive definition of poverty, compared to that used for the 2005 assessment. To be able to compare the new findings with those of the 2005 assessment, poverty was first measured using the consumption-based approach, compared with the poverty line used then. A combination of approaches has the potential to yield a more complete picture of poverty, which we probed further using qualitative methods. The study sample was stratified by urban and rural areas to capture better any differences between the two in the socio-economic impact of HIV.

In this study, we compared HIV-affected households with otherwise similar households that may have all kinds of other illnesses but not HIV/AIDS, to distinguish the effects of HIV from others influencing poverty in all households. We looked at several different indicators of poverty reflecting either increased expenditures and/or decreased income.

The direct costs to the family of a prolonged HIV-related illness include additional expenditures particularly on health care, lost income, and re-allocation of work and domestic responsibilities. Indirect costs may be: (i) reduced access to education; (ii) reduced future income streams; (iii) loss of capacity for domestic work within households; (iv) reduced capacity for the care of dependents, both the young and the elderly; and (v) the possibility of structural changes within households, resulting in disintegration of families.

There are also costs to the health and other services. MOH estimated that the number of PLHIV in need of ARV treatment will increase from 42,480 in 2006 to 72,970 in 2010.[87] The costs of recruiting and maintaining the PLHIV in the treatment programs will increase steadily and international financial support will probably decrease. About one third of PLHIV presently receive ARV from the Global Fund project. Treatment is expensive for the health services, but it can help to keep PLHIV and their families out of poverty. Their incomes can be re-channeled to other productive activities such as income generation and education. The study collected data not only on the cost of ARV but also direct and indirect costs for health care among PLHIV, including testing, medications for opportunistic infection treatment and management of side effects. When households live at the margin of

[87] Vietnam Ministry of Health, National Action Plans on HIV/AIDS Care and Treatment to the year 2010, Hanoi, 2006.

survival and are faced with the effects of HIV, they may employ various coping strategies. Financial coping strategies by households include diversification of activities and assets, disposing of assets, borrowing, using kinship ties or charitable organizations.

All of these aspects were investigated using the questionnaires but also the qualitative methods described in the previous section. The results draw a picture of the dire situation of HIV-affected households, but also provide some hope in the success of several coping strategies and in changes in a positive direction since the 2005 study.

A. DIRECT ECONOMIC AND SOCIAL IMPACT OF HIV AND AIDS ON HOUSEHOLDS

1. Impact on income

The first question asked was whether people affected by HIV will have a lower income, overall, compared to those not affected by HIV. Table 1 below shows that this is the case. When we look at the results for each of the five quintiles, it is also clear that at this point in time, HIV affected households from rich to poor all had lower incomes than comparable households without HIV. The difference in income between the affected and non-affected households was greater among the poorest and the second poorest groups in the population. This is probably a result of the greater vulnerability in the poorer groups and the smaller range of coping strategies open to them. It can also be seen that income from all sources was reduced in the HIV affected families.

It is difficult to compare these results to the 2005 survey results, because this study used a case-control approach, matching the HIV households with similar households with no affected members. The 2005 survey only compared the HIV affected households to the data from the VLSS, which includes all kinds of households, not directly comparable to the HIV affected households. In that survey, the difference in income was greater but we believe that the data shown below are a closer reflection of the real situation.

Table 1. *Average annual household income in HIV-affected and non-affected households by quintiles (Unit: million VND)*

Income quintile	HIV-affected household	Non-affected household
Poorest	8.42	12.44
Second	25.84	40.24
Third	40.72	53.67
Fourth	61.75	78.17
Richest	178.17	233.74
All groups	66.04	84.29

In all households, the main income source was from wages, followed by trade (Annex 5 – Table 1). In both cases, if people could not work or lost their jobs, the risk of significantly reduced income would be high.

The next question was whether this overall income difference would be similar in rural and urban families. Looking at the results in Table 2, the difference was clearly more visible among urban households. The urban HIV households seemed to be worse off even than the rural HIV affected households. This factor has to be taken into account for the projections of the situation in future.

Especially in urban areas, a possible explanation for the observed lower income in HIV-affected households could be a reduction in wages earned, if the recognition of HIV infection led to a change in the job description, a reduction of productivity and loss of working days or even of employment, either among PLHIV or among caregivers.

In rural areas, HIV-affected households are likely to have been receiving a significant increase from the income source grouped as pensions/subsidies/scholarships, which may be less sensitive to the presence of HIV. Poorer families of both types in these areas may have more access to that type of income, thereby reducing the gap in total absolute income between affected and non-affected households.

Because the epidemic in Vietnam is driven by transmission among drug users, we compared the average income of households with and without drug

users, within the group of HIV-affected households. The HIV-affected households with DUs had slightly higher average income than households without drug users. It is difficult to say whether this was because the higher-income households were able to support the drug users and their habit, while the lower-income households might have lost any DU family members in the past because they could not support them.

Table 2. *Average annual household income among HIV-affected and non-affected households by different characteristics (Unit: million VND)*

Characteristics	Average annual income	Ratio
Urban		
HIV-affected household	64.93	1
Non-affected household	94.06	1.45
Rural		
HIV-affected household	67.91	1
Non-affected household	69.06	1.02
Among HIV-affected household		
With DU	75.05	1.33
Without DU	56.58	1
Early stage of the epidemic		
HIV-affected household	28.08	1
Non-affected household	35.51	1.26
Late stage of the epidemic		
HIV-affected household	71.61	1
Non-affected household	91.59	1.28
Household participated in self-help group		
Yes	64.34	1
No	69.66	1.08

The data from the different provinces provide a comparison of the effect on household income where the epidemic had been affecting them for a shorter or longer time. In Table 2, the results show that the reduction in income for the HIV households in the study sample was similar in the provinces with early and later stage epidemics, and that it was found in income from all sources. It may be that the reduction in income is related more closely to the duration of the infection in that household and not to the overall length of time the epidemic has been present in the province (See more detail in Annex 5, Table 2-5).

Previous studies in Vietnam had suggested that the economic status of HIV-affected households could be improved if the PLHIV joined a self-help group.[88],[89] We therefore compared the income in the two cases. As Table 2 shows, HIV-affected households that participated in self-help groups had a lower average income than those who were not participating. This result might be explained if poorer people and families were more likely to participate in the groups, because they need more help. Wealthier families with more sources of income might not bother to join the groups. It can also be seen that much of the difference between the two is the income from trade – perhaps those active in trade were less likely to join the groups.

The reduction in household income may derive from different effects of HIV on the family. In Table 3, the contributions from losses due to the cost of illness are compared between households with HIV (and other illnesses) and those with only non-HIV illnesses. The loss of income due to lost working days by patients and caregivers are also compared. The results illustrate the increased economic burden due to increased health care costs among HIV-affected households, significantly higher than for non-affected households. The total health care cost among HIV-affected households was much higher than among non-affected households. This was consistent through all quintiles, therefore not related to economic level of the household.

[88] Nguyen, T. A., Oosterhoff, P., Ngoc, Y. P., Wright, P., & Hardon, A. Self-help groups can improve utilization of postnatal care by HIV-infected mothers. JANAC, 20(2), March/April 2009, 141-152

[89] Oosterhoff P. "Pressure to bear": Gender, fertility and prevention of mother-to-child transmission of HIV in Vietnam. Chapter 8: Contested motherhood: HIV+ mothers organizing in Vietnam. University of Amsterdam, 2008.

Table 3. *Average annual income lost due to illness or by caregivers not being able to work (Unit for costs: million VN dong)*

Items	**HIV Households**					
	Total	*Poorest*	*Second*	*Third*	*Fourth*	*Richest*
Total Costs of Illness	**13.05**	**12.51**	**12.92**	**14.12**	**11.99**	**12.31**
Direct Health Care Costs	5.27	5.22	5.09	4.49	5.76	4.52
Insurance	0.62	0.36	0.19	1.36	0.05	0.64
Indirect Health Care Cost	7.16	6.93	7.64	8.27	6.18	7.16
	Non-HIV Households					
	Total	*Poorest*	*Second*	*Third*	*Fourth*	*Richest*
Total Costs of Illness	**7.62**	**7.36**	**8.53**	**7.80**	**5.66**	**8.23**
Direct Health Care Costs	2.93	2.66	3.63	1.93	3.08	3.40
Insurance	0.28	0.41	0.24	0.12	0.56	0.11
Indirect Health Care Cost	4.41	4.29	4.65	5.75	2.03	4.72

Compared to non-affected households, all types of health care costs (out-of-pocket expenditure, insurance and loss of income due to loss of working days) were higher in HIV-affected households. Although the other households will also have members suffering from one or other illness, it is clear that HIV brings higher costs for the households having an HIV-positive member.

Normally, PLHIV will need others to provide care, especially when they have progressed to AIDS. When they are very ill, PLHIV will have to stop working. At the same time, caregivers will have to take care of the patient instead of working. Compared to non-affected households, caregivers in HIV-affected households had to spend more time caring for sick people (74.8 days versus 56.6 days in non-affected households).

Moreover, although the number episodes of illness among people in HIV-affected and non-affected households were similar, the number of days of illness was almost twice as high in HIV-affected households (Annex 5 – Table 6). Therefore the total annual income lost by caregivers and sick persons in HIV-affected households was 1.6 times higher than in non-affected households.

When the data from households in the early and late epidemic provinces were compared (Table 4), it can be seen that, besides the differences in absolute costs between the two types of provinces, which are not related to HIV, there is a much greater increase in costs in the households where the epidemic has been affecting the communities for a longer time. The increased costs were observed for all cost lines.

Table 4. *Average income lost due to illness or by caregivers not being able to work by stage of HIV epidemic (Lang Son and Cao Bang = early stage, HCMC, HN, An Giang, Quang Ninh = late stage)*

Items	**HH in early stage provinces**		**HH in late stage provinces**	
	HIV	*non HIV*	*HIV*	*non HIV*
Total Costs of Illness	**6.63**	**2.71**	**165.82**	**25.40**
Direct Health Care Costs	4.08	1.76	6.20	1.72
Insurance	1.07	0.34	1.46	0.33
Indirect Health Care Costs	1.48	0.61	9.25	3.25

Part of the economic burden due to HIV falls on the health system, revealed in the high health care costs paid for and through the insurance.

Further investigation of these issues using qualitative methods revealed that the expenditures for treating AIDS and for taking care of a sero-positive person are felt as a burden for the household. Although many infected people have been provided with free ARV and free testing for TCD4 and opportunistic infections, the other fees, for travel and accommodation for example, put more pressure on poor households in the remote areas farther from good health facilities. Moreover, other medicines that can support the health of people on ARV treatment are too expensive for them.

"Every month, I go downtown to take medicine and have some examination or test. If everything goes well, it costs about VND 230,000 including bus tickets and meals. If things go wrong, like if the hospital runs out of medicine or the examination machine is broken, I'll have to go back home or pay for a guesthouse to stay in town, which will lead to increased spending, for accommodation, meals and other costs…" - CB

"The doctor also advised me to use digestive enzyme and liver restoring tablets but they are very expensive, about VND 250,000/ box, I can't afford to buy them. I am lucky that I don't have any side effect using the tablets. But if I had more money, I could live longer, ARV is really fantastic."

2. Impact on expenditures

We have seen that the income is lower in HIV affected households, partly because of increased expenditures and partly because of lost income. The following results allow us to look more closely at expenditures, comparing affected and non-affected households.

Finding from this study reveals that the total expenditure by non-affected households was higher than by HIV-affected households. There were also clear differences in expenditures among the households in the different income quintiles (Table 5). Except for wealthiest group, the average expenditure by HIV-affected households was always less than that of non-affected households. This was particularly consistent for non-recurrent expenditures. However,

Table 5. *Average annual household expenditure (Unit: million VND)*

Groups	HIV-affected household			Non-affected household		
	Recurrent expenditure	*Non-recurrent expenditure*	*Total expenditure*	*Recurrent expenditure*	*Non-recurrent expenditure*	*Total expenditure*
Income quintile						
Poorest	41.71	6.97	48.68	50.9	12.04	62.94
Second	28.7	4.87	33.57	50.67	15.95	66.62
Third	34.72	15.44	50.16	45.05	16.35	61.4
Fourth	48.61	20.21	68.82	63.74	77.28	141.02
Wealthiest	116.87	32.28	149.15	126.61	39.84	166.45
Location						
Urban	55.72	18.96	74.69	70.68	42.16	112.83
Rural	56.45	12.04	68.49	61.51	17.19	78.69
Epidemic stage						
Early	23.08	9.39	32.47	43.11	39.85	82.96
Late	60.82	17.49	78.32	70.64	31.29	101.92
All groups	55.99	16.4	72.39	67.09	32.39	99.48

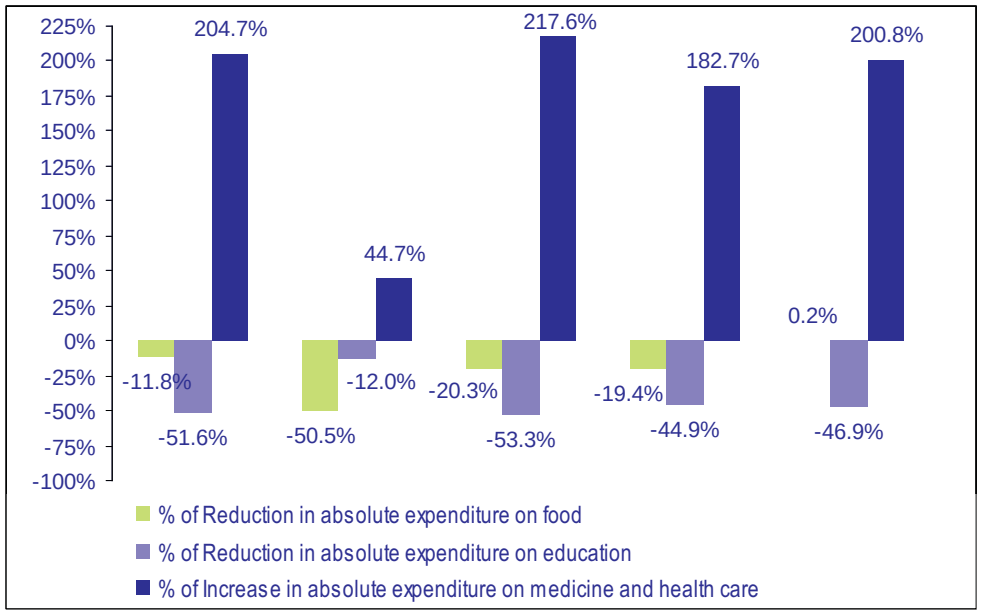


Figure 1. *Reduction in recurrent expenditure by type of expenditure*

we can identify interesting differences when we look at the specific types of expenditure.

In all households, food expenditure accounted for a high proportion of total household expenditures. In both urban and rural areas, the HIV-affected households seemed to spend less on food and education (2 times less), construction and renovation (2.5 times less). However, the HIV-affected households spent more on medicine and health care (2.6 times more) than non-affected households.

Comparison between the provinces in the early or later stages of the epidemic (Table 5) showed that the difference in household expenditure was even greater in the early stage provinces, and that much of this difference was accounted for by non-recurrent expenditures. This may be related to the other economic disadvantages in the two more remote early-stage provinces, and to the lack of access to the many services and facilities offered in the more urbanized areas where the epidemic has been present for a longer time (see more detail in Annex 5 – Table 7-11).

Figure 1 illustrate the relation between the expenditures of affected and non-affected households – showing clearly that the affected households reduced their spending on the usual big items such as food but had to increase greatly their spending on health care.

The most visible change in total recurrent expenditure was observed among the second quintile group, which had the greatest reduction in expenditure for food and utilities. This group, already at risk of sliding deeper into poverty, may be especially threatened by the increased expenditures that accompany the appearance of HIV in the household.

The study carried out in 2005 found that the total health care expenditure for households with a PLHIV was 13 times higher than the average household's health spending in Viet Nam. But in this study (2008) we found the total health care expenditure for households with PLHIV to be only 3 times higher than among the control group (households without PLHIV). The differences between the control groups in the two studies could account for some of this change. However, the most likely explanation for the difference between then and now may be the impact of the availaibility of free ART and out-patient clinic services, with universal access to every PLHIV. First introduced in 2005, now 207 out-patient clinics nationwide provide free ART for 25,597 adults and 1,462 children living with HIV/AIDS.[90] The estimated annual cost for HIV treatment is 450 USD[91] at the first line, equal to about 11% of the average yearly income

[90] VAAC, Summary report of the control and prevention of HIV/AIDS, drug use and sex work in 2008 and orientation in 2009.

[91] Commission on AIDS in Asia, Redefining AIDS in Asia, 2008. Oxford press.

of HIV-affected households. Provision of free ART will have helped to reduce out-of-pocket costs for HIV-related treatments. Furthermore, ART has greatly reduced HIV related morbidity, number of episodes and duration of sickness; all help to reduce the gap in total health expenditure including direct healthcare costs, costs of care givers, and lost working days.

From these results, we can see firstly that the poor people spent a greater proportion of their income on food than did rich people. This was true for both categories but the difference was accentuated in the HIV-affected households. There was no real difference in health care expenditure among the quintiles of non-affected households. Health care expenditure among HIV-affected households was higher than in non-affected households across all quintiles. HIV/AIDS typically begins to affect households when a member is found to have an HIV-related illness. Households affected by HIV/AIDS face increased costs of medical treatment for HIV-positive members when they begin to develop symptoms of AIDS. The total expenditure of a household will depend not only on its needs but also on its income and circumstances. Among the total expenditure in the wealthiest households, health care accounted for only 1.8%, much lower than the proportion among other percentiles of HIV-affected households (4.2-7.2%). The poorest apparently tended to allocate less money for their health care.
There was a tendency for HIV-affected households to reallocate expenditures for education and construction/renovation to health care and food. This trend was most visible among the poorest quintile. Expenditure on food among the sub-groups of HIV-affected households was not different, but in all quintiles, affected households spent proportionally more on food compared to non-affected households. When we looked at the expenditures among HIV-affected households with a drug user (DU-HIV), the spending on education accounted for a smaller proportion of total household expenditures compared to non-affected households. This difference was not observed among HIV-affected but non-DU households. All of the HIV households spent similar amounts on education but much more on food and health care than the non-HIV households.

Table 6. *Expenditure by sources in total expenditure by households (%)*

% of expenditure by sources among total expenditures		Food	Education	Health care
NonHIV	NonHIV	49.9	6.6	1.3
HIV	NonDU	58.4	6.2	3.4
	DU	62.5	4.4	5.7

There was a significant difference between health care expenditure by HIV-affected households, particularly the DU-HIV group, and that by non-affected households. The presence of drug user(s) also appears to have a negative economic impact on the household.

When we look in more detail at the medical expenditures in HIV-affected households (Table 7),

Table 7. *Average monthly HIV-related health care costs by income quintiles in HIV households (Unit: thousand VND)*

Types of health care costs	All groups	Poorest	Second	Third	Fourth	Wealthiest
Total HIV cost	729.38	974.47	468.97	361.60	726.02	1041.60
ARV	96.25	462.22	0.00	0.00	10.75	10.00
Other medicines	326.55	272.00	441.74	157.16	312.26	423.60
Hospital fee	113.64	56.67	4.49	119.14	153.55	220.50
Testing	62.53	67.78	1.69	8.64	86.29	133.50
Transportation	42.58	46.02	10.37	25.99	46.02	78.40
Accommodation and meals during health examination and treatment	81.32	69.22	7.30	40.80	115.00	159.60
Other	6.51	0.56	3.37	9.88	2.15	16.00

we can see more clearly where they are spending the increased amounts. First of all, the absolute monthly HIV-related health care cost was highest among the poorest and the wealthiest groups of HIV-affected households. Then we see that the poorest tended to spend more on medication, while the other groups spent more on hospital fees and other medications (excluding ARV). Also, compared to the others, the fourth quintile and the wealthiest groups spent more on testing and on accommodation related to getting health care.

Just looking at the cost of anti-retroviral treatment among HIV-affected households with and without drug users, it appears (Table 8) that the costs for ART among families with DU were much higher than for nonDU households. From the qualitative data, we learned that DU were less likely to receive ARV free of charge than nonDU. For example, some out-patient clinics have exclusion criteria for free ARV treatment and give priority to non- drug using HIV positive clients. The costs for other medications among DU were also higher than for nonDU households. That may be because DU were often co-infected with hepatitis B or C, which need expensive medications.

Table 8. *Average monthly cost for ARV and other medications in HIV-affected households (thousand VN dong/month)*

Total monthly cost (Mean - 95%CI)	Non DU Households	DU Households
ART	20.7 (12.7 – 28.8)	114.2 (14.1 – 214.2)
Other medications	297.1 (86.3 – 507.9)	549.2 (265.8 – 832.5)

These households were asked whether they could afford to pay for the health care costs related to the HIV health issues. HIV-affected households felt less able to fully cover the costs, although they could cover part of them (Annex 5 – Table 12). Most of those interviewed for this study have been receiving free ARV, which makes their health care much more affordable. Even so, non-affected households were more likely to be able to afford the medical costs they incurred than were HIV-affected households.

However, PLHIV often seemed not to have thought about the cost of ARV treatment or about what would happen if ARV were not supplied for free. When asked about affordability of ARV treatment if it were not free, all respondents said that they could not pay for it. During the focus group discussion, many participants agreed that it would be impossible for HIV-infected people pay for ARV. One informant in Hanoi told of having to stop ARV treatment because she could not afford for ARV medicine after one year:

> *"I never thought they would stop providing ARV for free, I can't imagine what will happen then. I know this type of tablet is very expensive and so is CD4 test. I've heard that it may cost VND 2.5 million for monthly treatment, not counting other costs. Our family's average income is VND 1 – 1.5 million per month. So how could I pay for the treatment?" - LS*

> *"I began to take medicine in 2000 but I quit it in 2003 as I had no money left for the medicine. During that time, my mother had to borrow money and sell the house but it was still not enough. I used the medicine for nearly 3 years. Then, I didn't understand that once I started to use medicine, I had to keep on using it forever." - HN*

Expenditures on health care, not only for ARV which are often provided free of charge, but for related costs making access to the care possible, are clearly much higher for the HIV-affected households. These increased costs result in reduced expenditures on other needed items such as food and education in those households. At the household level, HIV is clearly having an impact on the family's quality of life.

3. Impact on employment pattern

In this section, we look at how the households obtain the income they need to cover as many of the expenditures as possible, and the effects of HIV infection on their capacity to earn enough money.

Table 9. *Changes in employment patterns due to HIV infection*

Occupation	Occupation prior HIV infection		Current occupation of PLHIV	
	N	%	N	%
Working outside home				
Agriculture	22	4.1	19	3.4
Laborer	74	13.8	35	6.3
Trade	68	12.7	56	10.1
Government officer	18	3.4	13	2.3
Driver	28	5.2	15	2.7
Hospitality service	21	3.9	12	2.2
Freelancer	187	34.8	144	25.9
TOTAL	**418**	**77.8**	**294**	**52.9**
Stopped working or doing house work				
House work	15	2.8	23	4.1
Retired			1	0.2
Unable to work			21	3.8
Unemployed	33	6.2	98	17.6
TOTAL	**48**	**8.9**	**143**	**25.7**
Peer educator	4	0.7	56	10.1
Student	26	4.8	26	4.7
Others	41	7.6	37	6.7

Before knowing their HIV status, the unemployment rate among the PLHIV population was quite low, only 6.2%. However, after knowing their HIV positive status, the unemployment rate rose to 17.6%, almost 3 times higher. Especially people who had been working outside the home had had to change their job.

The study was carried out in provinces in the early and in the later stages of the epidemic[92]. When the employment patterns in the HIV households were compared in these two provinces (Annex 5 – Table 13), the greater effect in the areas where the epidemic was in a later stage became clear.

[92] Lang Son and Cao Bang are in early stage of the HIV epidemic, HCMC, HN, An Giang, Quang Ninh are in late stage of the epidemic

In the households affected by HIV, not only the PLHIV but also the others in the household may find their work affected. The following figure (Figure 2) illustrates the effect of the presence of HIV on their work. Among the members of HIV households, government staff and standard laborers are under-represented; more of them found work outside the institutional sector.

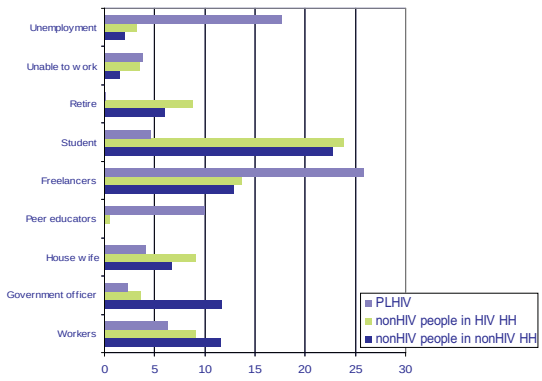


Figure 2. *Differences in employment patterns among PLHIV and non-HIV people in HIV-affected and non-affected households*

Most of the PLHIV tended to be unemployed or had jobs in the non-institutional sector. In the non-affected households, the proportion of civil servants (government officers) was 3.3 times higher than among non-infected people in HIV-affected households and 5 times higher than among PLHIV. There was no significant difference in the unemployment rate among non-HIV people in affected and non-affected households. However, the unemployment rate among PLHIV was much higher: 17.6% versus 2-3.3% among those without the infection.

Well over half of the HIV-infected people reported that they stopped working because they thought that they were weak and unable to work, even if they were did not have a specific illness. CD4 counts seemed to act as a health label for PLHIV. They believed that when their CD 4 count went down, they would get sick and become weak. However, many people with low CD4 counts were still working normally until they learned their count and found out that they needed treatment. Therefore, non-infected respondents said that PLHIV became dependent on others.

"In 2004, my CD4 decreased so I quit working. I know one person whose CD4 is only 40 but he's still well and works effectively as a motorbike taxi driver. Mine is 200, that's not low enough to be treated but I feel a little bit ill and tired, I can't do anything. Sometimes, I assist my mum with her shop but I feel so tired…" – AG.

When they were working, PLHIV also reported a reduction in productivity, as they explained during interviews.

"In 2008, after my wife's death, I learned my HIV status. At that time, I still went on the boat and sold sand. More recently, my health is not good so I reduced my work. Before, I went 2-3 times per month, but now I only go 2-3 times per year"-CB

"I continue to work but I did have to reduce my work. Before contracting the HIV infection, every morning around 3 o'clock I brought vegetables from the central market to supply retail shops and then I sold at my shop until the afternoon. Now, I do not sell retail anymore, just wholesale, then go home for a rest"-HCMC

We also asked whether there were any differences between urban and rural locations and between the PLHIV and non-HIV persons in the HIV-affected households, with regards to participation in the work force. Table 10 below shows the difference in work force participation rate among these groups.

HIV infected households have ended up in a difficult situation after members lost jobs or work opportunities. For people aged 15-60, the work force participation rate among non-HIV persons in non-affected households was higher than for members of HIV-affected households, even compared to uninfected members. But within HIV-affected households, the participation rate among other family members was higher than for those with the infection.

People with AIDS are unlikely to work to earn money, either because they are not strong enough to work, or because of workplace discrimination. Their own perception of their health and strength, and the loss of self-esteem that accompanies identification of HIV-positivity, may contribute to their loss of income in various ways.

"My health got worse recently so I no longer run my business at the market. The main income now is from vegetable and poultry farming. Sometimes, my mother gives me some money and that can help to support my living but it is not as much as when I had my own business. My expenditures are limited but what else I can do, I am not in good health anymore•" - QN

"My last job was as a seller on the floating martket. Since last year, I felt weaker so I did less work. Now I quit that job that and became keen on community work. They only pay me VND 3-4 hundred a month but I feel so happy. My son took a vocational course so I had to sell the house in town and moved here. This property was in the family…" – AG

In some countries, when HIV enters a household, the elderly or the very young have to find work to support the family. Here, the work force participation rates among the elderly in HIV-affected and non-affected households were similar (Annex 5 – Table 15). However, children in HIV-affected households were more likely to work than children in non-affected households. Moreover, in the rural areas, 8.33% of

Table 10. *Work force participation rate by age group and place of residence*

Age group	HIV HOUSEHOLDS						NON-HIV HOUSEHOLDS		
	PLWHA			Non-HIV persons			All		
	Rural	*Urban*	*Total*	*Rural*	*Urban*	*Total*	*Rural*	*Urban*	*Total*
0-14	8.3	0	3.7	3.4	1.8	2.4	2.3	0.9	1.4
15-60	76.7	72.0	73.8	82.3	87.0	85.3	87.5	87.5	87.5
>60	0	0	0	44.6	34.8	38.0	45.3	29.3	35.6

children under 15 years old who are infected with HIV had to work, while only 2.31% of children living in non-affected households had to do so.

Other common features where AIDS appears are an increase in female-headed households (young widows and elderly mothers or grandmothes), and a shift in family age structures as a result of death of the AIDS affected members.

Among respondents aged 15 years old or more, the work force participation rate was higher among females than males in HIV-affected households but there was no gender difference in that rate in non HIV-affected households. However, the young boys in HIV-affected households tended to have to go to work earlier than young girls.

> *"My son looks thin and small, but he is already 15 years old. He used to follow my husband to do construction work in Quangninh province. But after my husband's death, he has been at home with me and worked in construction here. I am very lucky to have his financial support. Thanks to that his two siblings, a 13-year old girl and an 8-year old boy, can still go to school" HN*

> *"Last year, I could not afford to pay school fees for both children, so the older one volunteered to stop. He said he was a poor student, so he could drop out and let his younger sister continue. If he had stayed, he would be in the 8th class; he is 1 year older than his sister. I gave birth to them one year after the other." – LS*

Regarding re-participation in economic activities after being notified of HIV infection status, in-depth interviews with PLHIV indicated that PLHIV faced several obstacles to participating in economic activities after they knew they had HIV (Annex 5 – Table 14). Clearly illness was the main reason to stop working. Other reasons include:

- Lack of self-esteem
- Lack of money to do business (impossible to approach loan or credit program, impossible to meet criteria of loan support program)
- Distrust from employer or boss
- Stigma and discrimination, social isolation ("no one wanted to come my shop and buy my goods, they were afraid of disease transmission, social isolate, people avoid to contact me")
- Lack of professional knowledge about skillful job
- Complex documents required when applying for a job
- Lack of vehicle for working.
- Drug use habit
- Doing sex work and do not want to change any other job.

The majority of PLHIV thought that they could only do peer education or labor/low level types of work such as retail shop seller, hairdresser, motorbike driver, handicrafts, domestic work, family business, security guard, or low level construction worker.

The above results illustrate the change in working patterns when HIV affects a household. The PLHIV lost their jobs because of poor health or workplace discrimination, or reduced their work and therefore their income. Other family members had to start working to replace some of the lost income, including children. This situation was more evident in the rural than the urban setting.

4. Impact on saving and investment

When households are faced with increased expenditures and decreased income, they have to find strategies to cope and still keep the family going. One area that may be affected is the pattern of saving and investment.

As the data in Table 11 show, HIV-affected households in all quintiles had less in savings and investments than did non-affected households. By definition, poor families have fewer resources than do wealthier families. As result of HIV, the poor families will have even more reduced capacity to deal with the economic effects of morbidity and mortality than do richer ones. The poor lack savings and other assets which can cushion the financial impact of illness and death in the family.

Table 11. *Average annual saving andinvestment (Unit: million VND)*

Characteristics	Non-HIV Households		HIV Households	
	Saving	*Investment*	*Saving*	*Investment*
Income quintile				
Poorest	1.83	0.9	0.67	0.2
Second	0.97	0.6	0.08	0.27
Third	1.95	6.92	1.01	0
Fourth	4.15	6.22	2.29	0
Wealthiest	19.72	135.93	5.22	0.06
Location				
Urban	5.501	46.297	2.02	0.125
Rural	6.195	5.678	1.757	0.07
Household with DU				
Yes	-	-	1.839	0.103
No	-	-	2.008	0.106
Participated in self-help group				
Yes	-	-	2.93	0.15
No	-	-	1.31	0.07
All groups	5.772	30.426	1.922	0.104

The poor and especially HIV-affected households tended to save and invest less than non-affected households. Most savings in HIV-affected households was in cash, which is relatively easy for them to spend if they find themselves in financial difficulties.

In unaffected households, the pattern of investments is similar whether urban or rural, although much lower in the rural areas – except for the value of investments in land and houses, which is much higher and accounts for most of the difference between the two. HIV-affected households had dramatically lower savings and investments, and they were even lower in the rural areas. It is notable that the urban HIV-affected households had as little investment in houses and land as did rural ones.

The presence of drug users in an HIV-affected household could affect the savings and investments. The data in Table 11 show that average saving and investment in non-DU HIV-affected households differed little from non-affected households. However, the HIV-affected households with DU tended to save and invest much less than non-DU HIV-affected households. Most of the savings of HIV-affected households were in the form of cash and the cash in both urban and rural IDU households was even less than in the other HIV households.

Another factor that may influence the amount of savings and investment, as described in earlier sections, is the participation of the HIV-affected family in a self-help group. The positive effect of joining such a group on the savings and investment by an HIV-affected household can be seen (see more detail in Annex 5 – Table 16-19).

5. Impact on food utilization

The quantity and quality of food available to a

Table 12. *Food shortage and frequency of food use by household and urban/rural location*

Indicator of food security	HIV household				Non-HIV Household			
	Urban		*Rural*		*Urban*		*Rural*	
	n	%	n	%	n	%	n	%
Food shortage	45	15.6	30	17.5	12	4.3	10	5.6
Daily use of protein rich food	239	82.7	128	74.9	248	89.9	160	89.9
Daily use of rice or grain	276	95.5	163	95.3	272	98.6	170	95.5

household is a good indicator of their financial status. Here we look at the impact of HIV on food utilization in the households.

The data reveal a much higher proportion of HIV-affected households having experienced food shortage compared to non-affected households. There was little difference in the frequency of using protein or staple foods; the differences will probably be in the quantity and quality of the food used by the family.

In South East Asia in general and in Vietnam, food security is not a generalized problem. The data confirmed that food shortage is not common in either type of household. However, there are concerns about nutrition, because good nutrition plays an important role in maintaining the health of people living with HIV. Adequate nutrition is necessary for the human immune system, for healthy levels of physical activity, and for the quality of life. Adequate nutrition is also essential for effective antiretroviral therapy. It was found that many of the HIV-infected respondents did not have enough meals each day (normally they should have three meals a day: breakfast, lunch and dinner). Moreover, their meals were often not nutritionally adequate. Observation by the researchers revealed that most PLHIV had only two meals per day, lunch and dinner. In their opinion, breakfast was not important and they did not have the habit of eating breakfast. This was observed at all study sites. Observation also showed that the main component of the two meals was vegetables, especially in Caobang and Langson. Respondents reported that this was a result of the price of food:

> *"Vegetables were already planted in our garden, always available. However, we do not eat meat often. Lately, food prices increased a lot so it is impossible to have meat. Sometime, my mother gives us eggs or small fish to fry with salt, to eat some days. But it is good for us to have enough rice"- LS*

In many countries heavily affected by HIV, the financial crisis and poverty make adequate nutrition nearly impossible. Food should be part of any comprehensive antiretroviral therapy package and support for food and nutrition should be integrated into programs for HIV treatment and prevention.

6. Stigma and discrimination

Any discussion about the impact of HIV on the lives of the people who become infected and their families is not complete without attention to the role of stigma and discrimination in the observed effects. Here we look at the current perceptions about stigma and discrimination among those with HIV infection and those without it. Because this topic requires exploration of feelings, opinions and perceptions, the qualitative data contribute greatly to our understanding of the present situation and are included more extensively than in other sections.

Table 13. *Stigma and discrimination towards ill people reported by HIV-affected and non-affected households*

Expression of stigma and discrimination towards ill people	PLHIV		Non-PLHIV	
	Freq	*Percent*	*Freq*	*Percent*
Verbal Abuse	168	37.1	24	5.3
Negative Self-Perception	297	65.6	47	10.4
Healthcare Neglect	79	17.4	9	2.0
Rights Neglect	84	18.5	14	3.1
Social Isolation	96	21.2	11	2.4
Fear of Contagion	63	13.9	14	3.1
Workplace Stigma	47	10.4	16	3.5
Stigma and discrimination to children	22	4.9	7	1.7
Stigma and discrimination to family	85	18.8	25	5.5

These results, together with the findings from in-depth interviews, showed the difference of stigma and discrimination toward ill people including HIV/AIDS between households affected by HIV/AIDS and those affected by other diseases. Two aspects of stigma and discrimination were studied: that aimed directly at the people with the illness, HIV infection or other, and that towards other family members

such as siblings, parents, and children. In general, respondents told us that stigma has been reduced a lot compared with a few years ago. Now, they felt good attitudes from neighbors and employers, their children were able to go to school and they perceived love and sympathy from family members. However, there were still some cases of complaints about stigma toward PLHIV and their families.

There were significant differences between stigma and discrimination toward people with HIV and those with other illnesses. Between 14 and 26% of HIV-infected people said that they had experienced verbal abuse, such as being blamed for their HIV status, told they had no future or were mocked as they passed by. These incidents occurred very infrequently among people who had other diseases, only 0.9 to 4%.

Negative self-perception was felt strongly by PLHIV. Among them, 21.1% felt completely worthless, 24.6% felt ashamed of having that disease, 37% felt they brought trouble to their family, 38.7% worried about the impact on their family and children and 24.3% often felt depressed and unable to do productive work including support to the family. Among non-HIV infected people these percentages ranged from 0.2 to 6.8%, very much a minority.

Most HIV positive informants had experienced self stigma and felt that it was a big obstacle limiting their social inclusion. Self-stigma took different forms: fear of the disease, fear of people knowing their seropositive status, and feeling marginalized by others. Self-stigma and fear of a negative community reaction could hinder efforts to address the AIDS epidemic, by maintaining a wall of silence. These self-esteem issues contribute to the loss of jobs and reduced income reported in the earlier sections.

> *"I am really afraid of transmitting the disease to my family members, especially to my newborn niece. What a pity if she gets infected. At first, I didn't dare to touch her or hold her, and I kept away from her. Maybe, her parents don't want me to touch her but they don't want to speak out, so as not to make me sad" - QN*

> *"I ran a small business. Early in the morning I went to buy goods from key markets and sold retail at smaller markets. Nobody knew that I was HIV infected but I'm so scared they might. When I heard somebody whispering behind my back, I thought they were talking about me. I had the feeling that they didn't want to buy my products so I quit that business now, nobody buys …" – HN*

> *"Maybe it's just self discrimination, because my neighbors have no idea that I am a PLHIV. They only know that I am a drug user and you know people's attitude to towards a drug user, who cares! Anyway, since I know about my disease, I seldom leave my house, it's better to keep away from them…" - HN*

Although the amount of stigma and discrimination appeared to have decreased during the past years, this might be more common in urban than in rural areas, considering the inputs of the programs were greater in the cities. The results show that PLHIV living in rural areas were more likely to suffer from verbal abuse and social isolation because of their HIV status than were those living in urban areas (Annex 5 – Table 21). The PLHIV in urban areas, however, were more likely to experience health care and rights neglect, workplace stigma and stigma towards family. Perhaps the lack of familiarity with the infection in the rural areas led people to express their fear through abuse and social isolation. In the cities, there is perhaps more subtle expression of stigma by health care workers, employers and colleagues.

In Vietnam, families are the primary caregivers when a person falls ill. There is clear evidence that families play an important role in providing support and care for PLWHA. However, not all family responses are positive. HIV-infected members of the family can find themselves stigmatized and discriminated against within the home. Family stigma can create barriers for people to discuss safe sex with partners, or use condoms, or disclose HIV status, use PMTCT and VCT services, treat opportunistic infections and access or provide care. In this study, some PLHIV reported stigma and discrimination in their family, which was largely due to lack of recognition of the stigma, which

may have been unintentional. Inadequate knowledge about HIV and AIDS can result in exaggerated fears of casual transmission within the household and the feeling by other family members that the PLHIV are taking too much from family resources.

"I was detected as HIV-positive in 2004 when I gave birth to my child, then my husband was found to be positive too. The news did not have any impact on my family; they still love and care about me, especially my niece. She is now studying in Thai Nguyen and she brings me a lot of presents every time she goes home. However, my family-in-law is terrible; they talked badly about us and even came here to scold us as deadbeats. Although my husband is still alive we cannot rely on them He (the husband) comforts me a lot …" - CB

"Once I knew that I was infected with HIV, my family made a cottage on a separate hill for me. I was totally isolated, nobody visited or cared about me. Everything is better now as my father helped to build this house and the gate, my mother also helps to look after the house when I am out to work as a pioneer …" - LS

Discrimination was felt to be prevalent in health care services, social activities and the workplace. Eight percent of infected people complained that they were transferred elsewhere instead of being helped by a nurse, whereas only 0.9% of people with other illnesses had that complaint. Moreover, 6.1% said they were kept in an isolation ward although their disease was not communicable and 6% said that the hospital let others know about their HIV status, or that their pain was ignored by health staff.

In a health care facility, stigma and discrimination could take different forms, all experienced by PLHIV: withholding treatment, HIV testing without consent, lack of confidentiality, and denial of hospital facilities and medicines. However, some behaviors that may be aimed at prevention of transmission to medical staff might be perceived as stigma by the PLHIV. In resource-poor health care settings, with limited or no drugs and few options to treat people with HIV/AIDS, and lack of protective equipment and materials, the fear of exposure to HIV is understandable among doctors and nurses. Four informants reported about attitudes of health personnel treating them when they visited a hospital or clinic. However, some PLHIV misunderstood the attitude of health workers as stigma towards them, when it may have been the same with other patients.

"They liked to scold us, but not other patients. The way they asked us to sit down and wait until called for health check, and the way they asked about our health status were the same, without any respect. I paid for the services; I did not ask for free service. I remember one time my wife went for pregnancy check, the doctor asked us to wait outside. We had to wait all morning but they ignored us, not even asking anything. When I came in to ask them why, they pushed me out …" - QN

Regarding neglect of rights, 13.7% of infected people reported that confidentiality about their status had been broken. Lack of confidentiality was common in the past when HIV/AIDS was new in Vietnam; in those days, HIV status was disclosed easily. Another complaint from 8.3% of PLHIV was that they were not allowed to own assets or land or a house, while only 1.5% of people with other illnesses mentioned that. Still, the proportions with these complaints even among PLHIV were quite low.

Community level stigma and discrimination towards people living with HIV/AIDS was found all the research sites. A community's reaction to a person living with HIV/AIDS can greatly influence that person's life. Many PLHIV reported friends who reduced contact (14.8%) or visiting (8.3%), while only 1.5 to 1.8% of those with other illnesses noted that response. Among the PLHIV, 8.7% reported incidents when people refused to share eating utensils with them. The same percentage of PLHIV had changed their job or duties because of their HIV status. However, most of the informants did not complain much about their communities these days. Mostly they remembered incidents from the past, at least 3-5 years ago.

"That was the most horrible time in my entire life, I'm nearly 70 years old now but I've never felt such

disgrace and misery. What a cynical rumor! When the head of the hamlet came knocking at my door, I knew disaster would come. Then the whole hamlet knew my story and at the time of 1999, HIV/AIDS meant death. They began to insult and curse me, and wouldn't let their children come for breakfast here because they're so scared of AIDS …" - QN

"Generally speaking, discrimination is not expressed now, but in my opinion it still exists. For instance, when there is a wedding, they will not invite PLHIV even though they are neighbors, or even to a community meeting, the hamlet head will not invite the family of PLHIV; he knows that nobody will attend the meeting, they will find reasons to refuse to participate" - CB

"I remember when we got married; our neighbors not only disdained to come to our wedding but also gossiped about our marriage, the union of two PLHIV. What a disgrace! It seems better now, though there's sometimes whisperings behind my back especially when we have visitors … Anyway, I don't care about such people. It's none of their business. They are not any better than me.." - CB

These results show that in recent years, stigma and discrimination are no longer such a big problem, at least in areas where IEC campaigns and NGO activities have been taking place. However, PLHIV in remote and mountain areas appear still to be victims of stigma and discrimination.

Especially noteworthy is that new forms of stigmatization have appeared, which reduce opportunities and social inclusion for PLHIV; these are called sophisticated stigma. This type of stigma seems positive to the PLHIV, so it may not be perceived as stigma. It may not be obvious to the PLHIV that they are still losing opportunities or rights to work or social contact.

"Before I was a worker for a petroleum company; my salary was nearly VND 2mil. Now, I am still a worker and my salary is VND 2mil but I don't have to work, they pay me every month, that's so happy." – CB

"My family never attends any community meeting but we know everything. After every meeting, the ward leader comes to report and if there is any community contribution program, they'll come right to your door to collect, there's no need to go to any meeting. The ward leader also announces if there are any wedding or funeral, it's not a problem, either you can attend the ceremony or not."- QN

Gender differences have been shown to exist in the effects of HIV on the lives of the infected people.[93],[94] We asked whether men or women might experience stigma and discrimination differently. The data in Table 14 show that HIV-positive women tended to experience health care and rights neglect as well as social isolation more than men. For both groups, though, negative self-perception was the most prevalent problem related to stigma and discrimination.

Table 14. *Experience with stigma and discrimination by gender among PLHIV*

Forms of stigma and discrimination towards ill people	**Men**		**Women**	
	Freq	*Percent*	*Freq*	*Percent*
Verbal Abuse	100	37.2	68	37.0
Negative Self-Perception	167	62.1	129	70.1
Health care Neglect	41	15.2	38	20.7
Rights Neglect	37	13.8	47	25.5
Social Isolation	46	17.1	51	27.7
Fear of Contagion	38	14.1	26	14.1
Workplace Stigma	28	10.4	19	10.3

Stigma and discrimination affect the lives of people infected and affected by HIV/AIDS. They can

[93] Nguyen, T. A., Oosterhoff, P., Ngoc, Y. P., Wright, P., & Hardon, A. Self-help groups can improve utilization of postnatal care by HIV-infected mothers. JANAC, 20(2), March/April 2009, 141-152

[94] Oosterhoff P. "Pressure to bear": Gender, fertility and prevention of mother-to-child transmission of HIV in Vietnam. Chapter 8: Contested motherhood: HIV+ mothers organizing in Vietnam. University of Amsterdam, 2008.

become barriers to the success of programs aimed at reducing the impact of the infection on affected households. It seems that now, perhaps thanks to IEC campaigns and HIV/AIDS prevention activities at community level, stigma and discrimination have decreased since the last report in 2005. PLHIV reported that they were treated better in the family, the community and the school. However, new forms of stigma and discrimination create new challenges for social inclusion of PLHIV.

7. Impact on women

Women play key roles in maintaining the welfare of the family, especially in Vietnam. The impact of the HIV epidemic on the women is an important part of the impact on poverty and has been investigated further, as reported in this section.

The first question is about the protection of women who are not yet HIV-positive against acquiring the infection from their HIV-positive husbands. In Table 15, a number of actions that may be taken are listed, with the proportions of women in urban and rural areas who practice them. The results of their attempts to protect themselves are also shown. Only 3% of the women refused sex with their husbands, but a fifth of the women in urban areas and a tenth of those in rural areas said that they discussed with their husbands how to use safe sex to avoid HIV infection. Condoms were not popular although more than 80% had access to a free condom distribution program. Still, sadly, the majority of the women did not do anything to protect themselves.

The qualitative results showed that women often became infected after sexual contact with their husbands, who were migrant workers, or who used drugs and shared syringes and needles.

> *"That's the gift from my husband. He went to Lang Son to work in the mine for one year, then became too ill and could not get better so he returned home. Since then, he's sick all the time, neither medicine or prayer could cure his illness. Then the doctor advised him to have an HIV test. I could not believe my ears when he told us the result. It was in 1997. After that I also had an HIV test with positive result" – CB*

> *"Things would have been fine if I had stayed with my mother in Hoa An (district) but my husband and I wanted to move to town. Living here, he was tempted to use drugs and became infected with HIV. Only when giving birth to my first son, whom just ran by, did I learn that I am HIV-positive. Fortunately my son is HIV-negative. When I told my husband, he criticized me for not taking the test earlier. His brother came to force me to leave the house. Only when my husband died, did they realize the truth." – CB.*

Children in Eastern society are highly valued and that puts pressure on married women to get pregnant.

Table 15. *Prevention of HIV transmission from HIV-positive husbands to HIV-negative wives: actions and results*

Actions	Urban		Rural		Total	
	n	%	n	%	n	%
Protection methods						
Discussing with husband the needs and ways of safe sex to avoid HIV transmission	32	18.5	11	11.6	43	16.0
Jointly (with husband) deciding abstinence or refusing sex with the husband	6	3.4	8	8.5	14	5.2
Did not do anything	133	76.9	72	75.8	205	76.5
Use of condom	45	26.0	35	36.8	80	29.9
Access to free condom distribution program	229	80.4	137	81.5	366	80.8

They are expected to produce a son. This is one reason that women accept unsafe sex or pregnancy when they are HIV positive.[95,96,97,98]

Women traditionally take responsibility for housework and caring for the family.[99] When a family member is infected with HIV/AIDS, the woman will provide care, which increases their workload. Women who are themselves infected have to bear the burden of the infection as well as caring for others in the family. The quantitative findings showed that work force participation rate among HIV+ women (83%) was higher than among infected men (68%), even though HIV+ women experienced more episodes of illness (5.2 compared to 2.9 in men) and were ill for a longer time than HIV+ men (139.9 days compared to 115 days for men).

One head of an HIV-affected household said in the in-depth interview:

> *"Who else takes care of him besides his wife? I'm too old, I don't mind but I'm weak now. We dare not lean on her family-in-law, it'll be lucky if they ask a word. Knowing both of them were infected with HIV, his family forced them to move out of the house. The wife is not really in good health but she's busy all day with both her husband and her son." - QN*

Because of the heavy burden of health costs in HIV-affected households, most of the women have to work more and often become the main earners in their families.

> *"Just come to the hamlet, you'll see a couple living with HIV but only the wife's working hard while her husband does nothing, is dead drunk all day and night … One reason is the old customs but the main one is that he just leans on his wife. He just pretends to be drunk to keep demanding things. When he gets tired of behaving like that, he'll beat his wife… everybody says that he's drunk but in fact, he's not because when somebody asks him to beat the commune chairman, he won't do that." - CB*

Another way in which women can be affected by having HIV in the family is the pressure on them to take care of their husband. ART is increasingly available through several programs and men and women have equal access to it, at least in theory. We found that out of 219 male PLHIV, 62.6% were taking ART, while 67.8% of 158 female PLHIV were on ART. However, the interviews revealed that women receiving treatment may be sharing their medication with other family members, especially the husband.

> *"It's not easy to get the medicine; both my husband and I got them from the project. Sometimes, when medicine for my husband ran out, I let him use mine. There's no problem if I miss one time" - QN*

The women may think that passing their medicine to their husband or children demonstrates their love and sacrifice, both highly appreciated in the traditional norms about a good woman. Woman explained that they shared their medication with their husbands for various reasons. One said, "*He hit me all the time when I dont take the medicine in time,*" (one case in Langson). Moreover, by passing her medicine to her husband, a woman may feel more secure in her husband's family.

Women do not always have access to ARV, but may also lack access to other medicines as well as other treatment, care and support services, for STIs, cervical cancer screening and counselling, particularly young women and women in the remote areas.

> *"In fact, the project only granted ARV, CD4 test and OIs. We have to pay for other items like liver restoratives and tablets to improve our resistance. As a result, I don't use these tablets and not much nutritious food. If I buy them, it's for*

[95] Pauline Oosterhoff, Thu Anh Nguyen, Yen Pham Ngoc, Hanh Ngo Thuy, Pamela Wright, Anita Hardon. (2008) Holding the line: Vietnamese family responses to pregnancy and child desire when a family member has HIV. Culture, Health and Sexuality (in-print)

[96] Handwerker L. (1998) The consequences of modernity for women in China. In M. Lock & P. A. Kaufert (Eds.), Pragmatic women and body politics. Cambridge: Cambridge Uniersity Press.

[97] Belanger D. (2002) Son preference in a rural village in North Vietnam. Studies in Family Planning, 33(4), 321-334

[98] Belanger D. (2006). Indispensable Sons: Negotiating reproductive desires in rural Vietnam. In: Gender, Place and Culture. A Journal of Feminist Geography, 13(3), 251 - 265

[99] John Knodel, Vu Manh Loi, Rukmalie Jayakody, and Vu Tuan Huy (2004). Gender Roles in the Family: Change and Stability in Vietnam. PSC Research Report

my husband. Let's just say we are too poor to buy such things" - HN

There was mention in the qualitative data of difficulties in getting men onto ART. If HIV positive men are not on treatment, that will affect their families in different ways. For example, their health will require more attention from their wives and mothers when they are ill more often. If they are ill more often, they will also be able to contribute less to family income while increasing family expenditures. Women who are not HIV-positive yet are at greater risk of infection.

"It's not the right time now for me to take medicine but my husband has used it for one year. It was very hard to persuade him to take it. His disease has become very serious now, but even when he is not using the medicine, he still forces me to sleep with him. I am so worried; I heard that it could cause my disease to get worse. It's so tiring but I'm not the one to decide." - HN

Health workers may feel sorry for HIV-positive women who were infected by their husbands and treat them more kindly. Many health workers said that they preferred to supply medicines to women because they believed that women would adhere better to the treatment regimen.

"I prefer to distribute medicine to female patients because they obey the treatment regimen. The important thing is that they are not drug users. Who knows about men? So sorry for the women here, most of them were infected by their drug-addicted husbands. Therefore, we should give them medicine. The men? Let them suffer as they are. Some are very cruel; they even threaten and scold me when they come for medicine". An Giang,

Many sero-positive women reported that after their husbands died of AIDS, they were accused of having infected him, and sent away from their homes. They were often denied their property, inheritance and even their children (Annex 5 - Table 22). One problem is that many of the women do not have sufficient knowledge of their rights and how the law could protect them. The following table illustrates the problems faced by these women.

Both HIV-positive and negative women were often denied their rights when they lived in an HIV-infected household. Up to 50% of women in non-HIV household reported sharing in decisions, but apart from seeking health care for themselves, fewer than 20% of women in HIV-households were able to contribute to important decisions about themselves, their children and their families. In non-HIV households, the rural women seemed to participate more in these decisions, but among HIV-affected households there was little difference between rural and urban women,

Table 16. *Women reporting lack of women's rights in household decision-making*

Issues for women's rights	**HIV household**				**Non-HIV Household**			
	Urban		*Rural*		*Urban*		*Rural*	
	n	%	n	%	n	%	n	%
Buying assets like land, house, flat	39	13.7	24	14.3	83	30.1	88	49.7
Seek health care for self	88	56.4	52	55.3	130	73.0	105	92.1
Seek health care for children	43	15.6	32	19.4	130	47.1	105	59.3
Decision to have a child	43	15.1	32	19.0	83	30.1	92	52.0
Decision to refuse having sex with husband/partner any time	26	9.1	33	19.6	55	19.9	78	44.1
Making husband/partner use condom during intercourse	40	14.0	38	22.6	40	14.5	59	33.3
No response	26	9.1	8	4.8	38	13.8	12	6.8

except in matters of sex, when the rural women seemed to have more say.

The negative attitudes of the family towards the women, which is expressed even more strongly after their husbands have died, can take different forms; such as, being blamed for immorality and husband's infection (10.3%) or not allowed to mix with others and participate in family activities (13%) or being denied access to properties (8.7%). Many widows and separated women were forced to leave their in-laws, especially in the rural areas; many of them were also denied their share in their husband's family property.

HIV-positive women often faced felt-stigma and discrimination, which could limit their access to available services. The following example is illustrative.

> *"To tell the truth, I feel ashamed every time I come for the medicine, especially before I joined the club. Feeling so afraid to be there because people judge us, they don't understand that I got this infection from my husband. They think that PLHIV are all bad. Once they set up the medicine distribution center with a big banner close to the hospital's medical examination area, which made me so ashamed to enter" – HN*

Another issue for women is access to medical care to prevent the transmission of their infection to their children (PMTCT), which should also be their right (Annex 5 – Table 23). Even in a setting where PMTCT is available, HIV-infected women and children did not receive adequate care because of barriers to accessing those services. Only 44% and 20% of the women had received minimal and comprehensive PMTCT services, respectively. Nine women did not receive any services. Twenty-two women received no counselling. The women reported being limited by lack of knowledge and information due to poor counselling, gaps in PMTCT services, and fear of stigma and discrimination. HIV testing was done too late for optimal interventions and poor quality of care by health staff was frequently mentioned.[100]

Although one-third of women with or at risk of an HIV infection became pregnant, fewer than half had heard about PMTCT and very few knew about PMTCT medication. According to their responses, a large proportion of women in non-HIV affected households had heard about PMTCT.

From the above information, it is clear that HIV brings extra burdens to the women in the affected households. They have little knowledge about HIV and its transmission and can do little to protect themselves from infection by their IDU husbands. Once infected, they have few rights, especially in the households of their in-laws.

8. Impact on children

Families affected by HIV usually include children, often the children of one or two infected parents. Most parents are not confident to share the information about their status with the children. The future of the children depends on their opportunities to follow a normal educational path, which is also related to their social inclusion. The following results reveal aspects of both parent-child relationships in this situation and the effect on the child's schooling.

Table 17. *School enrollment among children of HIV-affected and non-affected households*

Schooling status	HIV household		Non-HIV household	
	Freq	*Percent*	*Freq*	*Percent*
Children who attend school	228	91.2	279	95.5
Children who changed schools	16	7.0	21	7.5

These results suggest that most of the children in HIV households were able to attend school normally, and did not change schools any more often than children

[100] Nguyen Thu Anh, et al. Barriers to Access to PMTCT for HIV-positive Mothers in a Well Resource Setting in Vietnam. AIDS Research and Therapy 2008, 5:7

from non-HIV households. There was almost impact of HIV on school enrollment. One of the main reason is family did not dare to disclose children' or parent's HIV status. Because there could have been an effect on schooling, the families were asked about reasons for children to drop out of school or to change. The families of the relatively few children in question gave the following reasons. In both affected and non-affected households, the main reason for children to drop out of school was that the families could not afford the school fees (Annex 5 – Table 24). There were a few cases among the HIV affected households in which the children changed schools because of stigma and discrimination. Apart from schooling, HIV could affect the children in other ways. Often they are not told about the HIV infection in the family but they may recognise that something has changed.[101]

The most drastic impact is for the child to lose the parents to the disease, to be orphaned.

> *"Her parents died in the space of two years. They were my friends in the peer group. Now I look after her. She is my adopted daughter, not my own daughter. I am wondering who she will live with after my death. Her grandparents also died already. None of her relatives want to take care of her, poor girl." - QN*

Stigma and discrimination may also affect children in HIV families even though the data presented above showed a reduction in stigma over the past years in Vietnam. Children of most informants had sometimes faced either rejection at school or by parents of other children especially in kindergartens. Lack of funds also meant that some parents could not afford school fees, so children either dropped out or changed schools. The data in the earlier sections showed that one coping strategy in HIV affected households was to reduce expenditure on education.

> *"It's ok now but it used to be so miserable. My child is not HIV infected but they didn't believe me, they asked me to submit the negative test result certified by a health care center or by my ward authorities. Parents of other pupils in my child's class rejected her, by not sending their children to school or by moving their children to other classes…" – HN,*

> *"My son attended school to the 9th grade, then dropped out, partly because he did not want to study but mainly because I did not have money to pay for his study. At that time, my wife was seriously ill. We had to sell our property to pay for treatment. Then I was found to have HIV infection, and all income sources have been limited."-CB*

Another effect of HIV in the household on children may be that they have to earn money to help with the loss of income, which may also limit their opportunity to attend school. The results in Table 10 show that in HIV-affected households, 3.7% of children infected with HIV and 2.4% of children not infected with HIV were working for family income.

Finally, children also suffer psychological impact from HIV in the family. The following example is also illustrative.

> *"I thought that at his age, he knew nothing about HIV, so it would not worry him. However, one day my husband's brother came and insulted us. Then my son became more silent and no longer played in the neighbour's house. He also cried more often. Now he seems to understand better; he shows his love to me. He sees me take medicine regularly and although he doesn't know what the medicine is, he reminded me to take it some times." - CB*

The impact on the children in HIV affected households is varied. There may be an effect on their schooling, although it appears to be minimal in most cases. They may however, have to do more work at home or to earn money, and there may be psychological impact leading to behavioral changes. These results of these effects may be observed only in later years.

[101] Oosterhoff P. "Pressure to bear": Gender, fertility and prevention of mother-to-child transmission of HIV in Vietnam. Chapter 8: Contested motherhood: HIV+ mothers organizing in Vietnam. University of Amsterdam, 2008.

Table 18. *HIV-affected households reporting impact of HIV on households*

Type of impact	Urban		Rural		Total	
	n	%	n	%	n	%
Family structure: Death of family member leads to family disintegration	53	18.6	25	14.9	78	17.2
Psychology: Feeling psychological pressure and discrimination	146	51.2	52	31.0	198	43.7
Economics: Reduced labor force, loss of income, heavy economic burden	141	49.5	57	33.9	198	43.7
Effect on children: Discriminated in school or become an orphan	18	6.3	14	8.3	32	7.1
No effects reported	71	24.9	66	39.3	137	30.2

Table 19. *Impact on caregivers in HIV-affected households*

Type of impact	Urban		Rural		Total	
	n	%	n	%	n	%
Afraid and cautious of caring for PLHIV	39	13.7	22	13.1	61	13.5
Ashamed of having a PLHIV in the family	26	9.1	16	9.5	42	9.3
Hurt by stigmatization	23	8.1	29	17.3	52	11.5
Worried about impact of HIV/AIDS on family members	117	41.1	73	43.5	190	41.9
Worried about patient's health and life	218	76.5	117	69.6	335	74.0
Grief on the patient's death	28	9.8	20	11.9	48	10.6

9. Impact on family and caregivers

When a member of the household acquires an HIV infection, the other members of the family will be affected in one way or another. Especially when there is an economic impact, the choices of the non-HIV infected members may become more limited even though they do not have health problems.

When a family member, particularly a parent, becomes sick, weakened or dies, everyone in the family suffers. In other countries, the effect of HIV on family structure and continuity has been severe.[102] Here, HIV-affected households produced single-parent and step-families, where orphans found new homes, usually within the family.

> *"Fortunately, the child is very obedient. She has lived with me for 5 years, she is not infected. Her father died and then her mother. Now I take care of her and have someone to look after and to share my happiness. At the beginning, she was always lonely, I felt so sad. She knew nothing about HIV." - QN*

The members of the family who are expected to provide care for the people who become ill through HIV and finally die with AIDS are also greatly affected by the infection in their household. They suffer a number of fears, as shown in Table 19.

Caring for a family member with HIV/AIDS presents challenges to the rest of the family. As in many countries, the family is the first source of support for a person with a serious illness. As we saw in the earlier section on family income, having to provide care to an HIV-infected family member can result in loss or change of work and income for the caregiver. Social exclusion can also be a result, which will have an effect on the mental health and personal life of the caregiver. Depression is common not only among people living with HIV/AIDS but also their caregivers. In Table 19, almost half of respondents reported having been worried about impact of HIV on family members, and about 10% having grief on patient's

[102] Munthali, Alister C. Adaptive strategies and coping mechanisms of families and communities affected by HIV/AIDS in Malawi. UNRISD HIV/AIDS and Development project. Geneva: United Nations Research Institutes on Social Development. 2003

death or ashamed of having a PLHIV in theii home. A head of households with PLHIV in Hanoi also said:

> *"There is a terrible burn out rate. It's a soul-destroying job"*

In the interviews with caregivers, many mentioned their depression, especially early in the infection and again in the last stages of AIDS. Symptoms included loss of appetite, a dramatic change in sleeping habits, and worry about their HIV status. The diagnosis created stress, which could trigger depression over impending death and changes in relationships, including marriages. Adding to their own stress, the caregivers were often volunteers who spent long hours without protective measures like gloves and disinfectants. They were often afraid of becoming infected themselves, and this was especially common where less information about HIV was available, and where treatment might not be available.

> *"I was found to be HIV positive in 1998, the same year my brother wanted to get married. He accused me of ruining him and his life. He thought that his prospective inlaws would not accept our family because of my HIV status and would cancel the wedding. I was very worried and sad because at that time HIV meant death and no one knew much about HIV/AIDS." - CB*

B. COPING STRATEGIES AND AVAILABLE SUPPORTS

Each family affected by HIV has to select among the different coping strategies, to deal with the problems of increased expenditure especially on health care, when income is decreasing for various reasons as described above. The figures 3 and 4 show how the different households try to cope.

The patterns are similar, but HIV-affected households tended to borrow money or seek support from family, friends and other sources, while non-affected households tended to use their savings or do additional work. In the HIV-affected households, the richest quintile also turned to their savings, but the others did not have enough savings to do that. Extra work is not an option for most HIV-affected households, as described above, although non-affected household members may have to find work, especially the younger or older ones. The poorest and especially the rural HIV-affected households have few options for coping and will suffer greatly from the economic impact of the infection on the family.

1. Household's borrowing

One way for households to cope with increased expenditures while their income is decreasing is to borrow money. Figure 5 shows that the proportion of households borrowing money was high in both affected and non-affected households, but many more HIV-affected households had borrowed within the past year. However, further questioning revealed that the amount that HIV-affected households were able to borrow (13.1 million VND/year) was much lower than what non-affected households could borrow (24.1 million VND/year).

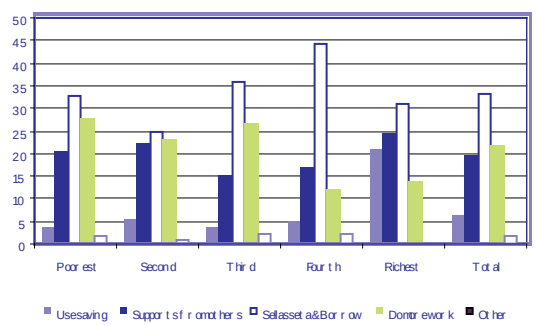


Figure 3. *Coping strategies in HIV-affected households for increased health expenditure and decreased income, by quintiles*

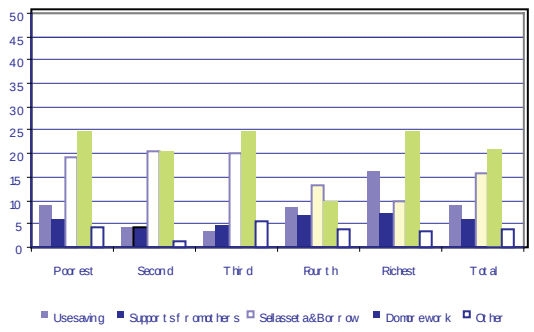


Figure 4. *Coping strategies of non-HIV affected households for increased in health expenditure and decreased income, by quintiles*

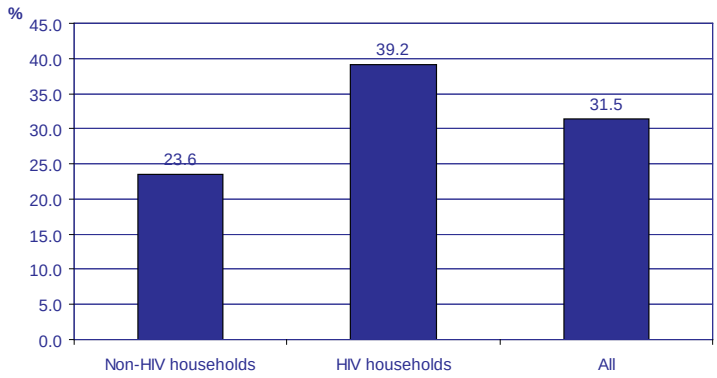


Figure 5. *Proportion of households that borrowed money in the last 12 months*

Looking at which households had borrowed, money, it seems (Table 20) that in both types of household, the poor had to borrow more often than the rich, but the difference in the proportions having to borrow were much greater among the HIV-affected households. More than half of poor households with HIV had to borrow, and nearly half of the second quintile, whereas in the absence of HIV, the proportion was always less than a third.

Table 20. *Proportion of households that borrowed money in the last 12 months by quintile*

Income quintile	HIV HH		Non HIV HH	
	N	%	N	%
Poorest	50	55.56	33	38.37
Second	44	49.44	30	39.47
Third	33	40.74	18	17.65
Fourth	30	32.26	13	14.44
Richest	20	20.2	10	11.49

2. Supports by community

The information in the above sections revealed the strong economic and social impact of the infection on HIV-affected households. These families need different types of support from their communities, starting with support to improve their financial situation.

We found that the majority of households, both affected and non-affected, would want a loan for household economic improvement. Many also would like assistance to develop income-generating activities, more among the HIV-affected households than in the others. Still, quite a few families, affected or not, would like to receive donated funds.

Table 21. *Types of support needed by households for economic improvement*

Type of support preferred	HIV household		Non-HIV household	
	n	*Percent*	*N*	*Percent*
Loan	195	62.1	148	68.5
Vocational training	19	6.1	12	5.6
Income generation	111	35.4	53	24.5
Money donation	70	22.3	53	24.5
Medical support	122	38.9	11	5.1

Considering the results on the expenditures of HIV-affected households reported in previous sections, we asked whether they sought and whether they received different types of support. Among HIV-affected households, the main category of support sought and received was medications as well as some for health care; these were not important issues for non-HIV households. A small proportion of the HIV households also sought assistance for food and education, which were also not mentioned as important for non-HIV households. The general desire for loans was similar between the two, and both groups received less loan support than they sought.

According to Vietnamese poverty standards, 11% of the HIV-affected households and 8% of the non-affected households in the survey were classified as poor. However, only about half of the households in each case had poor cards (Annex 5 – Table 26). Without poor cards, these households would not have access to Government services to help the poor.

When the households were looking for support, they could turn to different sources. In Table 22 below, the most common sources of support reported by the households are shown. Approximately the same proportion of households received government support, with or without HIV infection. However, only half of HIV-affected households received support from friends or relatives, while the proportion among non-affected households was 84%. It seems that even the families were reluctant to provide financial support to families with HIV, although for most unaffected households, family would be the first place to turn for any extra support needed. On the other hand, NGO programs seemed to play an important role in providing support for PLHIV; they provided support for one-third of the HIV-affected households in the study.

Table 22. *Sources of support*

Source of support	HIV household		Non-HIV household	
	n	Percent	n	Percent
Neighbor	93	22.4	161	44.8
Friend/Relatives	203	48.9	302	84.1
Mass organization	44	10.6	36	10.0
Government	83	20.0	67	18.7
NGO	143	34.5	2	0.6

Social impact can also be measured in terms of participation in community activities. For HIV-infected people, that often takes the form of joining acitivies related to HIV. It is clear that many people in the HIV-affected households did participate in community activities, while perhaps not surprisingly a much lower proportion of people from non-affected households joined them. When people were asked whether they might join in future, a few more people from affected households thought they would but not from unaffected households (Annex 5 – Table 27).

One factor affecting the participation in such activities, as well as the capacity to care for the HIV-infected family members, is the knowledge about HIV/AIDS especially about measures to prevent transmission, and about treatment. In Table 23, we can see that the level of knowledge was quite high among members of HIV-affected families, while those not affected by HIV were much less well-informed. The very high level of knowledge about treatment is an important feature for good care of HIV-infected family members. As long as unaffected families still have a low level of knowledge about HIV, the risk of stigma and discrimination is real, especially if people do not know about the treatment possibilities to reduce the effects of HIV on the individual.

3. Support by self-help groups

One solution proposed to support HIV infected/affected households is participation in a self-help group. This approach could help to solve several problems, including stigma from the family, community and health services, and especially the low self-esteem that affected both the health and the economic situation of those with HIV infection. Another

Table 23. *Knowledge on sources of HIV/AIDS prevention and treatment services by heads of households*

Measures for prevention or treatment	HIV household		Non-HIV household	
	Frequency	*%*	*Frequency*	*%*
Free condoms	**366**	**82.2**	184	42.0
Free clean syringes and needles	312	70.1	107	24.4
ARV	420	94.4	110	25.3
CD4 test	420	94.4	11	33.3

choice that many HIV-positive people suggested was to work for a project (with international funding) as a peer educator. Such jobs bring both income and self-confidence to improve their lives.

Both quantitative and qualitative data showed that those who joined self-help groups reported many benefits, including opportunities for loans and/or support for income-generating activities (22.3%), and access to free medicines (100%), as well as increased knowledge about HIV and increased self-esteem and confidence.

> *"I've been a pioneer since 1999, it's a chance for me to communicate with people in the same situation and really feel more optimistic. Moreover, I get monthly financial support of 100-200 thousand VN dong; that helps to increase the family income." - HCMC*

> *"It's been two years since I joined the club. As a club member, I could borrow money to open a breakfast restaurant with my mother and I could also receive free medicine." - HCMC*

Some of the club members created new households, living together and providing love and support to each other. They said that they lived together because of their understanding and sympathy with each other's circumstances. They could help each other "*for better life in the waiting time for death*".

Living together as a family could also increase their chances of free treatment, because many support projects prefer to assist married PLHIV, believing that a family environment would provide a better foundation for compliance with treatment as well as other support activities.

Some informants reported living with HIV-negative partners, who knew the status of the respondent. Although this brought clear risks to the negative partners, the relationships provided both material and spiritual support to the PLHIV, and they said that they did practice safe sex to protect their partners.

> *"The guy you've just seen is my boy friend. Though he knows I have HIV, he still comes to me, but he hardly gives me anything because he has a family and children. Anyway, he brings me spiritual happiness. Sometimes, he brings me some unused things of his wife and children. He's so kind and good-hearted." - CB*

Support received from the various projects now being implemented could be beneficial but could also lead to behaviors that may not really help the people involved. For example, in some projects, only families in which both parents are seropositive qualify for assistance. Then couples of whom only one is positive may present themselves as both positive, just to qualify for support. Or they may try to hide their real economic status, to make themselves seem poorer than they are, to qualify for loans or other economic programs.

One aim of the self-help group programs is to empower the members of the group as a first step in improving their quality of life. Empowerment is defined as "the process of enhancing an individual's or group's capacity to make purposive choices and to transform those choices into desired actions and outcomes". Empowerment can enable vulnerable people to cope with stigma from society and the family, which can also increase access to health services. An intervention with self-help groups has been shown to be effective to empower people, and to increase their spiritual, social, and economic strength, and their confidence in their own capacities to improve their lives.

The HIV-affected households in this study were mainly contacted through their involvement with self-help groups. Once PLHIV could disclose their HIV status to others, they could use it as a source of social capital. Learning about the benefits of treatment from peers helped PLHIV make better decisions about seeking access to health care. They also organized care for themselves through a peer counselor system with continuously updated information. Group members provided good examples of visibly improved health that motivated other HIV-infected women who had hesitated to seek health care. The support also increased their self-esteem, resulting in less felt stigma.

The self-help groups provide four main services: counseling, care and treatment, social support (community mobilization for supportive environment) and economic support (income generation). The results of qualitative research show that the PLHIV received both physical and mental care through the groups. They became more open to the public and could share their experiences in advocacy meetings and community mobilization sessions, especially for women.

> *"It is really significant for me to participate in this self-help group. In the group, we are all infected with HIV; we understand and sympathize with each other. Being a member of group, I am counselled how to care for my health and I have the chance to talk and exchange with others, and know more about HIV/AIDs. The most important thing is I feel more self-confidence. I do not need to hide my HIV status." - HCMC*

Women with HIV/AIDS have been shown to face greater social problems than men in the same situation.[103] Women with HIV/AIDS face isolation from society generally and from other women with HIV. The self-help groups help them raise their voice and feel confident enough to integrate into society and the community. Many female self-help groups with closed meetings allowed the women to meet in a secure environment. The interactions that occurred led to an increased awareness of the needs of women with HIV/AIDS amongst health care providers and the larger community.

> *"At the beginning, I did not dare to join the group, other members had to go to my home and encourage me. After that I joined the club. It's great! I find that we are all the same, even some are poorer than me, but they are still happy and smile. Participating in the group, I have free ARV, could take out a loan, and sometimes travel to Hanoi for training."- CB*

Self-help groups can also be useful for community-based care and have affected access as well as adherence to ART. In their meetings, members share their knowledge and experience about treatment, which may include both ART and traditional methods. Many respondents said that they believed more in their peers than in the doctors. They wanted ART but did not understand it and did not trust the doctor's advice that they did not yet need it. The self-help group also reinforced adherence by those on ART; they reminded each other and persuaded family members to help and support the PLHIV on therapy. There were cases, however, of PLHIV who were interested in joining a self-help group but were discouraged or prevented by their parents, siblings or partners.

> *"Peer educators sometimes had to face trouble from parents, siblings and relatives of group members. They often do not believe in us at the beginning. They thought that we would entangle their son or daughter in bad things more than help them. The parents even said that we were in the same situation as their children so if they had any problems, they could better go directly to a doctor rather than asking the group." - CB*

> *"We divided our members into groups for support. We usually visit HIV-infected people who are on ART and remind them about adherence. Many members forget the time to take the medicine, so we phone to remind them. They gradually become familiar with treatment and then they can adhere." - CB*

Self-help groups clearly have a role to play in reducing the impact of the HIV epidemic on the people affected, and their families. This is a strategy that can be replicated, as long as due attention is paid to the important feature of activities and approaches that strengthen self-image and help members to gain confidence. Other activities such as support to access vocational training, medical care, or loans for income-generation depend on that first function.

In recent years many support programs have aimed at PLHIV to mitigate the impact of HIV on them and their families. However, there are still many obstacles that decrease access to support programs, such as stigma and discrimination against not only infected people but also the poor; administrative

[103] Khuat Thu Hong, Nguyen Thi Van Anh, Ogden J: Understanding HIV and AIDS-related Stigma and Discrimination. Hanoi: ISDS; 2004.

and political structures; and especially lack of the types of support that meet the demands of PLHIV. The research detected many cases of HIV infected/ affected households who did not access the support programs aimed at them. In their opinion, stigma and discrimination have had a large impact on their family, and the community seems not to trust them.

Administrative structures are another barrier to PLHIV and their families receiving supports and help. This problem affected not only the PLHIV but also the poor in general. For example, before they can receive a loan, applicants have to submit many kinds of documents to many offices and committees.

In addition, some respondents complained that there were not many support activities in their area. Support services did not meet the demands of PLHIV and the programs were not comprehensive. In some projects, support is only for either IDUs or PLHIV, excluding others who may feel they are equally needy. Indeed, not all the IDU or PLHIV may need the offered support, but may take it anyway. Interventions should therefore be preceeded by a needs assessment among the targer beneficiaries.

But the results overall suggest that more PLHIV and their families are now able to benefit from the support provided by government and international programs. Some of these programs are comprehensive, addressing not only medical but also social and economic needs. Especially the attention to poverty issues and to issues of self-esteem and empowerment appear to have the most effect on the quality of life of the PLHIV.

C. MODELING AND PROJECTION OF IMPACT OF HIV AND AIDS ON HOUSEHOLDS

1. Modeling the impact of increased health expenditure on consumption and expenditure by households

The health expenditure in this exercise is a combination of direct health care costs and indirect health care costs including the decreases in income due to loss of working days of both HIV positive family members and their care givers. Consumption in the regression analysis responded to increased direct health care costs and decreased income (Annex 5 – Table 29-30).

Table 24 summarizes correlations of health expenditure to food and other expenditures. It is clear that households in different wealth quintiles and place of residence have different levels of responsiveness to changes in health expenditure. Comparing urban to rural situations, we found a larger reduction in food expenditure in urban areas, with the exception of the wealthiest group. In addition, it seems that in reallocating funds, households reduced food expenses more than others. This analysis shows a significant difference in medical poverty risk among households and provides a foundation for projection of poverty among HIV/AIDS population.

Table 24. *Correlation of food and other expenditure to health spending for 5 quintiles*

Health expenditure	Food expenditure		Other expenditure	
	Urban	*Rural*	*Urban*	*Rural*
Q1	-1.76	-0.50*	-0.75	-0.04
Q2	-1.20	-0.51*	-0.67	-0.28*
Q3	-0.63	-0.53*	0.01*	-0.42*
Q4	-0.46*	-0.43*	0.06	-0.38*
Q5	-0.09*	-0.16*	0.39	-0.09*

** p< 0.05, t test*

2. Simulation of the impact of HIV/AIDS on poverty

Assuming that distribution of health expenditure among all respondents is similar to that reported in the VLSS 2006, we calculated the differences in spending on health for each quintile and place of residence.

We modeled the impacts of HIV/AIDS on poverty at household level with regard to access to free ART services and to using drugs. The poverty analysis and forecasting section aims to predict the number of HIV people living under: (1) General poverty line and (2) Food poverty line, approximately 2100 kcal/ppl/day.

Table 25. *Increases in cost of illness by wealth quintiles and place of residence*

Health spending per capita	*Urban*				
	Q1	Q2	Q3	Q4	Q5
HIV HH	97.7%	100.9%	203.6%	342.0%	415.5%
HIV HH w/o DU	122.8%	64.1%	111.0%	270.5%	185.3%
HIV HH with DU	57.9%	138.7%	275.6%	403.9%	696.9%
*HIVHH with ART cost**	932.7%	921.5%	747.3%	1404.6%	1086.9%
Health spending per capita	*Rural*				
	Q1	Q2	Q3	Q4	Q5
HIV HH	178.4%	80.8%	222.8%	710.6%	369.2%
HIV HH w/o DU	94.3%	74.4%	140.2%	553.2%	75.1%
HIV HH with DU	332.5%	86.8%	256.4%	785.2%	482.4%
*HIVHH with ART cost**	1975.8%	1094.9%	953.1%	1920.3%	1140.4%

**Estimated ARV cost in 2008 is 450 USD (7.7 million dong), by Asia Aids Commission*

In this analysis, we combined indirect and direct health care expenditure to get the total cost of illness for the households. For the purpose of comparing different groups of households, we used the expenditure per capita as the main indicator. Table 25 shows that there was a significantly higher cost of illness (COI) per capita among HIV-affected households in both urban and rural areas; they cost ran parallel with their wealth quintiles. Notably, the COI was extremely high in households with HIV positive IDU. Although the MOH has been scaling up ART services nationwide and has reached 45% coverage of those needing it[104], we thought it important to analyze a scenario of households having to pay for ART, estimated at approximately 450 USD per year. Stratifying by place of residence and wealth quintiles, we can see that the total cost of illness for a household with an HIV-positive member on ART may increase to 7-19 times higher than for comparison groups without such a family member.

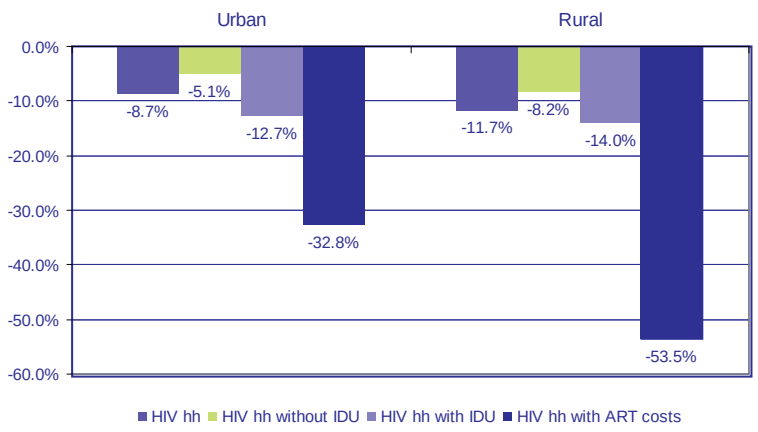
The results shown in Table 25 make it clear that the households with drug users among the family members spent much more than others on health care.

[104] WHO-UNAIDS-UNICEF, The joint reporting on health response to HIV/AIDS 2008

Figure 6 below illustrates the reallocation of household expenditures to cope with the increased cost of illness. In response to the increased COI, households reduced their consumption expenditure by 8.7% in urban and 11.7% in rural areas. Households with drug users seemed to have a greater burden leading to an additional 6-8% reduction in consumption. Consequently, there is a risk of sliding to a lower level of wealth quintile or falling below the poverty line.

Households in different wealth quintiles had their own coping strategies, making the medical poverty risk different across the quintiles. There was a stronger impact of drug use to decrease consumption in the three wealthiest quintiles. Perhaps the lower quintiles

Figure 6: *Changes in consumption expenditure by place of residence*



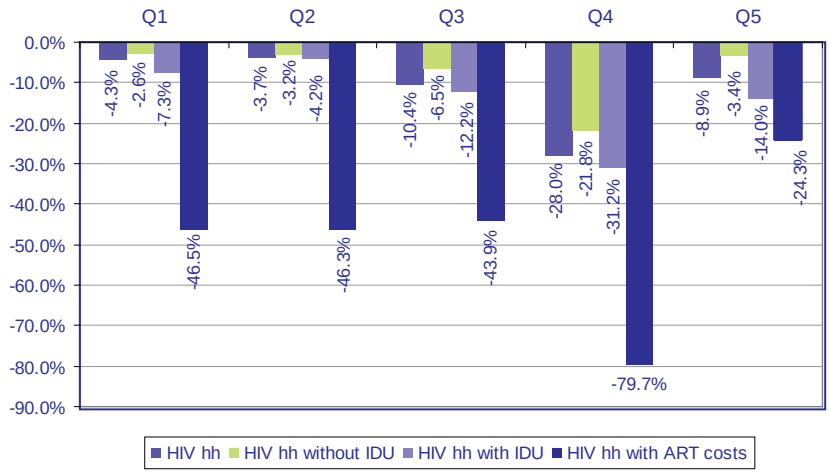


Figure 7: *Changes in consumption expenditure by quintiles*

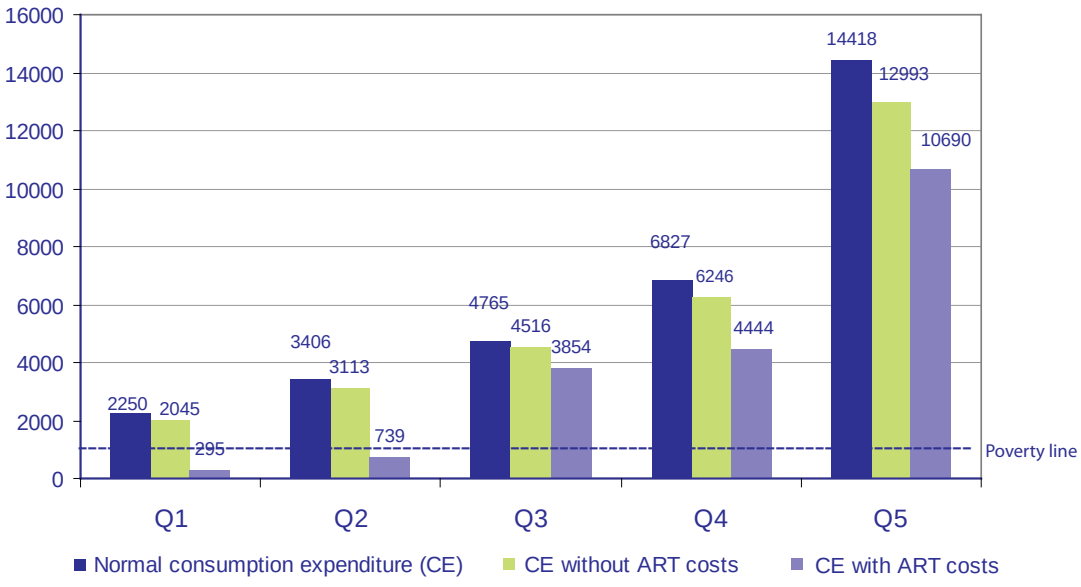
had less to decrease and felt the difference less. Figure 7 shows that free ART has mitigated HIV impact to poverty especially among the three poorest quintiles.

Figures 8 and 9 illustrate the average consumption expenditure among the wealth quintiles, using scenarios with and without payment for ART. Households in the three poorest groups risk falling below or farther below the poverty line, particularly in the case that they do not have access to the free ART services.

The impact of HIV/AIDS on poverty was estimated based on the HIV/AIDS Estimation and Projection 2007, given the differences in population size and increased cost of illness by wealth quintiles, changes in rural and urban and adjustment of the coverage level of ART program.

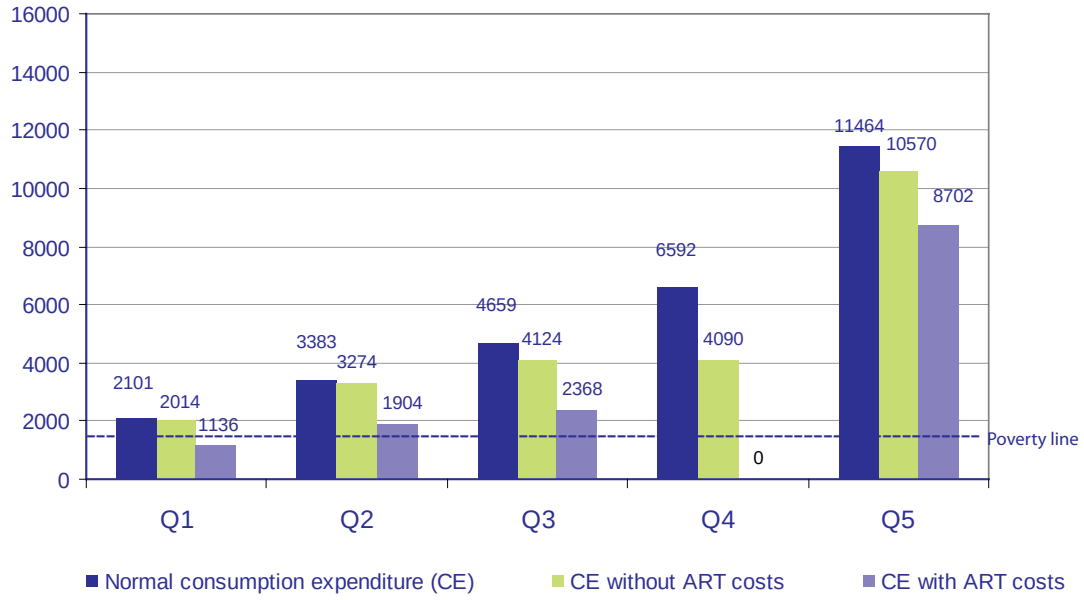
Figures 10-13 show the results of the projection. The low and high estimations are that 49,000 to 90,000 HIV-infected people have either become newly poor or have fallen deeper into poverty because of HIV/AIDS and 23,000 to 41,400 HIV-infected people living under the food povery line in 2008 in Viet Nam. During the period 2008-2012, the cases of 'newly poor' could increase from 36% to 39% of the total cases living under the poverty line. Up to 2012, there may be 63,000-114,000 HIV-positive people at the current level of coverage of ART program.

Figure 8: *Changes in consumption expenditure per capita in urban (million dong)*



In conclusion, households with PLHIV, particularly with HIV-infected drug user are at graeter risk of becoming poor or being driven more deeply into poverty. However, free access to ARV can make a huge difference by narrow the reduction of consumption expenditure.

Figure 9: *Changes in consumption expenditure per capita in rural *(million dong)*



* Q4 has a small number of respondents

Figure 10. *Projection of the number of impoverished people due to HIV/AIDS 2008-2012 (high estimate)*

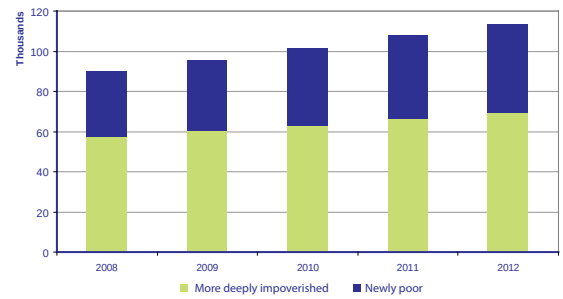
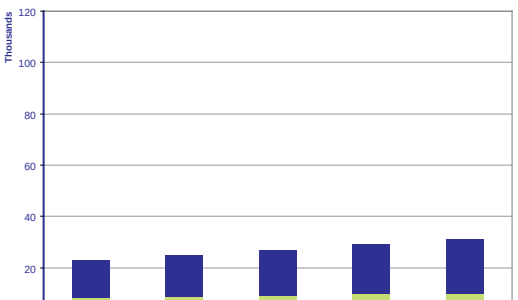


Figure 11. *Projection of the number of impoverished people due to HIV/AIDS 2008-2012 (low estimate)*



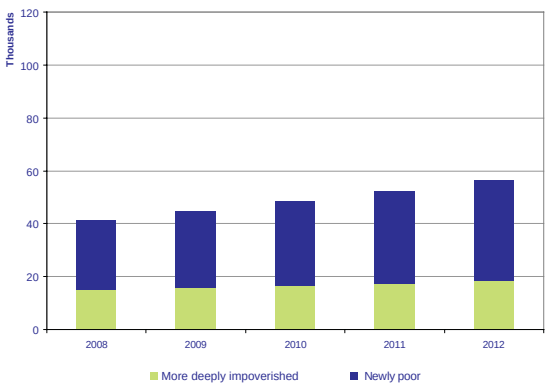


Figure 12. *Projection of the number of HIV people living under food poverty line 2008-2012 (high estimate)*

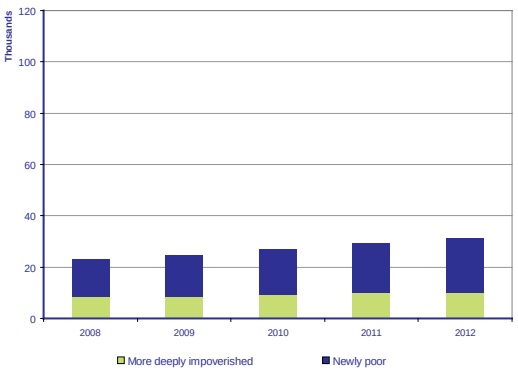


Figure 13. *Projection of the number of HIV people living under food poverty line 2008-2012 (low estimate)*

SECTION 5: CONCLUSIONS AND RECOMMENDATIONS

This study was carried out under the framework of the programme "*Strengthening Leadership and Multisectoral Collaboration in HIV Prevention and Control"* the Project 00042413 *"Strengthening the Leadership Role and Multisectoral Cooperation of People-elected bodies and Government Agencies at Different Levels for the Successful Implementation of the HIV and AIDS Strategy until 2010"* to obtain updated evidence on the socio-economic impact of HIV and AIDS on households in Vietnam. The main aim was to be able to advocate for the integration of HIV and AIDS activities and indicators into socio-economic development planning and policy-making.

In the context of a low prevalence setting such as, Viet Nam, the HIV epidemic might be expected to have only minor effects on macroeconomic performance. However, the impact of HIV and AIDS at household level is far more significant because of its effect on social capital, socially productive labor and on expenditures and income, which are the foundations of households, communities, and the nation.

In this study, data was taken from a comparative cross-sectional survey among 453 households with PLHIV and 453 households without PLHIV stratified by urban and rural areas in six provinces with a high prevalence of HIV, with the addition of qualitative methods for in-depth confirmation of a range of issues.

The results of the study suggest that the impact of HIV and AIDS on the household poverty is significant. The impact is due to a combination of reduced income as a result of changes in the employment structure of household members in HIV-affected households, and the increased expenditures especially for heath-related issues in those households. Total annual income in non-affected households was 1.3 times higher than in HIV-affected households. The total annual income lost by caregivers and sick persons in HIV-affected households was 1.6 times higher than in non-affected households. There was a tendency for HIV-affected households to reallocate expenditures for education and construction/renovation to health care and food; this trend was most visible among the poorest quintiles. They are pushed even deeper into poverty, which decreases their income generation potential and the possibility of ever recovering part or all of the losses incurred. Poverty is intensified and there is very little opportunity for the family to regain their initial level of economic well-being, or especially when that was low. HIV-affected households in rural areas and HIV-affected households with drug users were the most likely to fall into poverty.

Recommendation:

Integration of HIV intervention program into the Hunger Eradication and Poverty Reduction program at national, provincial and district levels. Interventions to mitigate the impact of HIV on poverty should focus not only on increasing income but also on decreasing expenditures in the categories seen to be contributing most to the overall increase in expenditures. Intervention for households with drug users should not only focus on providing access to health services and economic support but also providing access to drug treatment program to help reducing expenditure for drug use.

Expenditures on health care especially treatment for the infection (ART) and for opportunistic infections and related health conditions still consume a lot of the financial resources in the households affected by HIV. The absolute monthly HIV-related health care cost was highest among the poorest and the wealthiest groups of HIV-affected households. The poorest tended to spend more on medication, while the other groups spent more on hospital fees and

other medications (excluding ARV). The costs for ART among families with DU were much higher than for nonDU households. That might be the DU are less likely to receive ARV free of charge than nonDU as some out-patient clinics have exclusion criteria for free ARV treatment that give DU less priority than nonDU. The costs for other medications among DU were also higher than for nonDU households.

Recommendation:

The intervention programs and policies should try to ensure free access for all PLHIV, particularly PLHIV who are drug users, to not only ART but also the other expensive medicines and services. PLHIV should receive support for economic empowerment to be able covering treatment cost in the long run.

The impact of HIV is closely related to the impact of drug use on the household economy. In some cases, for example expenditures on education, the non-DU HIV households did not differ from the non-HIV households while the DU HIV households had reduced expenditures on education. They were also paying more for health care; HIV-related health care costs in households with DU were higher than that among households without DU.

Recommendation:

Interventions need to consider and address the IDU problems in a household as well as the HIV issues in order to mitigate the effects that may lead to greater household poverty.

Prediction of poverty among HIV-affected households suggested that between 49,000 and 90,000 PLHIV in Viet Nam have either become newly poor or have fallen deeper into poverty because of HIV/AIDS. During the period 2008-2012, the number of cases of 'newly poor' is expected to increase from 36% to 39% of all those living under the poverty line.

Recommendation:

There is a need to provide comprehensive support for PLHIV and their family, including not only health care and treatment services free of charge, but also interventions for economic empowerment, livelihoods and job creation.

Comparing the results of the previous assessment in 2005 and this study, the issue of discrimination and stigma in the workplace, community and health services seems to have been reduced. The research result shows that in recent years, stigmatization and discrimination are not really a big problem in the areas where have been covered by activities in dealing effectively with the HIV epidemic such IEC campaign, NGO's activities and so on. However, stigma and discrimination have changed the way it appears in which "sophisticated" stigma lead to more difficult to implement IEC/BCC program

One of the very serious impacts of HIV on the household members is to bring them a strong negative self-esteem, which limits the effectiveness of many potentially helpful interventions, such as micro-credit, training and job assistance. They may feel that they cannot study, work or borrow money, even though they others with the same health status do those things.

New form of stigma and low self-esteem might be because of poor counseling, poor communication program, or IEC/BCC focuses on reduction of risk behaviours rather than improvement of PLHIV self-esteem.

Recommendation:

Information campaigns should continue to focus on the need to provide good care for PLHIV and health and other services should be trained and informed about HIV so that they can provide good services to PLHIV. Interventions must address the negative self-esteem of PLHIV and their family members if other interventions aimed at income generation, education and health are to be successful.

There is evidence that women may suffer more from discrimination and stigma as well as from the economic pressures related to HIV in the household, partly because of their role as caregivers for the ill and children. This affects especially their ability to generate income. Workforce participation among HIV-infected women was higher than among HIV-infected men (83% vs. 68%) even though the women

experienced more episodes of illness (5.2 compared to 2.9 in men) and were ill for a longer time than the men (139.9 days on average, compared to 115 days for men). These are clearly gender differences.

Recommendation:

Interventions and policies should recognize the different kinds of social and financial support that women need as well as the special care for example, PMTCT, and ensure that it is available to the women who need it.

Comparing the results of the 2005 assessment and this one, the impact of HIV on the children was less than expected, which is a positive development. Most could go to school, few suffered stigma at school, and few had to stop school to work for the family.

Recommendation:

Programs should continue to support the integration of HIV-affected children in school and society. When needed, necessary financial or other support for children to continue at school should be provided by the appropriate authorities.

Households had to find ways to cope with the economic burden of HIV in the household. There was no difference in the proportion of households with and without HIV in receiving government support, but many fewer of the HIV households could access funds from family and relatives. In PLHIV's opinion, stigma and discrimination continue to have a big impact on their family, while their communities seem not to trust them. HIV-affected households did, however, have access to funds through NGO programs and projects.

Recommendation:

Programs should try to ensure that funds are available especially to the poor families affected by HIV, who may not have other sources of financial assistance. At the same time, behaviour change communication should include materials to inform family and relatives of PLHIV about their potential for a longer and healthier life, so that they may consider providing financial support to them in future.

In recent years, increasing access to free ART and other medicines and treatments has had a beneficial effect on the impact of HIV on the poverty of affected households, by reducing their expenditures on that part of essential medical care.

Recommendation:

It is important to try to ensure continuation of these free medicines and treatments. Increasing the coverage of ART program which is for free of charge may help not only to prolong PLHIV life but also to reduce poverty rate among HIV-affected households.

Nowadays, many self-help groups of people living with HIV/AIDS have been established to support for HIV infected people and their family. Actually, self-help groups now play an important role in mitigating the effects of the HIV epidemic. Currently, four main services are provided to self-help groups: counseling, care and treatment, social support (community mobilization for supportive environment) and economic support (income generation activities). Self-help groups appear to provide a good approach to increasing self-esteem as well as increasing knowledge and capacity among PLHIV which will help PLHIV to have better access to support services including health care.

Recommendation:

A range of self-help groups should be recognized, and supported where possible, to provide a source of information and support to PLHIV. Services such as medical, educational and financial ones should work closely with these groups to reach the PLHIV and provide effective services.

The data provided a wealth of information but also led to new questions that could be answered by further research.

Further research that would be useful to answer the question of the impact of HIV on poverty in Vietnam in more detail would include:

- *Longitudinal studies on selected households to follow the changes in their household*

economic situation after HIV has been identified in the family.

- *Studies to collect more data on behaviour and social changes, and reasons for decisions made by households with and without HIV would not only answer questions directly but also provide key data for future projections.*
- *The results suggest that stigma has been reduced and it would be important to investigate first to what extent that is true in other settings (for example, hospitals) and second, whether it is related to the many interventions carried out recently with that aim in mind.*
- *Studies to investigate effectiveness of current economic internvetions targeting PLHIV and their family and explore opportunities for economic impact mitigation.*

ANNEX 1. THE SOCIOLOGICAL AND ECONOMIC MEASUREMENT OF POVERTY

Poverty is complex and has been defined in a variety of ways. From the economic point of view, poverty can be measured using a 'consumption-based' approach to define a 'universal poverty line'. One may measure poverty as social exclusion, deprivation, and reduced capability. In any case, the definition of poverty comes down to "the discrepancy that exists between poor and non-poor people, reflected both by a poverty line and by the capability of individuals and/or households to maintain a reasonable lifestyle".[105]

Monetary approach: The most commonly used approach to measure and identify poverty is the shortfall in consumption (or income) from a given level.[106] The users of this approach consider that 'welfare' and 'wellbeing' can be measured as total consumption, by proxy of either expenditure or income data. A criticism of this approach is that it systematically overestimates the number of poor households that rely on hidden resources.[107] Hidden resources are extremely difficult to estimate. It may also underestimate poverty in urban areas where the average cost of living is higher.

Capability approach: This approach focuses on the quality of life, focusing on non-monetary indicators to evaluate well-being or deprivation. Vulnerability to poverty can be assessed by looking at households' access to different kinds of goods and amenities. This approach illustrates the connection between low income and lack of resources.

Social exclusion: This concept describes marginalization and deprivation in societies, which are strongly connected to economic factors.[108] Social exclusion could include unemployment, lack of access to housing, minimal income and social contacts, or lack of rights, for example to education.

Participatory methods: The first two approaches have been criticized by not taking into account the views of poor people themselves.[109] A participatory method aims to involve the poor in decisions about what it means to be poor and how to estimate the magnitude of poverty. Participatory methods usually need more time and a more personal approach to data collection, to enable the target groups to contribute their ideas.

Choices in measuring poverty for this study

Poverty is complex and has been defined in a variety of ways because of its complex nature. Review of different methods of measurement of poverty was presented in the Annex 1. To get a better idea of the situation in the HIV-affected households, a broader and more inclusive definition of poverty was used in this study, compared to that used for the 2005 assessment. However, to facilitate comparison between the two studies, poverty was also measured using the monetary approach and, compared with the poverty line, as done which was used in 2005. Taking into account the limitations of that approach, a combination of approaches should yield a more complete picture of poverty. Thus, hidden resources, access to different kinds of goods and services, and social exclusion were also included this time, using qualitative methods to collect data. These cannot, however, be quantified to adjust the households' income. The sampling wasill be stratified by urban and rural residence, to capture any locational differences in socio-economic impact of HIV.

[105] Thulisile GT, John S. Literature review on poverty and HIV/AIDS: measuring the social and economic impacts on households. HSRC, 2005.
[106] Laderchi, R.G., Saith, R. & Stewart, F. Does it Matter That we do not Agree on the Definition of Poverty? A Comparison of Four Approaches. Oxford Development Studies, Vol. 31, No. 3, September 2003.
[107] Ruspini, E. The Study of Women's Deprivation: How to Reveal the Gender Dimension of Poverty. International Journal of Social Research Methodology, 2001. 4 (2): 101-118.
[108] Brady, D. Rethinking the Sociological Measurement of Poverty. March 2003, Social Forces, 81(3): 715-752.
[109] Thulisile GT, John S. Literature review on poverty and HIV/AIDS: measuring the social and economic impacts on households. HSRC, 2005.

ANNEX 2 - STUDY METHODS

The study combined two phases. Firstly, a survey was carried out in six provinces across the nation to evaluate the socioeconomic impact of HIV on households. After that, the second phrase was implemented, with the aim of estimating the impact of HIV/AIDS on poverty in Vietnam by compiling and modeling data from nationally representative surveys and HIV projections.

1. Phase 1: A cross-sectional study on "Differences in social situation and income/ expenditure among HIV-affected and non HIV/ affected households"

1.1. Study sites

Selection criteria: Six cities/provinces with high HIV prevalence (Ha Noi, Lang Son, Quang Ninh, Cao Bang, Ho Chi Minh City, and An Giang) were selected for the study. Three of these – An Giang, Quang Ninh and HCMC had been included in the 2005 assessment. In Lang Son and Cao Bang, the epidemic had started later than in the other sites; these provinces also differed from the others in having a lower level of economic development.

Description of study sites:

Ha Noi is the capital of Vietnam, with an estimated population of 3.5 million in 14 districts (9 urban districts and 5 rural) at the time of the study.[110] Ha Noi has a large population of PLHIV (12,628), mostly IDU from poor families. The HIV epidemic in Hanoi has been increasing steadily since 1994. HIV is still predominantly concentrated among IDU, but increasingly FSW are affected, and it is beginning to spread to the general population. Ha Noi is one of the ten provinces/cities with the highest reported number of HIV infections per 100,000 inhabitants. Several facilities provide care and treatment for PLHIV in Ha Noi, mostly with support from international programs such as PEPFAR, Global Fund, Life GAP, ESTHER, and the Clinton Foundation project, but also with support from government programs.

Lang Son province, north of Ha Noi, borders the Chinese province of Guangxi. 85% of the inhabitants belong to ethnic minorities (43% Nung, 34% Tay, Hoa) living in rural areas in 10 districts and 226 communes. The people in Lang Son face many problems, ranging from poverty (annual per capita income about 200 $US) to high infant mortality and a lack of industrial investments. Although 70% of the communes have electricity, only one-third of the local people are linked to the grid. According to the Provincial Health Service, coverage of the six basic immunizations is 98%, but the province ranks among the top 10 provinces in Vietnam for HIV infection. Most of the cases are injecting drug users (IDU) and sex workers (SW). The province gets little funding except for HIV prevention programs and a small SARS-detection fund.

Quang Ninh is on the northeastern coast, bordering China and the sea; it has many poor workers in the coal and other mines, some of which are illegal. The workers mostly live and work in very bad conditions. The HIV epidemic in Quang Ninh has reached the generalized epidemic stage. The estimated HIV prevalence among the general population is already over 1%.[111] Drug use is prominent in the epidemic. There is an outpatient clinic for PLHIV with staff trained by a project from Harvard University. Voluntary counseling and testing and routine testing are both available and accessible. The Global Fund has program to provide ARV at the district level.

[110] Hanoi in this study does not include Ha Tay which has just recently been included into the new Hanoi.

[111] MOH (2005). HIV estimates and projections 2005-2010.

Cao Bang borders China; its HIV and IDU epidemics are both large. More than 90% of the population belongs to an ethnic minority. VCT and routine testing are both available and accessible. ARV for PMTCT is available but staff has not been trained so it is still not used. Thirty doses of ART for one year are available for adults but there is no plan for ARV for children yet. OI treatment is available with international support. Although there are services, few people have access to them, because the referral network is weak or lacking especially from the rural areas.

Ho Chi Minh City (HCMC) is the biggest city in Vietnam in terms of area, population, and economic development. HCMC is also known to be an epicenter of the country's HIV/AIDS epidemic. The first case of HIV infection in Vietnam was identified there in 1990. If risk behaviors remain unchanged, HIV prevalence in HCMC can be expected to rise steadily from 1.45% of adults in 2006 to 1.68% by 2010. Although these rates may appear low, given the large population in HCMC, they translate into many individuals living with HIV and requiring care and treatment. The number of PLHIV in HCMC is expected to increase from 72,400 in 2006 to 89,900 in 2010 and 105,800 in 2015. This increase would be driven by a steady flow of new infections each year, from 9,100 in 2005 to 10,900 in 2010. There are 24 out-patient clinics (OPC) at hospital, district, and central levels in HCMC, of which 21 provide ARV and three do not. There are eight diagnostic counseling and testing rooms (DCT) in TB departments of seven districts and at the Pham Ngoc Thach Hospital. The city also provides free ART and an HIV insurance card for clients who voluntarily come for testing.

An Giang is in the upper reaches of the Mekong Delta. With the exception of the west, most of An Giang is flat, intersected by many canals and small rivers, making An Giang an important agricultural centre and rice producer. It is home to many people from the southern ethnic minorities. Close to Cambodia, the main non-Kinh group is the Khmer Krom, but others, such as Cham and ethnic Chinese (Hoa), also live there. Like Lang Son province on the Chinese border, together with the economic growth through trade between Cambodia and Vietnam, An Giang has become one of the epicenters for the HIV/AIDS epidemic. By March 2008, 6,938 HIV infections were reported by the Ministry of Health, including 4,477 AIDS patients, and 3,651 deaths. The epidemic here is predominantly among female sex workers, particularly those who work across the Vietnam-Cambodia border.

1.2. Study design

The design was an analytic cross-sectional study, comparing HIV-affected and non-affected households, which were considered as the primary sampling unit.

The main element of the design was a combination of the household survey supplemented by information from qualitative methods, and secondary data collection for provider assessment. The rest of this section details the approaches used.

1.3. Study methods

Both quantitative and qualitative methods were utilized in this study.

1.3.1. Household survey

Sampling strategy

The strategy was multistage sampling, using a three-stage process:

- The first stage was purposive selection of provinces for study. As explained above, six cities/provinces were included in the sample to represent not only geographical spread around the country but also high HIV prevalence and a longer period of involvement in the HIV epidemic. Consideration of the provinces included in the 2005 study also played a role in this selection.
- The second stage was to select urban and rural or sub-urban districts from each province with a high number of HIV infections, taking into account the socio-ecological diversity of the districts.
- The third stage was to list HIV-affected households which were then used to select

HIV-affected households in the survey. Similar households unaffected by HIV within the selected districts were also selected for comparison.

An **affected household** was defined as all residents (members) of a dwelling in which at least one member was known to have HIV or to have died of AIDS less than a year before the start of the study. Empirical studies had suggested that an HIV-*affected* household could include those who indirectly experience the pressure of HIV on their economic behavior, even though they were not directly affected as a household with a HIV+ member.[112] However, the HIV epidemic in Vietnam is still in the concentrated phase, and such effects could be expected to be minimal, if at all present. Therefore, this category of household was not included in this survey.

HIV non-affected household was defined as a household where, as far as could be determined, no member was known to have HIV, tuberculosis or pneumonia.

Sampling process

The process of selection within the provinces was complex and involved both calculations and logistic and other considerations.

Selection of survey districts: Districts were identified in consultation with staff of provincial AIDS centers, Women's Union, and members of HIV self-help groups. In each province, one urban and one sub-urban/rural district with a high number of PLHIV who could be reached for participation in the study were selected. The exception was HCMC, where the sample size was larger and four urban and two sub-urban/rural districts were selected. Districts with higher concentration of HIV infections were selected to make the survey more cost-effective and time-efficient. The districts are listed in Table 1 below:

[112] Feire S. HIV/AIDS affected households: Status and temporal impacts. In Economics of AIDS and Access to HIV/AIDS Care in Developing Countries. Issues and Challenges, Agence nationale de recherches sur le sida, Paris, France. 2003.

Table 1. *Districts included in the study sampling*

Province/city	Urban	Sub-urban/rural
Hanoi	Dong Da	Tu Liem
Quangninh	Ha Long	Yen Hung
Langson	TP Lang Son	Cao Loc
HCMC	District 1,8, Binh Thanh and Go Vap	Binh Tan and Thu Duc
Cao Bang	Cao Bang	Hoa An
Angiang	Long Xuyen	Chau Thanh, Chau Phu

Selection of HIV-affected households:

Although a list of PLHIV is available at health facilities, the research team chose not to use the list for ethical reasons, related to confidentiality about HIV test results.

The field investigators working with the Vietnam PLHIV Network and volunteers from GIPA involved self-help groups to recruit the PLHIV. Subjects known to have HIV were referred by peer groups (groups for PLHIV), only after asking for informed consent from their households to take part in the study, and on condition that their HIV status would not be disclosed to other household members. Eligible HIV-affected households were then visited, and the head of each household was asked to consent to take part in the study. Each household had maximum of two informants, who were adult PLHIV. If informants were not at home at the time of interview, or if questionnaires were returned with missing data, interviewers returned to the households up to two times. Individuals who did not live in a household setting were excluded, because the focus of the study was the impact of HIV and AIDS on households.

The field investigators were requested to contact PLHIV who were at different stages of infection, so that the full impact of HIV on household economy and the problems of social stigma could be assessed. Furthermore, as the estimated male/female ratio among PLHIV nationwide is thought to be 2:1[113], the

[113] Ministry of Health (2005). HIV/AIDS estimates and projections 2005-2010.

field investigators recruited a sample in which two-thirds of respondents were male.

Selection of HIV non-affected households:

For every HIV-affected household selected, one HIV non-affected household was selected as a comparative group, usually the closest neighbor of the HIV-affected household. This enabled us to compare two groups of households with similar characteristics. Staff of the commune health station or the Women's Union at commune level accompanied the enumerators and introduced them to the households. The commune staff helped to identify households that had similar economic and social status (type/quality of accommodation and number of family members). In each HIV non-affected household, the head of household was invited to be interviewed for household information after having signed an informed consent form. The head of household was an adult man or woman in the age group of 20-60 years, the most relevant to provide information about the household situation. Any household that did not have a member in this age group was not selected for the survey.

Sample size

The total sample size was calculated using the formula for a two-group comparision study, which developed by WHO (SSize software) to estimate the difference between the poverty rate among HIV-affected households and HIV-non-affected households

$$n = \frac{\left\{ z_{1-\alpha/2}\sqrt{2\bar{P}(1-\bar{P})} + z_{1-\beta}\sqrt{P_1(1-P_1)+P_2(1-P_2)} \right\}^2}{(P_1-P_2)^2}$$

In which:

Error type 1 (α)	= 5%
Power of the test (1- β)	= 80%
Anticipated poverty rate of non HIV affected households (P1)	= 16%[114]
Anticipated poverty rate of HIV affected households (P2)	= 28%[115]
Sample size (n) = 203	

[114] VLSS 2006

[115] Estimated from the 2005 HIV SocioEconomic Impact report.

Sample size by stratum: The HIV epidemic in each province/city had developed differently, which may affect the result. A multi-stage sampling technique was chosen to select respondents randomly. Because we used the *multistage sampling* method, the sample size was calculated by multiplying with *design effect*, which was selected to be equal to 2. The sample size required for each group was therefore equal to 203 x 2 = 406. The total sample size of the two groups was 406 x 2 = 812 households. With 10% of inflation for refuse to answer cases, we have the total sample size of 900 households.

The sample size would account for 0.85% of all HIV cases reported by March 2008 in the six provinces/cities.

The sample sizes for each strata of city/province – urban/rural were calculated to be proportionate to the number of reported HIV infections, following a standard formula. below (Table 2):

$$n_i = \frac{n_h}{C} \times n$$

In which the minimum sample size was 30 to avoid statistical misinterpretation, so the N_h was set to 30 if its calculated value was less than 30 (as in the case of Cao Bang and Lang Son).

Table 2. *Sample size of the household survey by province*

City/ province	Number of reported current HIV infections[3] (N_h)	Sample size of HIV-affected households	Sample size of HIV non-affected households
Hanoi	12,628	77	77
Quangninh	6,217	38	38
Langson	2,575	30	30
HCMC	38,245	234	234
Cao Bang	1,928	30	30
Angiang	6,938	43	43
Total	**C = 68,531**	**n = 452**	**n = 452**

Sample size by urban/rural area:

Sentinel surveillance data in 2008 indicated that the ratio of the number of HIV-positive women in urban areas/number in rural areas was 44/26 = 1.7. The sample size in each province/city by urban and rural/ sub-urban areas was calculated using the formula below:

$$U_i = \frac{1.7 \times T_i}{(1.7+1)} \qquad R_i = \frac{1 \times T_i}{(1.7+1)}$$

Table 3. *Sample size for household survey by household residents for each group*

City/province	Sample size of each group		
	Urban (U_i)	Rural/ sub-urban (R_i)	Total (T_i)
Hanoi	49	28	77
Quangninh	24	14	38
Langson	20	10	30
HCMC	147	87	234
Caobang	20	10	30
Angiang	27	16	43
Total	**287**	**165**	**n = 452**

Data collection instruments

The survey instrument was adapted from the questionnaire used in the 2005 study, with added inputs from the questionnaires used in China and India, and was informed by a literature review of household impact research methods, focus group interviews with key informants, and the results of piloting.

The questionnaire included questions on the demographic, economic and health characteristics of a household and its individual members. Economic questions covered employment, income, expenditure, savings, debt, assets and borrowing. These data were used to calculate monthly household income and expenditure. Income and expenditure were also calculated as per person and adult equivalent indices. Adult equivalent income was calculated as (household income/($n^{0.6}$)), where *n* was the household population size, and accounts for the lower cost of children in a typical household. Health questions included whether any one in the household had been continuously ill during the past month or had died during the last year. For each ill or dead individual, we asked about their diagnosis, severity of illness, source and cost of health care, impact on their income, nature of home care provided, and the logistical and financial burden of caring, coping strategies. The questionnaire for HIV-affected households specifically asked about history of experience on stigma and discrimination, risk behaviors, and related issues. Moreover, information about impact mitigation and participation in community activities were also asked of the main respondent.

The questionnaire was drafted in English, translated into Vietnamese, and piloted for cultural appropriateness.

Data analysis

The data was screened and entered to into EPI INFO 3.4.3. Input and checking program were developed. If a mistake was found during data entry process, data entry staff had to check the questionnaire and revise the information.

Statistical analysis was done using STATA 10.0. Data analysis was conducted at household and individual levels. The demographic composition, health status and economic status of households and their members were compared with that of non-affected households and with the results from the previous round (the assessment in 2005), and between urban and rural/sub-urban settings, using 2 or exact tests for proportions, and the t test or rank sum test for continuous variables. Regression analyses conducted at individual level were adjusted for intra-household clustering of outcomes, using STATA's "cluster" option.

1.3.2. Qualitative methods.

In-depth interviews

In-depth interviews were used to obtain information on the basis of personal interviews. In addition to interviewing PLHIV, in-depth interviews were

undertaken among heads of HIV affected households to gain an in-depth understanding of various issues on socio-economic impact of HIV on households (numbers in Table 4 below).

The interview guide was developed in stages. The order of themes depended on the flow of conversation, but all themes were covered during each interview. Researchers could also add new, unexpected themes that came up during the interview.

Table 4. *Study population for in-depth interviews*

Geographic area	Study population
Urban	1 HIV-infected female 1 HIV-infected male 1 head of HIV affected household
Rural	1 HIV-infected female 1 HIV-infected male 1 head of HIV affected household
Total in one province	6 interviewees
Total in the study	36 interviewees

Prior to starting each interview, the researchers invited the interviewee to read and sign the consent form, and asked their permission to record the interview on tape. Interviewees were informed that recording could be stopped during the interviews if there was a sensitive question that the interviewees did not want recorded. All interviewers took notes during the interview. All transcripts of in-depth interviews were coded, entered and analyzed using N-VIVO software adapted for Vietnamese language. A codebook developed by the interviewers focused on key findings and terminologies.

Focus group discussions

Focus group discussions were conducted at national and provincial level with people involved in prevention and care for PLHIV, including service providers, program managers, communities and mass organizations, PLHIV, (I)NGO, activists, researchers, and the HIV Technical Working Group. Their knowledge and experience and their responses to our findings about HIV impact were used to feed into the overall study conclusions. Presenting them with the study findings was also a way to "advocate" for change. In addition, these focus group discussions included information that could enhance wider and stronger support for synchronized efforts at all levels to operationalize HIV and AIDS policies. One possibility was including integration of HIV and AIDS activities/indicators into socio-economic development planning/policy making as well as informing the Mid-term Review of the current SEDP and the development of the future SEDPs.

2. Phase 2: "Modeling and projection the economic impacts of HIV/AIDS on households"

2.1. Data

Modelling data were drawn from a nationally representative survey, the 2006 Vietnam Living Standards Survey (VLSS). The 2006 VLSS covered 9,189 Vietnamese households, the data collected by the Vietnamese Statistical Office in a similar fashion to the World Bank's Living Standards Surveys that provide representative information on self-reported illness, associated healthcare utilization and expenditure patterns.[116]

The projection of HIV/AIDS impact on poverty used as size of target population the results of 'HIV Estimates and Projection 2007' which use EPP as the tool for estimate and projection (see Annex 3 for review of methods and tools for HIV projection).[117] Supposing that there are differences in coping strategies and poverty risk among HIV affected households at various wealth quintiles and place of residences, we stratified the total number of estimated HIV cases upon the complied data of HIV prevalence and associations.[118] The relevant characteristics of each quintile included population size, people per household, numbers of households

[116] GSO (2007). Vietnam Living Standard Survey 2006.
[117] MOH, VAAC (2008). HIV estimates and projections 2007.
[118] Adapted from the VPAIS 2005 and DHS comparative reports 22 (USAID 2009). Data collected in Hai Phong. Prevalence in quintile 1 has been referred from the HIV economic impact report 2005

per quintile, average income per household and average expenditure per person and per household. The income and expenditure characteristics of an average household were estimated with and without a household member affected by HIV/AIDS.

2.2. Modeling the impact of HIV-related health care costs on consumption expenditure among households

Both direct and indirect costs influence the comsumption expenditure at household level. If a family member contracts HIV, AIDS has been likely to develop within 5–7 years. As a result, overall household income will decline, particularly if the principal wage earner was the one who developed the disease. Other family members might have to devote time to caring for the sick family member, reducing their own potential for paid employment. The decrease in income in affected households would probably be most severe in the 24 months before the death of a family member and in the following year. During this period, the time devoted to care, and the lack of capacity for employment by the affected individual, would be most acute.

We developed a linear multivariate model with fixed effects methods to determine the extent of decrease in consumption expenditure, correlated with increase in health spending. The household was considered the sharing unit for income and payments, but the individual was the unit of analysis because we wanted to capture the individual-level variations as well. The detailed formula is shown below:

$$FOOD\_EXP_{h\text{-urban/rural}} = \beta_j + \beta_j HH\_SIZE_h + \beta_j HEALTH\_UTILIZE_h + \beta_j QUINTILES_h + \beta_j HEALTH\_EXP_h + \beta_j HEALTH\_EXP^*(QUINTILE) + \beta_j OTHER\_EXP_h + \beta_j OTHER\_EXP^*(QUINTILE) + \beta_j EDU\_EXP_h + \beta_j DURABLEGOOD\_EXP_h + \varepsilon_h$$

$$OTHER\_EXP_{h\text{-urban/rural}} = \beta_j + \beta_j HH\_SIZE_h + \beta_j HEALTH\_UTILIZE_h + \beta_j QUINTILES_h + \beta_j HEALTH\_EXP_h + \beta_j HEALTH\_EXP^*(QUINTILE) + \beta_j FOOD\_EXP_h + \beta_j FOOD\_EXP^*(QUINTILE) + \beta_j EDU\_EXP_h + \beta_j DURABLEGOOD\_EXP_h + \varepsilon_h$$

Where:

HEALTH_EXP, FOOD_EXP; OTHER_EXP; EDU_EXP' DURABLEGOOG_EXP: health, food, others, education, durable group expenditure per capita.

HH_SIZE: Size of households

HEALTH_UTILIZE: Utilizing health care services

h_ household

i_ coefficient.

2.3. Projecting the Impact of HIV/AIDS on National Poverty

The numbers of households to fall into poverty as a result of AIDS was modeled by projecting HIV incidence in each income quintile, using both high and low epidemic growth projections. The incidence for each quintile was combined with household impact data to determine the aggregate or national numbers of people expected to fall into poverty. Poverty projections took into account the dynamic relationship between poverty and consumption expenditure. Moreover, a range assumptions underpinning the analysis was made for GDP growth, cost inflation, population growth, and income distribution.

Firstly, vulnerable households that might fall into poverty if the key income providers became infected and succumbed to the affects of AIDS were defined. Then the effects of a reduction in income and increases in direct and indirect health care costs within the different wealth quintiles and places of residence were estimated, based on the data from the surveys of HIV-affected and -unaffected households.

Using this information, the vulnerability of a household could be estimated and households likely to slide into poverty as a result of AIDS-related illness were identified. The hazard model was applied to describe poverty transition by analyzing events that had triggered individuals' entries into and exits from poverty. Current levels of prevalence within each economic strata, or quintile, were used to determine the share of expected future HIV incidence amongst the various economic strata. By estimating how infection would occur in the different groups, the numbers of affected vulnerable households could be estimated. In the adjoining example it was evident that AIDS had a dramatic impact in the 2nd poorest quintile to push households below the expenditure poverty line, of 2559 thousand Vietnamese dong per year per capita. In the case of the highest income quintiles, the reduction in income was not sufficient to push a household into poverty, just switched to lower quintiles, whereas in the poorest quintiles households fell deeper into poverty.

Number of already poor people = PHR * POP
Where: PHR_poverty headcount ratio
POP_Size of population

Number of newly poor people:

$$HIV/AIDS^{hh} = \sum_{i=1,j=1}^{i=5,j=2} HIV/AIDS_{ij} * HHSIZE_{ij}$$

$$= \sum_{i=1,j=1}^{i=5,j=2} \left[v(HIV_{t-t_{ART}}) * (t - t_{ART}) * HHSIZE_{t-t_{ART}} + v(HIV_{t_{ART}}) * t_{ART} * HHSIZE_{t_{ART}} \right.$$
$$\left. + v(HIV_{1-t}) * (1 - t) * HHSIZE_{1=t} \right]$$

$$if CE_{ij}^{pc} > PL; CE_{ij}^{pc-HIV;ART;t-ART} < PL$$

Number of poor people who fall deeper into poverty:

$$HIV/AIDS^{hh} = \sum_{i=1,j=1}^{i=5,j=2} HIV/AIDS_{ij} * HHSIZE_{ij}$$

$$= \sum_{i=1,j=1}^{i=5,j=2} \left[v(HIV_{t-t_{ART}}) * (t - t_{ART}) * HHSIZE_{t-t_{ART}} + v(HIV_{t_{ART}}) * t_{ART} * HHSIZE_{t_{ART}} \right.$$
$$\left. + v(HIV_{1-t}) * (1 - t) * HHSIZE_{1=t} \right]$$

$$if CE_{ij}^{pc} < PL; CE_{ij}^{pc-HIV;ART;t-ART} < CE_{ij}^{pc} < PL$$

In which,

$HIV/AIDS^{hh}$, $HIV/AIDS_{ij}$	is	Number of poor households.
$HHSIZE_{ij}$	is	Size of groups at quintile i and place of residence j
$v(HIV_{t-t_{ART}})$	is	Proportion of falling to lower wealth quintiles
$(1-t)$, t_{ART}, $(t-t_{ART})$	is	Proportion of HIV cases not needing ART, receiving free ART and needing ART without free ART
$CE_{ij}^{pc-HIV;ART;t-ART}$	is	Consumption expenditure per capita

Thirdly, the numbers of people within each vulnerable household affected by HIV and the duration of the effect were calculated to determine aggregate cumulative AIDS-related poverty in Vietnam. These estimates also included the level of coverage of ART services around the country and percentage of accessibility for those needing ART.

3. Data collection and data analysis teams

The data collection team consisted of one sociologist/anthropologist, team leader and in charge of in-depth interviews; four public health and social science researchers to conduct interviews using structured questionnaires, and one administrative staff, a PLHIV who took responsibility for contacting the sample population. The team comprised both male and female investigators. The data analysis team included epidemiologists with extensive experience in health economics and biostatistics, as well as sociologists, and anthropologists.

4. Data quality control measures

To ensure data quality control, the data collection team was trained to use the interview guide and structured questionnaires and trained in interview skills both in the classroom and in the pilot in the field before going to do the real data collection in the field. Because the study asks questions of a sensitive nature, the investigators were trained to conduct the interviews keeping in mind the ethical issues involved. For instance, the respondents were informed about the purpose of the study and told that the information collected would be held in strict confidence. The investigators were required to have informed consent from all the respondents before conducting the interview and were instructed not to push the respondent to answer all the questions if they were reluctant.

Data collection was supervised by an experienced field worker. At the end of each day, the field supervisors checked all questionnaires and asked the numerators to check and/or revise any questions, or to return to the households to try to get missing or apparently inaccurate information.

Findings from the different information sources were used to triangulate the analysis and validate the findings.

5. Ethical issues

Free and informed consent was obtained from all participants in the study. Interviewees were advised that they were free to end the interview at any time. To protect the privacy and confidentiality of informants infected and affected with HIV, their names were changed. The names of the authorities also did not appear in this report, to protect their privacy and confidentiality. All infected persons were provided with information about access to care and support.

All data sets, questionnaires, and tapes were kept in a secure office, not accessible to anyone outside the research team. Tapes were destroyed when the study was completed. Interviewees were not paid, but received only a small compensation to cover their travel expenses and their time.

ANNEX 3. METHODS AND TOOLS FOR HIV/AIDS ESTIMATES AND PROJECTIONS

Some models developed to understand the epidemic situation in Asian countries by estimating the future level of the epidemic under varying conditions and project future HIV trends, number of deaths, orphans, and AIDS cases with and without treatment of currently available ART regimens.[119] This section is going to describe some typical methods and tools for estimates and projections and its applications.

- The **Workbook**, a software, produces point prevalence estimates and a curve fitting historical prevalence estimates.
- The **UNAIDS Estimation and Projection Package**,[120] which takes as input at-risk population sizes and HIV prevalence, fits the HIV prevalence in each specified population, and outputs prevalence trends in those populations and in the country as a whole.
- **Spectrum**, which takes as inputs the prevalence trends over time and various epidemiological data including provision of antiretroviral therapy (ART), and produces as outputs prevalence, incidence, deaths, age structures, and impacts on children.
- The **Asian Epidemic Model (AEM)**, which takes various behavioral inputs, applies transmission parameters to them, and produces as outputs HIV prevalence, incidence, deaths, age structures and pediatric impacts.

Which of these models is most appropriate depends on the stage of the HIV epidemic in a given country. In countries with a *generalized epidemic*, national estimates of HIV prevalence are based on data generated by surveillance systems that focus on pregnant women attending sentinel antenatal clinics and increasingly on nationally representative serosurveys. This data is entered into the EPP software which fits a simple epidemiological model to find the best fitting curve to describe the evolution of adult HIV prevalence over time, and calibrates that curve to the prevalence found in the national survey. The adult prevalence curve, along with national population estimates and epidemiological assumptions, is then entered into the Spectrum software program to calculate the number of people infected, new infections and deaths.

In countries with a *low level epidemic*, national estimates of HIV prevalence are primarily based on surveillance data collected from populations at high risk and estimates of the size of the populations at high and low risk. This information is entered into point prevalence and projection spreadsheet models (the Workbook Method) to find the best fitting curve to describe the evolution of adult HIV prevalence over time. The adult prevalence curve, along with the national population estimates and epidemiological assumptions, is then entered into the Spectrum software program to calculate the number of people infected, new infections and deaths.

In countries at the *concentrated stage,* Workbooks should be used to estimate current HIV prevalence whilst EPP is in development. They should also be used where time-series prevalence data are unavailable (UNAIDS 2004).[121]

1. Workbook - A tool for estimating HIV prevalence in countries with low level epidemics[122]

[119] The commission on Aids in Asia (2008). "Redefining Aids in Asia: Crafting an effective response." Oxford University Press.

[120] Blumin, J. H., K. L. Keppel, et al. (2008). "The impact of gender and age on voice related quality of life in children: normative data." Int J Pediatr Otorhinolaryngol 72(2): 229-34

[121] UNAIDS (2004). "Development of the software packages, EPPv2 and Spectrum, and Measuring and Tracking the epidemic in countries where HIV is concentrated among populations at high risk of HIV." Report of a meeting of the UNAIDS Reference Group for Estimates, Modelling and Projections held in Sintra.

[122] Lyerla, R., E. Gouws, et al. (2006). "The 2005 Workbook: an improved tool for estimating HIV prevalence in countries with low level and concentrated epidemics." Sex Transm Infect 82 Suppl 3: iii41-44.

Rationale

The Workbook approach to making estimates and short term projections of HIV/AIDS prevalence has been developed and proposed for use in countries with low level and concentrated epidemics since 2001.[123],[124] Unlike in countries where the epidemic is generalized and HIV surveillance among pregnant women attending antenatal clinics is used as a proxy for prevalence in the general adult population[125] there is no standard set of representative data that can be used to estimate adult prevalence in these countries. Instead the approach has been to develop estimates for populations which are most exposed to HIV and then combined to produce an overall estimate of adult prevalence in a country.

In *concentrated epidemics,* HIV has spread rapidly in a defined subpopulation, but is not well established in the general population. This epidemic state suggests active networks of high risk behavior within the subpopulation. The future course of the epidemic is determined by the frequency and nature of links between highly infected subpopulations and the general population.

In *low level epidemics,* levels of HIV prevalence are even lower with a numerical proxy of HIV prevalence not having consistently exceeded 5% in any defined subpopulation. For countries with an epidemic level that is neither clearly generalized nor clearly concentrated, both methods developed for concentrated epidemics (the Workbook)[126] or generalized epidemics (the Estimation and Projection Package (EPP))[127] can be applied.

[123] Ramon, J. S., M. Alvarenga, et al. (2002). "Estimating HIV/AIDS prevalence in countries with low-level and concentrated epidemics: the example of Honduras." AIDS 16 Suppl 3: S18-22.
[124] Walker, N., J. Stover, et al. (2004). "The workbook approach to making estimates and projecting future scenarios of HIV/AIDS in countries with low level and concentrated epidemics." Sex Transm Infect 80 Suppl 1: i10-13.
[125] UNAIDS/WHO Working Group on Global HIV/AIDS and STI Surveillance (2003). "Guidelines for conducting HIV sentinel serosurveys among pregnant women and other groups." Geneva, Switzerland
[126] Walker, N., J. Stover, et al. (2004). "The workbook approach to making estimates and projecting future scenarios of HIV/AIDS in countries with low level and concentrated epidemics." Sex Transm Infect 80 Suppl 1: i10-13
[127] Ghys, P. D., T. Brown, et al. (2004). "The UNAIDS Estimation and Projection Package: a software package to estimate and project national HIV epidemics." Sex Transm Infect 80 Suppl 1: i5-9.

Methods

An epidemic curve is fitted to the historical prevalence data using either a single or double logistic function, and does not project past the last year of data.

For epidemics showing increasing or stabilizing prevalence fitting a single logistic function to the data is recommended:

$$p(t) = \frac{ae^{a(t-to)}}{1 + e^{a(t-to)}}$$

where:

a represents the asymptote, or the level at which the epidemic is expected to level off

represents the rate of increase at the start of the epidemic,

t_0 *represents the time at which the epidemic reaches half its asymptotic value.*

For epidemics where there is evidence of a decline in prevalence, the prevalence at time t should be fitted to a double logistic function of the form:

$$p(t) = \left[\frac{e^{a(t-to)}}{1 + e^{a(t-to)}}\right] \left[2a\frac{e^{-b(t-to)}}{1 + e^{-b(t-to)}} + b\right]$$

Where:

is the rate of increase at the start of the epidemic, and where prevalence converges at some rate ò, to some asymptote b.

By fitting this curve, it still provides an output for the Spectrum software[128],[129],[130], from which estimations of the impact of HIV, in terms of the number of people living with HIV, mortality, incidence, and limited future projections can be made.

[128] Stover, J. (2004). "Projecting the demographic consequences of adult HIV prevalence trends: the Spectrum Projection Package." Sex Transm Infect 80 Suppl 1: i14-18.
[129] Stover, J., N. Walker, et al. (2006). "Projecting the demographic impact of AIDS and the number of people in need of treatment: updates to the Spectrum projection package." Sex Transm Infect 82 Suppl 3: iii45-50
[130] Stover, J., P. Johnson, et al. (2008). "The Spectrum projection package: improvements in estimating mortality, ART needs, PMTCT impact and uncertainty bounds." Sex Transm Infect 84 Suppl 1: i24-i30

Applications

Country	Author, Year	Method
Ukraine[4]	(Kruglov, Kobyshcha et al. 2008)	Estimation of the size of most at-risk populations nationally was performed using capture-recapture, multiplier and triangulation methods. HIV prevalence among most at-risk populations was estimated by linked HIV sentinel and behavioural surveillance among injecting drug users, and men who have sex with men, and unlinked sentinel surveillance among sex workers.
China[5]	(Lu, Wang et al. 2006)	The UNAIDS Workbook method was adapted to meet the needs of China. Local data were used to estimate the size of each risk population and HIV prevalence by risk group for every prefecture. These estimates were combined into provincial and national estimates.
Canada[6]	(Boulos, Yan et al. 2006)	The workbook method multiplies an estimated prevalence or incidence rate by an estimated population size, the statistical models back-calculate estimates of HIV incidence by relating the timing of HIV positive testing with timing of HIV infection and testing behaviour, and the iterative spreadsheet model incorporates elements of the other two methods.
California, US[7]	(Thomas Stopka 2007)	The WHO/UNAIDS Workbook Method was used to estimate and project adult HIV prevalence. U.S. Census data were used to obtain age and gender-specific estimates for California populations. Population and HIV prevalence estimates for MSM, MSM-IDUs, IDUs, and low-risk heterosexuals were obtained from published articles, results of a statewide meeting of HIV/AIDS researchers, and the CDHS Office of AIDS. Numbers of HIV-positive men and women were estimated for each at-risk group and then aggregated. Low and high HIV prevalence estimates were calculated.

Strengths

The Workbook method include the transparency in the process of making estimates, the automatic consistency and audit check to help eliminate errors, the use of regional spreadsheets to make estimates of different regions in a country, the emphasis on ranges for the estimates rather than a single point estimate, the review and analysis of behavioral and serological data needed to understand the epidemic, and finally the possibility of adapting the spreadsheet to fit specific country needs. The software has the further advantage that it can help identify those population groups at highest risk of HIV infection and hence assist countries in targeting prevention efforts. Changes in the model used to estimate the epidemic trend in a country have enhanced this method by producing a more reliable curve of the epidemic, which in turn leads to more accurate estimates of the demographic impact of the epidemic.

Limitations

As in the past, the primary weaknesses of this

spreadsheet method relate to the quality of the data used when making the estimate. Data among high risk groups remain limited and identifying groups at high risk of infection is often difficult because of both stigma associated with and laws prohibiting certain behaviors in some countries. The size of high risk populations continues to be difficult to quantify, and matching high risk population sizes to HIV prevalence in those populations continues to be problematic. Clients of sex workers continue to be particularly difficult to quantify, although many countries have developed simple methods based on informed assumptions. These assumptions are normally documented so that the final estimate can be justified to end users of the prevalence estimates.

2. Estimating HIV prevalence in generalized and concentrated epidemics

The Joint United Nations Programme on AIDS (UNAIDS) Estimation and Projection Package.[131] EPP has been under development since 2001, and is the currently recommended tool for estimating and projecting HIV prevalence levels in countries with generalized and concentrated epidemics.[132],[133],[134]

Methods

For each sub-epidemic defined by the user, the EPP fits a simple epidemic model defined by the UNAIDS Reference Group on Estimates, Modelling and Projections to the full set of HIV surveillance data points entered by the user.[135] This produces an estimate of the time trend of adult HIV prevalence for each sub-epidemic. These fits to individual sub-epidemics are then applied to the populations assigned by the user to each sub-epidemic to produce the prevalence trends in the overall national epidemic.

The UNAIDS Reference Group model incorporates population change over time and, by varying its parameters, can reproduce a variety of epidemic types including slow growing epidemics, rapidly growing epidemics, and stable epidemics in which HIV prevalence has peaked and then stabilized at high levels. The EPP automatically fits the four epidemiological parameters defined in this model (Figure 8). The Q parameter in Figure 8 is related to the behavioural response of the population to the epidemic and the gradual exposure of previously unexposed populations to HIV due to geographic or social barriers. The model uses these four parameters to derive a best fit to data points by minimising the least squares difference between the fitted curve and the full set of data points (see reference 6 for mathematical details). It is recommended that at least 5 years of HIV prevalence data are used to fit an epidemic curve. A positive value of the parameter Q indicates that the decline in size of the at-risk population due to AIDS mortality is balanced by an increase in recruitment to the at-risk population. A negative value of Q indicates reduced recruitment to the at-risk population as AIDS mortality increases. Different values for Q allow the model to produce both sharply peaked epidemics (negative Q), and a constant endemic prevalence following the initial peak (positive Q). In the absence of change in recruitment to the at-risk population (Q = 0), the epidemic is still slightly peaked, due to the lag between infection and death from AIDS (see Figure 8) (Ghys, Brown et al. 2004).[136]

[131] Blumin, J. H., K. L. Keppel, et al. (2008). "The impact of gender and age on voice related quality of life in children: normative data." Int J Pediatr Otorhinolaryngol 72(2): 229-34.

[132] Ramon, J. S., M. Alvarenga, et al. (2002). "Estimating HIV/AIDS prevalence in countries with low-level and concentrated epidemics: the example of Honduras." AIDS 16 Suppl 3: S18-22.

[133] Ghys, P. D., T. Brown, et al. (2004). "The UNAIDS Estimation and Projection Package: a software package to estimate and project national HIV epidemics." Sex Transm Infect 80 Suppl 1: i5-9.

[134] UNAIDS (2004). "Development of the software packages, EPPv2 and Spectrum, and Measuring and Tracking the epidemic in countries where HIV is concentrated among populations at high risk of HIV." Report of a meeting of the UNAIDS Reference Group for Estimates, Modelling and Projections held in Sintra.

[135] UNAIDS (2002). "Improved methods and assumptions for estimation of the HIV/AIDS epidemic and its impact: Recommendations of the UN-AIDS Reference Group on Estimates, Modelling and Projections." AIDS 16(9): W1-14.

[136] Ghys, P. D., T. Brown, et al. (2004). "The UNAIDS Estimation and Projection Package: a software package to estimate and project national HIV epidemics." Sex Transm Infect 80 Suppl 1: i5-9.

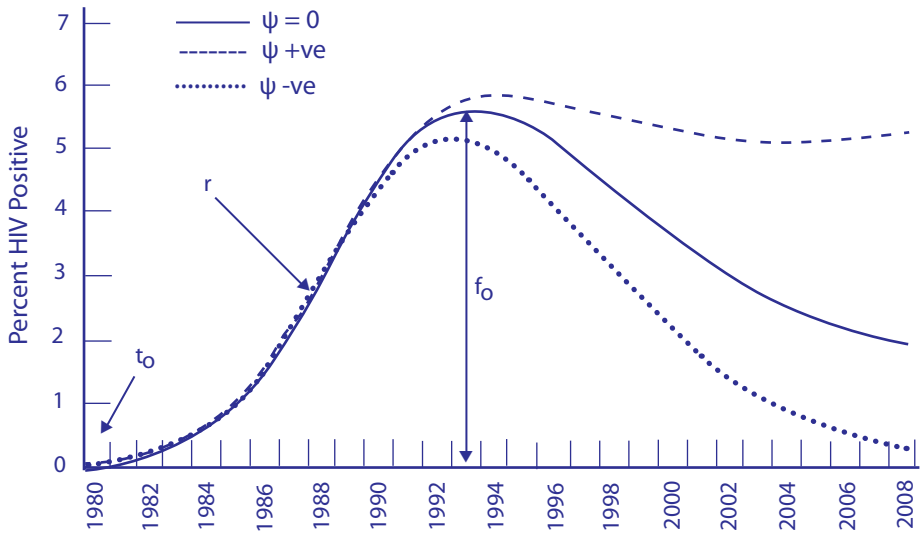


Figure 8. *The parameters in the Reference Group model fit by EPP*

r _ the rate of growth of the epidemic
f_{0}– the fraction of the population considered to be at risk of infection at the start of the epidemic
t_{0}– the start year of the epidemic
Q_ a parameter that relates recruitment to the at-risk population to declines in the at-risk population due to AIDS mortality.

Applications

Country	Methods
Tanzania[8]	For this study we used; the 1985-2004 ANC data set, the 2005 UN population estimates for urban and rural adults, which is based on the 2002 population census, and results of the 2003 Tanzania HIV Indicator Survey. The ANC surveillance sites were categorized into urban and rural areas on the basis of the standard national definitions of urban and rural areas, which led to 40 urban and 35 rural clinic sites. The rural and urban epidemics were run independently by fitting the model to all data and on level fits
British Columbia[9]	A population-based analysis of Aboriginal men and women in British Columbia, Canada from 1980 to 2001. Epidemic curves were fit for gay and bisexual men, injection drug users, men and women aged 15 to 49 years and persons over 50 years of age. HIV prevalence for the total Aboriginal population was modeled using the UNAIDS/WHO Estimation and Projection Package[10] (Blumin, Keppel et al.). Monte Carlo simulation was used to estimate potential number infected for select transmission group in 2001
Vietnam[11]	An intensive, careful, in-depth and comprehensive process to use the available data to ascertain the current levels of HIV infection among injecting drug users, sex workers, STD clinic attendees, antenatal clinic women, and military recruits and the short-term trends in the Vietnamese national epidemic were carried out. The purpose of this process has been to triangulate from the numerous available data sets to arrive at a range for the current number of HIV infections that is consistent with available data, realistic in its trends over time, and

	represents a best scientific estimate of how the HIV epidemic is currently progressing in the country. Trends of HIV prevalence among sentinel populations and population size were used to fit the curve. The Estimation and Projection Package to prepare two sets of estimates: a low scenario and a high scenario. EPP curve fits were then prepared for each sub-population in each cluster. These were then summed automatically within EPP and the national results used as inputs to the Spectrum program to prepare the estimates shown in the following sections. The resulting modes of transmission by risk category, male/female ratios, and levels of infection were then validated against reported AIDS cases and HIV infections and other ad hoc studies of prevalence in the country.
Botswana[12]	Data from sentinel surveillance at antenatal clinics and a national population survey were used to estimate the trend of adult HIV prevalence from 1980 to 2007. Using the prevalence trend we estimated the number of new adult infections, the transmission from mothers to children, the need for treatment and the effects of antiretroviral therapy (ART) and adult and child deaths. The EPP was used to fit a simple epidemic model to surveillance data from multiple sites over time. Separate estimates are made for urban and rural prevalence and then combined to produce a national estimate. The estimates of adult HIV prevalence are used in the AIDS module of Spectrum to estimate the other indicators of interest such as the number of people living with HIV, new infections, AIDS deaths, need for treatment and the number of orphans.
Cambodia[13]	The EPP was used to fit the curve of estimated HIV prevalence among ANC women obtained from HSS, after applying two corrections noted above (adjustment for laboratory quality control and urban-rural proportions). EPP fits a smooth curve to a series of point estimates to produce an estimate of HIV prevalence among ANC women for each year from 1995 to 2006. Then, the male-to-female ratios of HIV prevalence derived from the tuberculosis clinic data, with two year lead time, were applied to the general population female estimates to derive an estimated HIV prevalence curve among general population men aged 15-49 in Cambodia from 1995 to 2006. The resulting male prevalence estimates were combined with the female estimates in proportion to population sizes to form the updated national estimates of HIV prevalence in Cambodia. The reduction in the previous 2003 estimate was due to a more accurate adjustment which considered the urban-rural distribution of the population, use of a slightly lower male-to-female ratio, as well as the lower ANC estimate from HSS 2006 which was included into EPP to fit the epidemic model.

Strengths

The EPP gives countries the capability to make full use of all available surveillance data in developing epidemic curves. By giving countries the ability to include separate sub-epidemics, for example urban and rural sub-epidemics in most of sub-Saharan Africa, and combining them easily to obtain national prevalence, it simplifies the modeling process. As more countries with complex concentrated epidemics obtain sufficient years of surveillance data in the key populations influencing their epidemics, the EPP will provide an organizing framework for collating and combining the results of the various sub-epidemics into a national prevalence curve. Additionally, in countries such as China and India, where each state/province is bigger than many nations, the EPP provides a tool that can deal with the geographical diversity of the epidemic.

The UNAIDS Reference Group model allows a variety of epidemic shapes to be fit by varying its parameters. And, most importantly, it allows HIV prevalence to stabilize at high levels, as has been seen in many

African settings. Such endemic prevalence requires ongoing HIV incidence to counterbalance AIDS mortality as the epidemic ages. The gamma function was incapable of reproducing these epidemics because incidence always declines to zero shortly after peak prevalence.

Limitations

The major limitations in the EPP are related to the quality and non-representative nature of data available at present. As discussed above for generalized epidemics, rural data are often not very representative of rural populations, and the EPP by itself cannot resolve this problem - improvements must be made in the data systems themselves so that they are obtaining data representative of the populations of concern.

Similar concerns are seen in concentrated epidemics, where representative data are often unavailable. For example, surveillance of HIV prevalence among injecting drug users may only occur in clinics in major cities or a handful of detention centres.

The more sophisticated model is both a strength and a weakness. The UNAIDS Reference Group model itself is based on an epidemiologically derived set of equations that model the transmission of HIV—this means it does a good job of fitting the full range of HIV epidemic types observed in the world. The model's parameters have a relatively simple interpretation such as the rate of growth of the epidemic or the proportion at risk of infection. However, this can lead users to over interpret the implications of specific parameter fits. For some surveillance data, there may be many sets of r, f_0, t_0, and Q values that provide comparable fits, particularly with widely varying values of r and f_0. But many users try to interpret these values as having real world meaning. For example, the parameter for the initial fraction of the population at risk f0, may be interpreted as a measure of risk in a given population. However, uncertainty about this estimate may make this interpretation meaningless. Thus, users must be cautioned against taking the model too literally.

3. Spectrum

Spectrum, a policy modeling system, with 2 modules for the purposes of making a national HIV estimate: DemProj (for the demographic projection)[137] and AIM for the epidemiological projection.[138] Spectrum reads the adult prevalence estimates from either EPP or the Workbook and calculates additional indicators, such as the number of people infected, the number of new infections, AIDS cases, AIDS deaths, the number of people needing treatment and the number of orphans. These calculations may be based on national demographic projections or on population estimates and projections. These patterns describe the progression from infection to death, the distribution of infection by age and sex, transmission of HIV from mother-to-child, the effect of HIV infection on fertility, and the effects of anti-retroviral therapy.[139]

Spectrum incorporates the impact of AIDS into the demographic projection through the following steps:

1. The estimated HIV prevalence is used to determine the number of adults infected with HIV in a given year.
2. The incidence of HIV is calculated as the number of new infections required to achieve the specified prevalence.
3. New infections are distributed by age and sex according to exogenously specified patterns.
4. New infections are progressed to AIDS and to death according to exogenously specified patterns.
5. AIDS deaths are added to non-AIDS deaths to determine total age- and sex-specific mortality in each year.
6. The number of HIV-infected women is used to calculate the number of babies born with HIV infection.
7. Children are progressed to AIDS and death according to exogenously specified patterns.
8. AIDS orphans are calculated from AIDS deaths to adult men and women and the pattern of female and male fertility over time.

[137] Stover, J. (2007). "DemProj. A computer program for making population projections. ." Washington, DC: USAID | Health Policy Initiative
[138] Stover, J. (2007). "AIM. A computer program for making HIV/AIDS projections and examining the social and economic impacts of AIDS." Washington, DC: USAID | Health Policy Initiative
[139] Health Policy Initiative (2007). "Spectrum - Quick Start Tutorial."

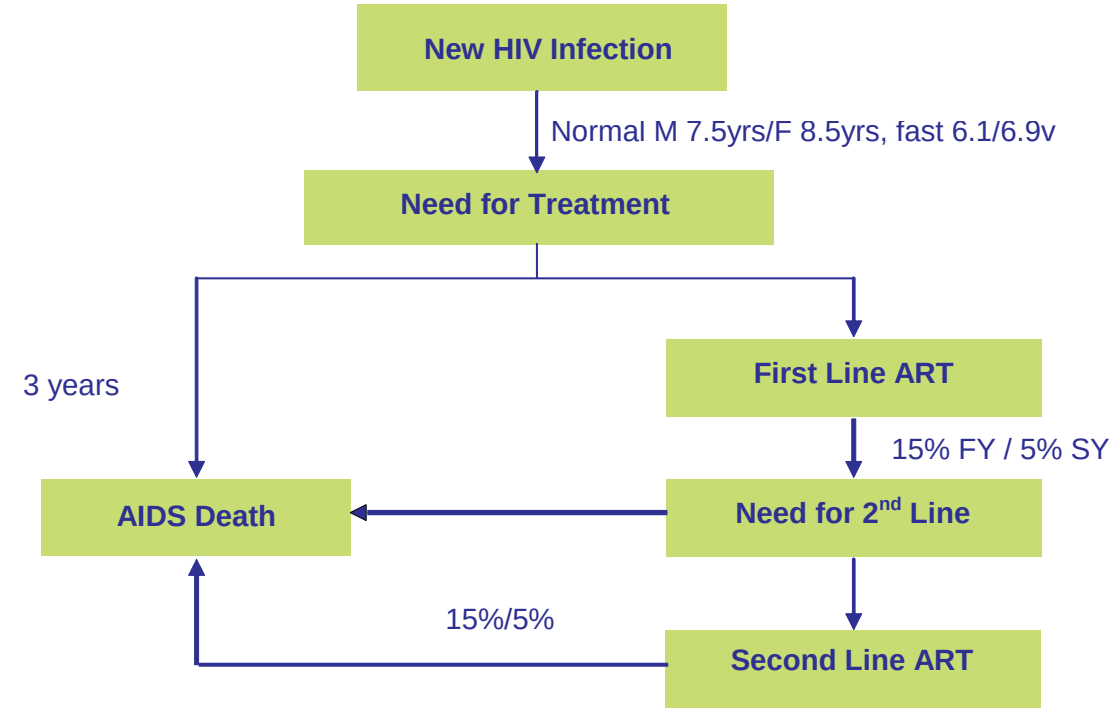


Figure 9. *Progression from HIV Infection to AIDS Death (Adults)*

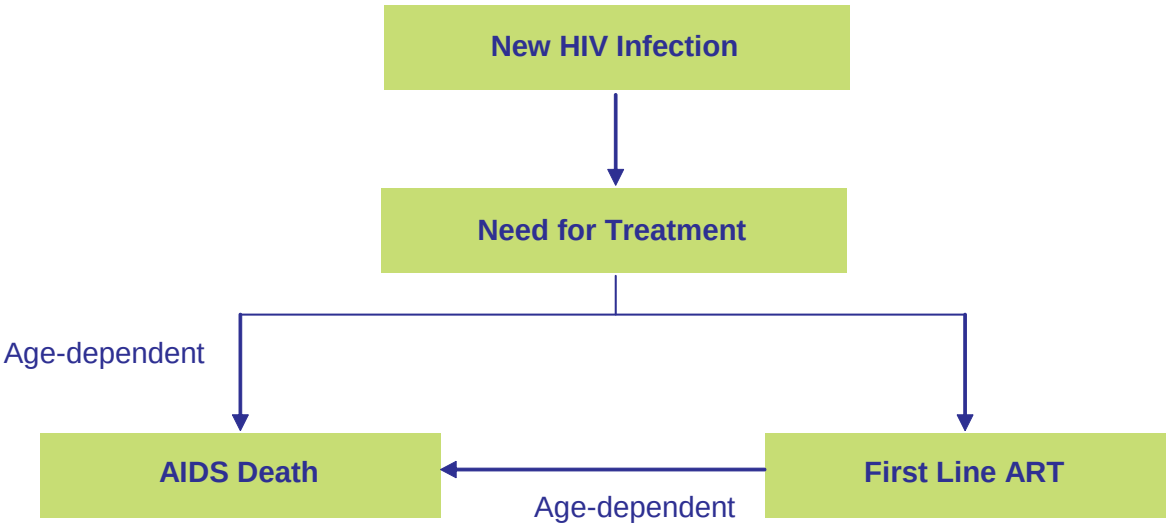


Figure 10. *Progression from HIV Infection to AIDS Death (Children)*

The final output of Spectrum is a collection of demographic and HIV/AIDS indicators including:

1. Number of adults living with HIV, by sex
2. Number of children under 15 living with HIV
3. Number of new HIV infections
4. Number of new AIDS cases
5. Number of AIDS deaths
6. AIDS orphans

4. The Asian Epidemic Model (AEM)

HIV epidemics in Asia share many similarities and the overall pattern of the HIV epidemic tends to be consistent across the region. The Asian Epidemic Model was developed as a policy tool based on the common regional patterns of HIV spread.[140] The

[140] Brown, T. and W. Peerapatanapokin (2004). "The Asian Epidemic Model: a process model for exploring HIV policy and programme alternatives in Asia." Sex Transm Infect 80 Suppl 1: i19-24

model incorporates the key populations affected by HIV epidemics in Asia: clients and sex workers, injecting drug users, men who have sex with men and the wives of these most-at-risk men. Using country-specific data on the sizes and behaviours of these groups, the model simulates the transmission of HIV from one person to the other through unprotected sex, needle-sharing, and mother-to-child transmission. This allows for the development of country-specific models that capture diversity in the factors driving the epidemics in various countries of the region.[141]

One important feature of the Asian Epidemic Model is that it directly compares its calculations of HIV levels against the observed trends which provide a valuable check on how well the model is reproducing actual trends. The Center and its collaborators have applied the Asian Epidemic Model and found close agreement between the predicted and observed HIV trends in settings as diverse as Cambodia, Thailand, Jakarta (Indonesia), Ho Chi Minh City (Viet Nam), and Guangxi and Yunnan provinces in China.

The scenario was built around the findings of a review of key information about HIV and the behaviors driving it in HCMC, including:

- The size of most-at-risk population (MARP) groups, such as sex workers, clients of sex workers, injection drug users, and men who have sex with men.
- Estimates of past and current levels of risk behaviors, e.g. numbers of sex partners, condom use, frequency of sharing needles among injecting drug users, etc.
- Estimates of HIV and other sexually transmitted infection levels in most-at-risk population groups and the general population.

The model projects future HIV trends based on the population sizes and risk behaviours that are provided as inputs. This makes it a powerful tool for policy analysis that predicts the outcomes of different scenarios of inputs. By estimating the extent of behaviour change resulting from different prevention programme packages, a user of the model can also explore the effectiveness of programme choices on future epidemic trends. Coupling those effectiveness data with estimates of the costs of prevention also provides valuable guidance on maximizing the effectiveness of responses.

[141] The commission on Aids in Asia (2008). "Redefining Aids in Asia: Crafting an effective response." Oxford University Press.

Applications

Country	Methods
Viet Nam[14]	In 2005 in Viet Nam, the Analysis and Advocacy project (A2) in HCMC initially conducted an exhaustive review of historical and current HIV biological and behavioral data to provide a firm evidence base for decision-making and strategic planning for the HIV epidemic. This review sought to understand the factors driving the epidemic in the city and examine the coverage and impact of earlier responses. In order to identify ways of strengthening the response in the future, the Asian Epidemic Model (AEM) was applied to build a scenario of the likely course of the epidemic if programs stay as they are today and, in conjunction with the GOALS model, to explore the impact of alternative prevention strategies and expanded resource allocation. Both GOALS and AEM models have been successfully used in several international settings to help countries with predicting their epidemics and allocating resources more effectively.
Thailand[15]	HIV prevalence and behavior data among Ides, FSWs, male and female general population, probability of male-to-female translation, the start year of the epidemic were used for the AEM model. To determine which parameter is the best fit, the parameters were adjusted and the output prevalence from the model was compared to the current prevalence from epidemiological data source for each key sub-populations.

The Asian Epidemic Model is a mathematical process model that includes the major routes of HIV transmission in Asia (sex work, male same-sex behaviour, needle sharing, casual sex, husband-to-wife, and mother-to-child). Some of the important questions the AEM helps to answer are:

- Are our programs focused in the right place?
- Did our past programs have any impact on the epidemic?
- What level of behaviour change do we need to reverse an epidemic?
- How big are the impacts for which we must plan?

The model's primary limitation is the substantial amount of behavioural and epidemiological data required as input to allow calculation of future HIV trends and to provide actual trends for comparison with these calculated ones.

There are two tools that have been commonly used for HIV projections in Viet Nam: EPP and AEM. EPP is a tool to project HIV the epidemic using HIV prevalence and population size data, while AEM uses not only HIV prevalence and population size but also behavioral data. Because of that feature, AEM is not applicable for Vietnam as a whole, because the data on trends in behavior (a crucial input for the tool) are not available. Therefore, EPP is more relevant to use as an estimates and projections tool for the HIV epidemic for the whole country. Once the projection output from EPP is complete, it can be imported to SPECTRUM to extract data on the projected numbers of HIV infections in different population subgroups. These data will be used as an input for the modeling the economic impacts of HIV/AIDS on households.

ANNEX 4 - DEMOGRAPHIC CHARACTERISTICS OF SAMPLE HOUSEHOLDS AND PEOPLE LIVING WITH HIV/AIDS

Table 1. *Demographic characteristics of sample*

Demographic characteristics		PLHIV		Non-HIV people	
		n	%	n	%
Age	Mean	29.5±7.9		31.4± 21.1	
Age group	0-14	27	4.6	294	22.3
	15-60	552	94.8	820	62.2
	60+	3	0.5	202	15.3
Gender	Male	350	60.1	605	45.9
	Female	232	39.9	710	53.8
Education level	Illiterate	20	3.4	100	7.6
	Primary	112	19.2	279	21.2
	Secondary	261	44.8	397	30.1
	Upper secondary	127	21.8	287	21.8
	College/Uni	23	4.0	68	5.2
	Others	13	2.2	64	4.9
Ethnic group	Kinh	523	89.9	1212	91.9
	Others	59	10.1	107	8.1
Marital status	Married	226	38.8	613	46.5
	Single	170	29.2	304	23.0
	Widow/widower	69	11.9	114	8.6
	Divorced	18	3.1	29	2.2
	Separated living	15	2.6	10	0.8
	Together living	36	6.2	25	1.9

Table 2. *Living conditions of household sample*

Characteristics	Non HIV affected households				HIV affected households			
	Urban		Rural		Urban		Rural	
	N=276	%	N=177	%	N=285	%	N=168	%
Family size (Mean)	3.9 ±1.4		3.8± 1.2		4.2± 1.8		4.1±1.7	
Shortage of food	12	4.3	10	5.6	45	15.8	30	17.9
Housing condition								
Stable house	123	44.6	51	28.8	118	41.4	29	17.3
Semi-stable house	133	48.2	106	59.9	141	49.5	118	70.2
Simple house	16	5.8	19	10.7	23	8.1	21	12.5
Other	2	0.7	1	0.6	1	0.4	-	-
Total area (m^2)	71.6± 72.5		76.2 ±91.1		69.6 ±137.2		61.8± 47.5	
House ownership								
Own house	213	77.2	155	87.6	225	78.9	126	75.0
Rental house	53	19.2	20	11.3	38	13.3	26	15.5
Borrowed house	8	2.9	2	1.1	21	7.4	16	9.5
Water sources								
Bond/river/stream	3	1.1	6	3.4	3	1.1	9	5.4
Dug well	5	1.8	8	4.5	7	2.5	12	7.1
Drilling well	42	15.2	36	20.3	53	18.6	43	25.6
Tap water	200	72.5	110	62.1	194	68.1	89	53.0
Others	24	8.7	17	9.6	27	9.5	14	8.3
Furnitures								
Television	269	97.5	168	94.9	268	94.0	154	91.7
Fridge	215	77.9	104	58.8	183	64.2	81	48.2
Washing machine	151	54.7	63	35.6	110	38.6	29	17.3
Computer	122	44.2	33	18.6	78	27.4	15	8.9
Phone/Cell phone	253	91.7	143	80.8	233	81.8	123	73.2
Air conditioner	67	24.3	27	15.3	38	13.3	6	3.6
Electricity/Gas cooker	242	87.7	137	77.4	217	76.1	111	66.1
Water heater	98	35.5	35	19.8	68	23.9	14	8.3
Others	25	9.1	10	5.6	52	18.2	26	15.5
Transport vehicles								
Bike	128	46.4	78	44.1	134	47.0	72	42.9

ANNEX 5 - SOCIAL-ECONOMIC DATA OF HOUSEHOLDS

Table 1a. *Average annual household income in HIV-affected and non-affected households by quintiles (Unit: million VND)*

Income sources	HIV Households					
	All groups	*Poorest*	*Second*	*Third*	*Fourth*	*Richest*
Farming/planting	0.63	0.86	0.98	0.81	0.60	0.00
Husbandry	0.63	0.27	0.55	0.60	1.20	0.50
Trade	13.76	2.21	5.63	7.28	12.58	37.75
Wage earner income	28.03	3.23	10.21	17.18	31.02	72.23
Pensions/subsidies/scholarships	7.87	0.36	4.78	6.70	7.36	18.80
Other sources	12.33	1.49	3.69	8.16	8.97	36.28
Total	**66.04**	**8.42**	**25.84**	**40.72**	**61.75**	**178.17**
	Non HIV Households					
	All groups	*Poorest*	*Second*	*Third*	*Fourth*	*Richest*
Farming/planting	1.99	1.51	0.72	0.57	0.00	7.16
Husbandry	1.22	0.28	1.03	0.40	0.16	4.29
Trade	16.29	2.18	6.68	9.32	12.11	50.52
Wage earner income	41.58	5.23	23.22	35.27	45.84	96.01
Pensions/subsidies/scholarships	7.47	1.48	5.13	4.72	6.18	19.78
Other sources	15.75	1.77	3.47	3.39	13.87	55.98
Total	**84.29**	**12.44**	**40.24**	**53.67**	**78.17**	**233.74**

Table 1b. *Comparison of average income per capita*
(Unit: million VND)

Groups		Obs	Mean	95% CI		t	p
All	Non HIV hh	453	21.7	18.8	24.6		
	HIV hh	453	15.8	13.2	18.3	2.99	< 0.01
	Combined	906	18.7	16.8	20.7		
Urban	Non HIV hh	276	24.3	20.1	28.5		
	HIV hh	285	16.0	12.9	19.1	3.15	< 0.01
	Combined	561	20.1	17.5	22.7		
Rural	Non HIV hh	177	17.7	14.0	21.3		
	HIV hh	168	15.4	10.8	20.0	0.76	> 0.05
	Combined	345	16.6	13.7	19.5		
Among HIVhh	Non IDU	221	14.1	11.0	17.3		
	IDU	232	17.3	13.3	21.3	-1.22	> 0.05
	Combined	453	15.8	13.2	18.3		
HIVhh in urban	Non IDU	147	15.5	11.4	19.7		
	IDU	138	16.5	11.9	21.1	-0.31	> 0.05
	Combined	285	16.0	12.9	19.1		
HIVhh in rural	Non IDU	74	11.4	6.8	16.0		
	IDU	94	18.5	11.2	25.9	-1.54	> 0.05
	Combined	168	15.4	10.8	20.0		

Table 2. *Average annual household income among HIV-affected and non-affected households by urban-rural location*
(Unit: million VND)

Income sources	*Urban*		*Rural*	
	NonHIV	*HIV*	*NonHIV*	*HIV*
Farming/planting	1.87	0.39	2.17	1.05
Husbandry	0.44	0.30	2.42	1.18
Trade	17.98	16.40	13.66	9.29
Wage earner income	41.03	25.06	42.43	33.07
Pension/subsidies/scholarships	10.35	8.34	2.97	7.07
Other sources	22.39	14.44	5.41	8.75
Total	**94.06**	**64.93**	**69.06**	**67.91**

Table 3. *Average annual household income of HIV-affected households with and without drug users (Unit: million VND)*

Income sources	*DU*	*Non DU*
Farming/planting	0.35	0.93
Husbandry	0.28	0.99
Trade	15.35	12.10
Wage earner income	30.29	25.66
Pension/subsidies/scholarships	8.30	7.42
Other sources	15.04	9.49
Total	**75.05**	**56.58**

Table 4. *Average annual household income by stage of HIV epidemic (Unit: million VND)*

Source of income	**HH in early stage provinces**		**HH in late stage provinces**	
	HIV	*non HIV*	*HIV*	*non HIV*
Farming/planting	1.97	1.39	0.43	2.08
Husbandry	1.19	1.74	0.54	1.14
Trade	4.62	8.96	15.11	17.39
Wage earner income	9.84	17.22	30.70	45.22
Pensions/subsidies/scholarships	8.84	5.45	7.73	7.77
Other sources	1.62	0.75	13.91	18.00
Total	**28.08**	**35.51**	**71.61**	**91.59**

Table 5. *Average annual income of HIV-affected households participating or not in self-help groups (Unit: million VND)*

Income sources	*Participated*	*NOT participated*
Farming/planting	1.02	0.31
Husbandry	0.61	0.69
Trade	8.88	18.49
Wage earner income	26.72	29.60
Pensions/subsidies/scholarships	8.93	7.35
Other sources	11.69	13.23
Total	**64.34**	**69.66**

Table 6. *Average annual income lost due to illness or by caregivers not being able to work (Unit for costs: million VN dong)*

Items	HIV Households					
	Total	*Poorest*	*Second*	*Third*	*Fourth*	*Richest*
Total Costs of Illness	**13.05**	**12.51**	**12.92**	**14.12**	**11.99**	**12.31**
Direct Health Care Costs	5.27	5.22	5.09	4.49	5.76	4.52
Insurance	0.62	0.36	0.19	1.36	0.05	0.64
Indirect Health Care Cost	7.16	6.93	7.64	8.27	6.18	7.16
Burden of illness						
No. days lost by caregivers	74.8	80.0	92.4	81.3	60.0	66.0
No. days lost by patients	93.2	82.5	86.9	112.6	84.8	102.0
Episodes of illness	2.66	2.47	2.95	3.91	2.29	1.51
	Non-HIV Households					
	Total	*Poorest*	*Second*	*Third*	*Fourth*	*Richest*
Total Costs of Illness	**7.62**	**7.36**	**8.53**	**7.80**	**5.66**	**8.23**
Direct Health Care Costs	2.93	2.66	3.63	1.93	3.08	3.40
Insurance	0.28	0.41	0.24	0.12	0.56	0.11
Indirect Health Care Cost	4.41	4.29	4.65	5.75	2.03	4.72
Burden of illness						
Number of days lost by care givers	56.6	53.0	61.5	76.0	18.8	63.8
Number of days lost by patients	46.9	47.6	47.7	58.8	28.8	46.9
Episodes of illness	2.36	2.16	2.31	2.75	3.23	1.61

Table 7a. *Average annual household expenditures among HIV-affected and non-HIV-affected households (Unit: million VND)*

Type of expenditure	HIV households			Non-HIV households		
	Urban	*Rural*	*Total*	*Urban*	*Rural*	*Total*
Expenditure on food	41.734	47.803	43.983	50.039	49.029	49.644
Expenditure on utilities (water/electricity)	4.347	2.547	3.680	4.726	3.008	4.054
Rental house fee	1.312	1.243	1.287	2.565	0.958	1.936
Education	4.591	2.334	3.754	7.825	4.676	6.593
Other	3.740	2.520	3.288	5.521	3.838	4.863
Total monthly recurrent expenses	55.722	56.447	55.991	70.677	61.509	67.091
Construction and renovation	11.554	7.587	10.084	34.631	13.540	26.382
Medicine and health care	3.870	2.637	3.413	1.420	1.115	1.301
Furniture	1.082	0.562	0.889	1.946	0.674	1.448
Travel	0.313	0.120	0.242	1.373	0.271	0.942
Others	2.145	1.134	1.770	2.784	1.586	2.315
Total annual non-recurrent expenses	18.964	12.041	16.399	42.155	17.185	32.389
TOTAL	**74.687**	**68.488**	**72.390**	**112.831**	**78.693**	**99.479**

Table 7b. *Comparison of average expenditure per capita (Unit: million VND)*

Groups	Group	Obs	Mean	95% CI		t	p
All	Non HIV hh	453	25.8	20.2	31.4	2.18	< 0.01
	HIV hh	453	18.5	15.0	21.9		
	Combined	906	22.1	18.8	25.4		
Urban	Non HIV hh	276	28.7	20.0	37.3	1.96	< 0.05
	HIV hh	285	18.9	14.3	23.6		
	Combined	561	23.7	18.9	28.6		
Rural	Non HIV hh	177	21.2	16.4	26.1	1.02	> 0.05
	HIV hh	168	17.7	12.7	22.6		
	Combined	345	19.5	16.0	22.9		
Among HIVhh	Non IDU	221	18.0	12.1	24.0	-0.24	> 0.05
	IDU	232	18.9	15.1	22.6		
	Combined	453	18.5	15.0	21.9		
HIVhh in urban	Non IDU	147	20.3	11.9	28.7	0.59	> 0.05
	IDU	138	17.5	13.7	21.3		
	Combined	285	18.9	14.3	23.6		
HIVhh in rural	Non IDU	74	13.5	7.3	19.7	-1.47	> 0.05
	IDU	94	20.9	13.5	28.3		
	Combined	168	17.7	12.7	22.6		

Table 8. *Average annual household expenditure by income quintile groups (Unit: million VND)*

Expenditures	Non HIV Households					HIV Households				
	Poorest	*Second*	*Third*	*Fourth*	*Wealthiest*	*Poorest*	*Second*	*Third*	*Fourth*	*Wealthiest*
Recurrent										
Expenditure on food	39.87	38.57	30.14	42.90	98.57	35.15	19.11	24.02	34.58	98.78
Expenditure on utilities	2.29	3.32	3.96	4.22	6.42	2.32	2.08	3.38	3.96	6.27
Rental house fee	1.28	0.39	2.00	2.66	3.12	0.30	1.41	1.54	1.48	1.61
Education	4.65	4.49	5.63	8.58	9.47	2.25	3.95	2.63	4.73	5.03
Other	2.81	3.90	3.32	5.39	9.03	1.69	2.15	3.15	3.86	5.18
Total recurrent expenditure	50.90	50.67	45.05	63.74	126.61	41.71	28.70	34.72	48.61	116.87
Non-recurrent										
Construction and renovation	8.47	11.62	11.83	69.64	29.89	1.85	0.96	10.18	12.12	23.59
Medicine and health care	1.06	1.79	1.02	1.50	1.23	3.23	2.59	3.24	4.24	3.77
Furniture	0.67	0.64	0.42	3.34	2.19	0.40	0.09	0.22	1.38	1.98
Travel	0.28	0.14	0.93	0.22	3.06	0.08	0.00	0.05	0.24	0.76
Others	1.57	1.77	2.15	2.58	3.46	1.40	1.23	1.75	2.23	2.19
Total non-recurrent expenditure	12.04	15.95	16.35	77.28	39.84	6.97	4.87	15.44	20.21	32.28
Total	**62.94**	**66.62**	**61.40**	**141.02**	**166.45**	**48.68**	**33.57**	**50.16**	**68.82**	**149.15**

Table 9. *Average annual household expenditure by income quintile groups (Unit: million VND)*

Expenditures	Non HIV Households					HIV Households				
	Poorest	*Second*	*Third*	*Fourth*	*Wealthiest*	*Poorest*	*Second*	*Third*	*Fourth*	*Wealthiest*
Recurrent										
Expenditure on food	39.87	38.57	30.14	42.90	98.57	35.15	19.11	24.02	34.58	98.78
Expenditure on utilities	2.29	3.32	3.96	4.22	6.42	2.32	2.08	3.38	3.96	6.27
Rental house fee	1.28	0.39	2.00	2.66	3.12	0.30	1.41	1.54	1.48	1.61
Education	4.65	4.49	5.63	8.58	9.47	2.25	3.95	2.63	4.73	5.03
Other	2.81	3.90	3.32	5.39	9.03	1.69	2.15	3.15	3.86	5.18
Total recurrent expenditure	50.90	50.67	45.05	63.74	126.61	41.71	28.70	34.72	48.61	116.87
Non-recurrent										
Construction and renovation	8.47	11.62	11.83	69.64	29.89	1.85	0.96	10.18	12.12	23.59
Medicine and health care	1.06	1.79	1.02	1.50	1.23	3.23	2.59	3.24	4.24	3.77
Furniture	0.67	0.64	0.42	3.34	2.19	0.40	0.09	0.22	1.38	1.98
Travel	0.28	0.14	0.93	0.22	3.06	0.08	0.00	0.05	0.24	0.76
Others	1.57	1.77	2.15	2.58	3.46	1.40	1.23	1.75	2.23	2.19
Total non-recurrent expenditure	12.04	15.95	16.35	77.28	39.84	6.97	4.87	15.44	20.21	32.28
Total	**62.94**	**66.62**	**61.40**	**141.02**	**166.45**	**48.68**	**33.57**	**50.16**	**68.82**	**149.15**

Table 10. *Monetary allocation for different expenses by percentile of income (% of absolute expenses by categories among total expenditure) (Unit: million VND)*

Expenses	Non HIV Households					HIV Households				
	Poorest	*Second*	*Third*	*Fourth*	*Wealthiest*	*Poorest*	*Second*	*Third*	*Fourth*	*Wealthiest*
Recurrent										
Food	63.3	57.9	49.1	30.4	59.2	72.2	56.9	47.9	50.2	66.2
Utilities	3.6	5.0	6.4	3.0	3.9	4.8	6.2	6.7	5.8	4.2
House rental	2.0	0.6	3.3	1.9	1.9	0.6	4.2	3.1	2.2	1.1
Education	7.4	6.7	9.2	6.1	5.7	4.6	11.8	5.2	6.9	3.4
Other	4.5	5.9	5.4	3.8	5.4	3.5	6.4	6.3	5.6	3.5
Total recurrent expenditure	80.9	76.1	73.4	45.2	76.1	85.7	85.5	69.2	70.6	78.4
Non-recurrent										
Construction & renovation	13.5	17.4	19.3	49.4	18.0	3.8	2.9	20.3	17.6	15.8
Medicine & health care	1.7	2.7	1.7	1.1	0.7	6.6	7.7	6.5	6.2	2.5
Furniture	1.1	1.0	0.7	2.4	1.3	0.8	0.3	0.4	2.0	1.3
Travel	0.4	0.2	1.5	0.2	1.8	0.2	0.0	0.1	0.3	0.5
Other	2.5	2.7	3.5	1.8	2.1	2.9	3.7	3.5	3.2	1.5
Total non-recurrent expenditure	19.1	23.9	26.6	54.8	23.9	14.3	14.5	30.8	29.4	21.6
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Table 11a. *Average expenditure by stage of HIV epidemic*
(Unit: million VND)

Types of expenditures	HH in early stage provinces		HH in late stage provinces	
	HIV	non HIV	HIV	non HIV
Expenditure on food	15.91	33.78	48.12	51.99
Expenditure on utilities	1.04	2.30	4.06	4.31
House rental	0.05	0.09	1.45	2.21
Education	2.12	4.55	4.02	6.90
Other	3.95	2.40	3.17	5.23
Total recurrent expenditure	23.08	43.11	60.82	70.64
Construction and renovation	2.31	34.64	11.28	25.16
Medicine and health care	3.19	1.42	3.47	1.28
Furniture	1.30	0.66	0.80	1.57
Travel	0.04	0.00	0.27	1.08
Others	2.54	3.14	1.67	2.19
Total non-recurrent expenditure	9.39	39.85	17.49	31.29
Total	**32.47**	**82.96**	**78.32**	**101.92**

Table 11b. *Comparison of average household' health care cost per capita*
(Unit: million VND)

Groups	Group	Obs	Mean	95% CI		t	p
All	Non HIV hh	453	1.1	0.8	1.4	-5.40	< 0.01
	HIV hh	453	3.3	2.5	4.0		
	Combined	906	2.2	1.8	2.6		
Urban	Non HIV hh	276	1.1	0.8	1.5	-4.21	< 0.01
	HIV hh	285	3.3	2.4	4.3		
	Combined	561	2.2	1.7	2.8		
Rural	Non HIV hh	177	1.0	0.5	1.5	-2.23	< 0.01
	HIV hh	168	3.2	2.0	4.4		
	Combined	345	2.1	1.4	2.7		
Among HIVhh	Non IDU	221	2.2	1.7	2.8	-2.72	< 0.01
	IDU	232	4.3	2.9	5.6		
	Combined	453	3.3	2.5	4.0		
HIVhh in urban	Non IDU	147	2.5	1.7	3.3	-1.76	< 0.05
	IDU	138	4.2	2.4	5.9		
	Combined	285	3.3	2.4	4.3		
HIVhh in rural	Non IDU	74	1.7	1.1	2.3	-2.20	< 0.01
	IDU	94	4.4	2.3	6.5		
	Combined	168	3.2	2.0	4.4		

Table 12. *Affordability of health care cost for sickness in households*

Affordability	HIV HH	Non HIV HH
Affordable – can fully cover	61.22	80.48
Affordable – can partially cover	26.59	14.74
Unaffordable – cannot cover	12.2	4.78

Table 13. *Change of employment by stage of HIV epidemic*

Jobs	Late stage				Early stage			
	Occupation prior to HIV infection		*Current occupation of PLHIV*		*Occupation prior to HIV infection*		*Current occupation of PLHIV*	
	N	%	N	%	N	%	N	%
Working outside home								
Agriculture	13	18.57	14	18.92	9	1.93	5	1.04
Laborer	14	20	7	9.46	60	12.88	28	5.82
Trade	9	12.86	9	12.16	58	12.45	46	9.56
Government officer	1	1.43			17	3.65	13	2.7
Driver	3	4.29	4	5.41	25	5.36	11	2.29
Hospitality service					21	4.51	12	2.49
Freelancer	20	28.57	10	13.51	167	35.84	134	27.86
Total	60	85.72	44	59.46	357	76.62	249	51.76
Stopped working or housewife								
Housewife	2	2.86	1	1.35	13	2.79	22	4.57
Retire							1	0.21
Unable to work			1	1.35			20	4.16
Unemployment	3	4.29	13	17.57	30	6.44	85	17.67
Total	5	7.15	15	20.27	43	9.23	128	26.61
Others	1	1.43	1	1.35	40	8.58	36	7.48
Student	4	5.71	4	5.41	22	4.72	22	4.57
Peer educators			10	13.51	4	0.86	46	9.56

Table 14. *Reasons to stop working among PLHIV*

Reason to stop working	*Frequency (N)*	*Percent*
Too ill to work	51	62.2
Dismissed from work	0	0.0
Took voluntary retirement	2	2.4
Discriminated at work place	6	7.3
Being detoxified	6	7.3
Left the workplace for fear of stigma	2	2.4
Taking care of other PLHIV in family	2	2.4
Do not want to work	3	3.7
Cannot find a job	6	7.3
Others	11	13.4

Table 15. *Work force participation rate by gender and age group*

Age group	**HIV Households**				**Non-HIV Households**	
	PLWHA		***Non-HIV persons***		***All***	
	Male	*Female*	*Male*	*Female*	*Male*	*Female*
0-14	5.9	0	3.1	1.6	0.6	2.4
15-60	67.6	83.0	80.9	88.7	87.2	87.7
>60	33.3	0	22.6	49.1	23.4	46.5

Table 16. *Average annual saving and investments among HIV affected and non-affected households per quintile (Unit: million VND)*

	Non-HIV Households					**HIV Households**				
	Poorest	*Second*	*Third*	*Fourth*	*Wealthiest*	*Poorest*	*Second*	*Third*	*Fourth*	*Wealthiest*
Savings as:										
Cash	1.83	0.97	1.95	3.52	17.27	0.67	0.03	1.01	2.29	5.22
Jewellery	0.00	0.00	0.00	0.64	2.41	0.00	0.00	0.00	0.00	0.00
Others	0.00	0.00	0.00	0.00	0.03	0.00	0.06	0.00	0.00	0.00
Total	**1.83**	**0.97**	**1.95**	**4.15**	**19.72**	**0.67**	**0.08**	**1.01**	**2.29**	**5.22**
Investment in:										
Livestock	0.07	0.01	0.19	0.23	0.00	0.03	0.04	0.00	0.00	0.01
Share/bond/ fund	0.01	0.01	0.00	0.01	2.64	0.03	0.04	0.00	0.00	0.01
House/land	0.80	0.03	0.00	5.52	131.10	0.07	0.09	0.00	0.00	0.02
Other	0.02	0.55	6.73	0.46	2.20	0.07	0.09	0.00	0.00	0.02
Total	**0.90**	**0.60**	**6.92**	**6.22**	**135.93**	**0.20**	**0.27**	**0.00**	**0.00**	**0.06**

Table 17. *Average annual saving and investments by HIV status and urban/rural residence (Unit: million VND)*

Items	Non HIV Households			HIV Households		
	All	*Urban*	*Rural*	*All*	*Urban*	*Rural*
Savings as:						
Cash	5.153	4.515	6.150	1.911	2.003	1.757
Jewellery	0.613	0.976	0.045	0.000	0.000	0.000
Others	0.006	0.010	0.000	0.011	0.017	0.000
Total	5.772	5.501	6.195	1.922	2.020	1.757
Investment in:						
Livestock	0.106	0.011	0.254	0.017	0.021	0.012
Share/bond/fund	0.536	0.011	1.356	0.017	0.021	0.012
House/land	27.607	45.312	0.000	0.035	0.042	0.023
Others	2.177	0.964	4.068	0.035	0.042	0.023
Total	30.426	46.297	5.678	0.104	0.125	0.070

Table 18. *Average annual saving and investments among DU and non-DU HIV-affected households (Unit: million VND)*

Items	Non-IDU HIV Households			IDU HIV Households		
	All	*Urban*	*Rural*	*All*	*Urban*	*Rural*
Saving						
Cash	1.986	2.257	1.447	1.839	1.725	2.004
Jewellery	0.000	0.000	0.000	0.000	0.000	0.000
Others	0.022	0.033	0.000	0.000	0.000	0.000
Total	2.008	2.290	1.447	1.839	1.725	2.004
Investment						
Livestock	0.018	0.020	0.013	0.017	0.022	0.011
Share/bond/chit fund	0.018	0.020	0.013	0.017	0.022	0.011
House/land	0.035	0.040	0.026	0.034	0.043	0.021
Others	0.035	0.040	0.026	0.034	0.043	0.021
Total	0.106	0.119	0.079	0.103	0.130	0.063

Table 19. *Average annual saving and investments by participation in self-help group among HIV households (Unit: million VND)*

Items	*Participated in self-help group*	*Did not participate in self-help group*
Saving as:		
Cash	2.93	1.29
Jewellery	0.00	0.00
Others	0.00	0.02
Total	2.93	1.31
Investment in:		
Livestock	0.03	0.01
Share/bond/chit fund	0.03	0.01
House/land	0.05	0.02
Others	0.05	0.02

Table 20. *Reasons given for not using foods frequently*

Reasons given by respondents	HIV HH		Non-HIV HH	
	Urban	*Rural*	*Urban*	*Rural*
Price of food unaffordably high	20.2	30.4	13.6	28.0
Market/supermarket too far from my home	0.4	0	0.4	2.8
Food items not available in market or supermarket	3.6	3.6	4.7	2.1
Not necessary to eat all kinds of food	44.4	38.5	63.0	47.6
Other	10.7	8.1	9.4	11.2

Table 21. *Experience of stigma and discrimination by rural versus urban PLHIV*

Forms of stigma and discrimination towards ill people	Urban		Rural	
	Freq	*Percent*	*Freq*	*Percent*
Verbal Abuse	95	33.3	73	43.5
Negative Self-Perception	197	69.1	100	59.5
Health care Neglect	57	20.0	22	13.1
Rights Neglect	56	19.6	28	16.7
Social Isolation	54	18.9	42	25.0
Fear of Contagion	39	13.7	24	14.3
Workplace Stigma	36	12.6	11	6.5
Stigma and discrimination to children	14	9.0	8	8.5
Stigma and discrimination to family	61	21.4	24	14.3

Table 22. *Widow or separated HIV-positive women reporting stigma from in-laws*

Expression of stigma	Urban		Rural		Total	
	n	%	n	%	n	%
Asked to leave the household	5	18.5	8	66.7	13	33.3
Denied share in husband's property	15	55.6	9	75.0	24	61.5
Denied entry to maternal or ancestral home	2	7.4	2	16.7	4	10.3
Denied access to children	0	0.0	1	8.3	1	2.6
Forced to give up inheritance rights	4	14.8	3	25.0	7	17.9
Forced to liquidate assets	0	0.0	2	16.7	2	5.1

Table 23. *PMTCT-related information provided to women*

Actions related to HIV and pregnancy	Non HIV household		HIV household	
	Freq	*Percent*	*Freq*	*Percent*
Women tested for HIV prior to delivery	53	11.7	-	-
HIV-infected women or wives of HIV-infected men became pregnant after HIV- infection of spouse	-	-	159	35.1
Heard about MTCT	188	41.5	330	72.8
Knew about PMTCT medication	7	1.5	351	77.5
Forced or persuaded to have abortion	20	5.6	27	8.9

Table 24. *Reasons that children dropped out of school or changed schools*

Information	HIV Household		Non-HIV household	
	(N)	*Percent*	*(N)*	*Percent*
Reasons preventing school attendance (NHIV=22,NNon-HIV=13)				
Could not afford school fee	10	45.5	7	53.8
Had to care for sick person	1	4.5	0	0.0
Had to get a job	0	0.0	1	7.7
Had to do other household work	1	4.5	0	0.0
Child too sick to attend school	3	13.6	1	7.7
School is inaccessible	0	0.0	1	7.7
Dropped out of school because of HIV status	1	4.5	0	0.0
Reasons for changing schools (NHIV=16, N Non-HIV=21)				
Could not afford previous school	4	25	1	4.8
Better education	1	6.25	9	42.9
No facility for higher classes	2	12.5	3	14.3
Better accessibility	3	18.75	8	38.1
Expelled because of HIV in HH	2	12.5	0	0.0
Change of residence	3	18.75	7	33.3
Fear of stigma and discrimination	2	12.5	0	0.0

Table 25. *Support sought and received by households*

Type of support	HIV households						Non-HIV household	
	Urban		Rural		All			
	Sought	Received	Sought	Received	Sought	Received	Sought	Received
Loan	19.6	11.6	14.3	8.9	17.7	10.6	16.1	9.5
Support for school fees	10.9	8.4	6.5	4.8	9.3	7.1	4.6	2.0
Financial support for health care	13.7	11.6	27.4	22.0	18.8	15.5	2.6	2.4
Support for food	3.9	4.6	14.3	13.7	7.7	7.9	2.4	1.3
Support for medication	64.9	77.2	33.3	36.9	53.2	62.3	2.6	3.3

Table 26. *Percentage of households with poor card*

	HIV households			Non-HIV households		
	Urban	Rural	Total	Urban	Rural	Total
N	17	14	31	11	10	21
%	5.96	8.38	6.86	4.01	5.68	4.67

Table 27. *Participation in community HIV/AIDS related activities*

Activity	HIV households		Non-HIV household	
	n	%	n	%
Participation in HIV-related activities	250	55.3	130	29.4
Participation in training on law and policy on HIV	142	31.5	49	11.1
Expect to participate in these activities next time	219	61.3	108	26.6

Table 28. *Support sought and received by HIV-affected households*

Types of support	Participated in Self-help group N= 212		Not participated in Self-help group N=241	
	Sought N= 177	*Received* N=139	*Sought* N=180	*Received* N=140
Loan	28.2	22.3	16.1	11.4
Support for school fees	18.1	21.6	5.0	1.4
Financial support for health care	23.7	23.7	23.3	25.7
Support for food	10.2	14.4	8.9	10.7
Support for medication	70.6	100.0	62.2	99.3

Table 29. *Regression analysis of determinants of food expenditure*

Dependent Variable: Food expenditure per capita	Urban			Rural		
	Coef.	t	P>|t|	Coef.	t	P>|t|
Household size	-193.04	-7.98	0.00	-47.33	-10.26	0.00
Health care utilization	-19.47	-0.21	0.83	2.43	0.13	0.89
Q2	1179.73	1.39	0.17	1369.66	19.87	0.00
Q3	1783.18	2.36	0.02	2383.95	30.57	0.00
Q4	2977.46	4.34	0.00	3246.66	39.09	0.00
Q5	2262.45	3.71	0.00	2639.39	42.50	0.00
Health expenditure per capita	-1.06	-0.63	0.53	-0.26	-2.29	0.02
Q2* Health expenditure per capita	-0.07	-0.04	0.97	-0.41	-3.23	0.00
Q3* Health expenditure per capita	0.39	0.22	0.82	-0.47	-3.99	0.00
Q4* Health expenditure per capita	0.40	0.24	0.81	-0.33	-2.89	0.00
Q5* Health expenditure per capita	0.99	0.58	0.56	0.14	1.22	0.22
Other expenditure per capita	-0.05	-0.07	0.94	0.12	2.43	0.02
Q2* Other expenditure per capita	-0.47	-0.61	0.54	-0.63	-10.02	0.00
Q3* Other expenditure per capita	-0.32	-0.47	0.64	-0.68	-11.68	0.00
Q4* Other expenditure per capita	-0.31	-0.46	0.65	-0.54	-9.96	0.00
Q5* Other expenditure per capita	0.27	0.41	0.68	-0.08	-1.54	0.12
Education expenditure	-0.29	-5.92	0.00	-0.16	-8.11	0.00
Durable good expenditure	-0.23	-12.22	0.00	0.02	1.64	0.10
Constant	2560.13	4.06	0.00	1519.00	28.45	0.00
Number of obs =	2307.00				6882.00	
Prob > F	0.00				0.00	
R-squared	0.51				0.67	

Table 30. *Regression analysis of determinants of other consumption*

Dependent Variable: Other expenditure per capita	Urban			Rural		
	Coef.	t	P>|t|	Coef.	t	P>|t|
Household size	-14.28	-0.30	0.77	-0.19	-0.02	0.98
Health care utilization	313.00	1.75	0.08	-51.95	-1.61	0.11
Q2	535.60	0.22	0.82	1137.64	6.13	0.00
Q3	1207.13	0.56	0.58	1968.12	10.72	0.00
Q4	2118.55	1.05	0.30	3056.11	16.84	0.00
Q5	-286.94	-0.15	0.88	3441.23	20.03	0.00
Health expenditure per capita	0.41	0.12	0.90	0.02	0.08	0.94
Q2* Health expenditure per capita	-0.55	-0.15	0.88	-0.34	-1.51	0.13
Q3* Health expenditure per capita	-0.43	-0.13	0.90	-0.45	-2.16	0.03
Q4* Health expenditure per capita	-0.64	-0.19	0.85	-0.44	-2.19	0.03
Q5* Health expenditure per capita	-0.01	0.00	1.00	-0.10	-0.49	0.63
Food expenditure per capita	-0.16	-0.12	0.90	0.10	1.18	0.24
Q2* Food expenditure per capita	0.00	0.00	1.00	-0.40	-3.62	0.00
Q3* Food expenditure per capita	-0.08	-0.06	0.95	-0.47	-4.71	0.00
Q4* Food expenditure per capita	-0.04	-0.03	0.98	-0.47	-5.07	0.00
Q5* Food expenditure per capita	1.04	0.78	0.43	0.09	1.06	0.29
Education expenditure	1.24	13.44	0.00	0.61	18.56	0.00
Durable good expenditure	1.35	54.97	0.00	1.18	61.66	0.00
Constant	398.09	0.20	0.84	423.65	3.08	0.00
Number of obs =	2307			6882		
Prob > F	0			0		
R-squared	0.7344			0.7626		

Table 31. *Stigma and discrimination towards ill people in HIV-affected and non-affected households*

Stigma and Discrimination towards ill people	PLHIV		Non-PLHIV	
	n	*%*	*n*	*%*
Verbal Abuse	168	37.1	24	5.3
Someone scolded me.	32	7.0	3	0.6
Someone insulted me.	29	6.4	2	0.4
I was blamed for my disease status.	94	20.7	18	4.0
I was told that I have no future.	119	26.3	18	4.0
I was told that I am punished.	49	10.8	7	1.6
Someone mocked me when I passed by.	65	14.3	4	0.9
Negative Self-Perception	297	65.6	47	10.4
I felt completely worthless.	96	21.2	12	2.7
I felt ashamed of having this disease.	113	24.9	17	3.8
I felt that I am no longer a person.	34	7.5	1	0.2
I felt that I brought a lot of trouble to my family.	169	37.3	29	6.5
I felt that I did not deserve to live.	38	8.4	5	1.1
I am scared that others will know about my status and want to relocate this place	81	17.9	18	4.1
I am worried about the impact on my family and children	178	39.3	31	7.0
I feel depressed often and am unable to work or do productive things including support to the family	112	24.7	14	3.2
I think of death most of the time	32	7.1	5	1.1
Healthcare Neglect	79	17.4	9	2.0
I was discharged from the hospital while still needing care.	17	3.8	2	0.5
I was shuttled around instead of being helped by a nurse.	37	8.2	4	0.9
In the hospital or clinic, my pain was ignored.	25	5.5	2	0.5
I was denied surgery	6	1.3	1	0.2
The hospital let others know about my disease status	27	6.0	1	0.2
I was kept in an isolated ward	28	6.2	4	0.9
I was refused treatment because I was told I was going to die anyway.	7	1.5	3	0.7
At the hospital, I was left in a soiled bed.	10	2.2	3	0.7
I was denied healthcare.	11	2.4	6	1.4
At the hospital/clinic, I was made to wait until last.	14	3.1	4	0.9

Stigma and Discrimination towards ill people	PLHIV		Non-PLHIV	
	n	*%*	*n*	*%*
Right Neglect	84	18.5	14	3.1
My property was taken away.	11	2.4	4	0.9
I have been coerced into an abortion or sterilization because of my disease status.	5	1.1	4	0.9
Someone has been told about my disease status without me wanting them to know.	63	13.9	12	2.6
I was not allowed to own assets/land/house.	38	8.4	7	1.5
My children were taken away because of my disease status.	4	0.9	2	0.5
Social Isolation	96	21.2	11	2.4
People cut down visiting me.	38	8.4	7	1.5
People ended their relationships with me.	26	5.7	2	0.4
A friend would not chat with me.	67	14.8	8	1.8
I was refused entry to, removed from or asked to leave a public establishment due to my disease status	4	0.9	2	0.4
I was forced to change my place of residence because of my disease status	14	3.1	4	0.9
Fear of Contagion	63	13.9	14	3.1
People do not share eating utensils with me anymore.	39	8.6	11	2.4
People stopped eating with me.	26	5.7	4	0.9
I was asked to leave because I was coughing.	28	6.2	10	2.2
I was asked not to touch someone's child.	19	4.2	2	0.4
Workplace Stigma	47	10.4	16	3.5
Someone tried to get me fired from my job.	9	2.0	12	2.6
My job description or duties changed because of my disease status.	39	8.6	16	3.5
I lost my job because of my disease status.	19	4.2	12	2.6
I left the job for the fear of stigma and discrimination	20	4.4	15	3.3
Stigma and discrimination toward to children	22	4.9	7	1.7
The other students don't want to sit with children in my family as a family member's disease.	10	2.2	7	1.5
The other students don't want to play with children in my family as a family member's disease.	13	2.9	6	1.3

Stigma and Discrimination towards ill people	PLHIV		Non-PLHIV	
	n	*%*	*n*	*%*
The children are frequently beaten or mocked at as a family member's disease.	11	2.4	3	0.7
School denied admission to the children.	7	1.5	4	0.9
Children were not allowed in village heath clinic.	3	0.7	1	0.2
Stigma and discrimination towards family	85	18.8	25	5.5
Disease status of a family member affected the marriage prospects of other family members.	17	3.8	10	2.2
Disease status of a family member affected the job prospects of other family members.	15	3.3	19	4.2
I had to change my location because of disease status of somebody/ self in the family.	19	4.2	13	2.9
My community members and relatives stopped visiting us	21	4.6	2	0.4
Community members and relatives stopped inviting us for social events	12	2.6	0	0.0
Social entitlements were denied to the family or delayed	32	7.1	5	1.1
We felt social exclusion	16	3.5	2	0.4

Table 32. *Percentage of PLHIV who experienced with stigma and discrimination by living areas*

Stigma and Discrimination towards ill people	Urban		Rural	
	n	*%*	*n*	*%*
Verbal Abuse	95	33.3	73	43.5
Someone scolded me.	15	5.3	17	10.1
Someone insulted me.	15	5.3	14	8.3
I was blamed for my disease status.	62	21.8	32	19.0
I was told that I have no future.	68	23.9	51	30.4
I was told that I am punished.	28	9.8	21	12.5
Someone mocked me when I passed by.	28	9.8	37	22.0
Negative Self-Perception	197	69.1	100	59.5
I felt completely worthless.	56	19.6	40	23.8
I felt ashamed of having this disease.	73	25.6	40	23.8
I felt that I am no longer a person.	17	6.0	17	10.1
I felt that I brought a lot of trouble to my family.	106	37.2	63	37.5
I felt that I did not deserve to live.	19	6.7	19	11.3
I am scared that others will know about my status and want to relocate this place	48	16.8	33	19.6
I am worried about the impact on my family and children	111	38.9	67	39.9
I feel depressed often and am unable to work or do productive things including support to the family	75	26.3	37	22.0
I think of death most of the time	19	6.7	13	7.7
Healthcare Neglect	57	20.0	22	13.1
I was discharged from the hospital while still needing care.	12	4.2	5	3.0
I was shuttled around instead of being helped by a nurse.	27	9.5	10	6.0
In the hospital or clinic, my pain was ignored.	17	6.0	8	4.8
I was denied surgery	3	1.1	3	1.8
The hospital let others know about my disease status	14	4.9	13	7.7
I was kept in an isolated ward	20	7.0	8	4.8
I was refused treatment because I was told I was going to die anyway.	5	1.8	2	1.2
At the hospital, I was left in a soiled bed.	5	1.8	5	3.0
I was denied healthcare.	8	2.8	3	1.8
At the hospital/clinic, I was made to wait until last.	11	3.9	3	1.8
Right Neglect	56	19.6	28	16.7
My property was taken away.	4	1.4	7	4.2
I have been coerced into an abortion or sterilization because of my disease status.	3	1.1	2	1.2

Stigma and Discrimination towards ill people	Urban		Rural	
	n	*%*	*n*	*%*
Someone has been told about my disease status without me wanting them to know.	40	14.0	23	13.7
I was not allowed to own assets/land/house.	25	8.8	13	7.7
My children were taken away because of my disease status.	2	0.7	2	1.2
Social Isolation	54	18.9	42	25.0
People cut down visiting me.	22	7.7	16	9.5
People ended their relationships with me.	10	3.5	16	9.5
A friend would not chat with me.	33	11.6	34	20.2
I was refused entry to, removed from or asked to leave a public establishment due to my disease status	2	0.7	2	1.2
I was forced to change my place of residence because of my disease status	10	3.5	4	2.4
Fear of Contagion	39	13.7	24	14.3
People do not share eating utensils with me anymore.	25	8.8	14	8.3
People stopped eating with me.	12	4.2	14	8.3
I was asked to leave because I was coughing.	20	7.0	8	4.8
I was asked not to touch someone's child.	9	3.2	10	6.0
Workplace Stigma	36	12.6	11	6.5
Someone tried to get me fired from my job.	6	2.1	3	1.8
My job description or duties changed because of my disease status.	28	9.8	11	6.5
I lost my job because of my disease status.	14	4.9	5	3.0
I left the job for the fear of stigma and discrimination	18	6.3	2	1.2
Stigma and discrimination toward to children	14	4.9	8	4.8
The other students don't want to sit with children in my family as a family member's disease.	6	2.1	4	2.4
The other students don't want to play with children in my family as a family member's disease.	8	2.8	5	3.0
The children are frequently beaten or mocked at as a family member's disease.	4	1.4	7	4.2
School denied admission to the children.	7	2.5	0	0.0
Children were not allowed in village heath clinic.	3	1.1	0	0.0
Stigma and discrimination towards family	61	21.4	24	14.3
Disease status of a family member affected the marriage prospects of other family members.	12	4.2	5	3.0
Disease status of a family member affected the job prospects of other family members.	13	4.6	2	1.2

Stigma and Discrimination towards ill people	Urban		Rural	
	n	*%*	*n*	*%*
I had to change my location because of disease status of somebody/self in the family.	12	4.2	7	4.2
My community members and relatives stopped visiting us	9	3.2	12	7.1
Community members and relatives stopped inviting us for social events	7	2.5	5	3.0
Social entitlements were denied to the family or delayed	26	9.1	6	3.6
We felt social exclusion	12	4.2	4	2.4

Table 33. *Percentage of PLHIV who experienced with stigma and discrimination by gender*

Stigma and Discrimination towards ill people	Men		Women	
	n	*%*	*n*	*%*
Verbal Abuse	100	37.2	68	37.0
Someone scolded me.	17	6.3	15	8.2
Someone insulted me.	14	5.2	15	8.2
I was blamed for my disease status.	61	22.8	32	17.4
I was told that I have no future.	72	26.9	48	26.1
I was told that I am punished.	32	11.9	18	9.8
Someone mocked me when I passed by.	31	11.6	34	18.5
Negative Self-Perception	167	62.1	129	70.1
I felt completely worthless.	59	22.0	38	20.7
I felt ashamed of having this disease.	66	24.6	47	25.5
I felt that I am no longer a person.	18	6.7	16	8.7
I felt that I brought a lot of trouble to my family.	108	40.3	61	33.2
I felt that I did not deserve to live.	19	7.1	19	10.3
I am scared that others will know about my status and want to relocate this place	35	13.1	46	25.0
I am worried about the impact on my family and children	83	31.0	94	51.1
I feel depressed often and am unable to work or do productive things including support to the family	47	17.5	63	34.2
I think of death most of the time	15	5.6	17	9.2
Healthcare Neglect	41	15.2	38	20.7
I was discharged from the hospital while still needing care.	12	4.5	5	2.7
I was shuttled around instead of being helped by a nurse.	21	7.8	16	8.7
In the hospital or clinic, my pain was ignored.	15	5.6	10	5.4
I was denied surgery	1	0.4	5	2.7
The hospital let others know about my disease status	13	4.9	14	7.6
I was kept in an isolated ward	10	3.7	18	9.8
I was refused treatment because I was told I was going to die anyway.	2	0.7	5	2.7
At the hospital, I was left in a soiled bed.	6	2.2	4	2.2
I was denied healthcare.	6	2.2	5	2.7
At the hospital/clinic, I was made to wait until last.	7	2.6	7	3.8
Right Neglect	37	13.8	47	25.5
My property was taken away.	4	1.5	7	3.8
I have been coerced into an abortion or sterilization because of my disease status.	0	0.0	5	2.7

Stigma and Discrimination towards ill people	Men		Women	
	n	*%*	*n*	*%*
Someone has been told about my disease status without me wanting them to know.	29	10.8	34	18.5
I was not allowed to own assets/land/house.	15	5.6	23	12.5
My children were taken away because of my disease status.	1	0.4	3	1.6
Social Isolation	46	17.1	51	27.7
People cut down visiting me.	14	5.2	24	13.0
People ended their relationships with me.	10	3.7	16	8.7
A friend would not chat with me.	37	13.8	31	16.8
I was refused entry to, removed from or asked to leave a public establishment due to my disease status	0	0.0	4	2.2
I was forced to change my place of residence because of my disease status	7	2.6	7	3.8
Fear of Contagion	38	14.1	26	14.1
People do not share eating utensils with me anymore.	23	8.6	17	9.2
People stopped eating with me.	14	5.2	12	6.5
I was asked to leave because I was coughing.	19	7.1	9	4.9
I was asked not to touch someone's child.	7	2.6	12	6.5
Workplace Stigma	28	10.4	19	10.3
Someone tried to get me fired from my job.	4	1.5	5	2.7
My job description or duties changed because of my disease status.	21	7.8	18	9.8
I lost my job because of my disease status.	9	3.4	10	5.4
I left the job for the fear of stigma and discrimination	10	3.7	10	5.4

Table 34. *The family's frequency in using the food group*

	Non HIV affected households				HIV affected households			
	Urban		Rural		Urban		Rural	
	N=276	%	N=177	%	N=285	%	N=168	%
Animal protein (Meat, Fish, Egg and Milk)								
Daily	248	89.9	160	90.4	239	83.9	126	75.0
At least once a week	27	9.8	15	8.5	42	14.7	36	21.4
At least once a month	1	0.4	2	1.1	2	0.7	5	3.0
Once in several month	-	-	-	-	2	0.8	1	0.6
Plant protein (Bean, Peanut)								
Daily	110	39.9	62	35.0	110	38.6	72	42.9
At least once a week	107	38.8	79	44.6	96	33.7	48	28.6
At least once a month	37	13.4	18	10.2	48	16.8	26	15.5
Once in several month	22	7.8	18	10.2	31	10.9	22	13.1
Staple food (Rice, Wheat)								
Daily	272	98.6	170	96.0	275	96.5	161	95.8
At least once a week	2	0.7	3	1.7	5	1.8	3	1.8
At least once a month	2	0.7	2	1.1	4	1.4	1	0.6
Once in several month	-	-	2	1.1	1	0.4	3	1.8
Others (Corn, Potato, Cassava)								
Daily	28	10.1	13	7.3	21	7.4	7	4.2
At least once a week	65	23.6	32	18.1	57	20.0	16	9.5
At least once a month	65	23.6	34	19.2	88	30.9	36	21.4
Once in several month	118	42.8	98	55.4	119	41.7	109	64.9
Animal fat								
Daily	91	33.0	78	44.1	111	38.9	65	38.7
At least once a week	60	21.7	24	13.6	54	18.9	24	14.3
At least once a month	45	16.3	17	9.6	54	18.9	23	13.7
Once in several month	80	29.0	58	32.8	66	23.1	56	33.3
Plant oil (Oil, Butter, Sesame)								
Daily	224	81.2	139	78.5	216	75.8	112	66.7
At least once a week	27	9.8	18	10.2	24	8.4	34	20.2
At least once a month	12	4.3	7	4.0	15	5.3	8	4.8
Once in several month	13	4.7	21	11.8	30	10.6	13	8.4
Vegetable								
Daily	268	97.1	168	94.9	277	97.2	154	91.67
At least once a week	6	2.2	7	4.0	6	2.1	10	5.95

	Non HIV affected households				HIV affected households			
	Urban		Rural		Urban		Rural	
	N=276	%	N=177	%	N=285	%	N=168	%
At least once a month	1	0.4	1	0.6	2	0.7	4	2.38
Once in several month	1	0.4	1	0.6	-	-	-	-
Fruit								
Daily	202	73.2	99	55.9	165	57.9	78	46.4
At least once a week	54	19.6	51	28.8	83	29.1	46	27.4
At least once a month	11	4.0	18	10.2	27	9.5	31	18.5
Once in several month	9	3.3	9	5.1	10	3.5	13	7.8

ANNEX 6 - SURVEY QUESTIONNAIRES

United Nations Development Programme

SOCIO-ECONOMIC IMPACT OF HIV/AIDS ON HOUSEHOLD POVERTY AND VULNERABILITY IN VIETNAM

HOUSEHOLD QUESTIONAIRE HIV POSITIVE

HOUSEHOLD CODE:_____

Province/City:……

District:……

Commune/Ward:……

Community Block/Hamlet:……..

Name of Head of the HH:……

Interviewee:……

Surveyor:……..

Date of the Interview:……..

Supervisor::……

CONSENT STATEMENT

SCC is carrying out a study on the "Socio-economic impact of HIV/AIDS on vulnerable household and poverty in Vietnam" for UNDP. We would like to get your response to a set of questions regarding the economic, educational and health status of yourself and your family members. Your and your family's participation in this survey is purely voluntary. Even if you agree to this, you can refuse to answer any question that you do not wish to answer during this interview. We would like to assure you that the information provided by you would only be used for the purpose of research and your identity will not be revealed to anyone. Through this study people will learn about the status of HIV/AIDS and the well-being of the people of this country. This study is expected to help in the formulation and implementation of policies and programmes that is likely to benefit the people, particularly those affected by HIV/AIDS.

Do you agree to be interviewed?
Yes-1 / No-2

Signature of Interviewee:_____

Signature of Surveyor:_____

PART A - GENERAL INFORMATION

In this section, we would like to ask you several questions on your household general information, including the number of people in your household, family income, expenditure, nutrition, assets, and any remarkable change in the last one year. The surveyor will help you to calculate your household income and expenditure if you have any difficulty. We would like to ensure that the figures you provide will be used ONLY to the study purpose and will NOT be revealed to anyone either in the final report or in any other way.

A1*. How many people in your family?.....people *(Counting only people living under the same roof, registering their names in the Household's booklet or living in the house during the last three months. Please refer the guide book).*

A2*. Please complete information of each family member as the following table: *(please include information of the interviewee and any person died in the last 12 months (if any))*

Code	Name of family member	Relationship with the Interviewee (See below)	Gender (1. Male 2. Female)	Year birth	Death (1.Died 2. Alive)	Cause of death? (Explain)	Positive with HIV? (1. Yes 2. No)	Current Occupation (See below)	Occupation before infected with HIV? (Ask the infected person)	Education level (See below)	Ethnicity	Marital status (See below)
		(1)						(2)	(2)	(3)		(4)
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

(1) Relationship to HH's head

HH's head	1	Grand parent	5	Agriculture	1
Spouse	2	Brother/Sister	6	Industry	2
Children	3	Niece/Nephew	7	Commerce	3
Farther/Mother	4	Others	9	Gov. Officer	4
				Driver	5
				Housewife	6

(2) Occupation

Hospitality services	7				
Peer educators	8				
Unable job	9				
Retire	10				
Unable to work	11				
Unemployment	12				
Other	13				

(3) Education Level

Illiterate	1	Upper Secondary	4	Illiterate	1	Upper Secondary	4
Primary	2	College, PSE	5	Primary	2	College, PSE	5
Secondary	3	HE	6	Secondary	3	HE	6
		Post HE	7			Post HE	7

(4) Marital Status

Ref	Question
A3*	**What are your family sources of income?** *(Multiple choices)* Farming/ Planting 1 Husbandry 2 Trade 3 Wage-earner income 4 Income from pensions, subsidies and scholarships 5 Other sources (explain: ……) 6 Not fixed 99
A4	**What is the main source?** *(please circle only one option)* Farming/ Planting 1 Husbandry 2 Trade 3 Wage-earner income 4 Income from pensions, subsidies and scholarships 5 Other sources (explain: ……) 6 Not fixed 99
A5*	**How much is your family total income in the last 12 months** *(include all sources):*

Income sources	Income (1)	Primary capital (2)	Final income (3)=(1)-(2)
Planting			
Husbandry			
Business			
Salary			
Pension, subsidies, scholarships			
Others (Explain..)			
Total (thousand dong)			

Ref	Question
A6	**Did the household have any savings or investments during the last 12 months?** Yes 1 No 2 -> A8
A7*	**If yes, what kinds of savings or investments and how much for each?** *(thousand dong)*

Savings		Investments	
Cash		Livestock	
Jewellery		Share/bond/chit fund	
Others		House/land	
Total		Total	

Ref	Question
A8	**Did the household borrow any money from the following sources during the last 12 months?** Yes 1 No 2 -> A10
A9	**If yes, how much?** - Mortgage of assets like land, jewellery, house etc……thousand dong - Cash borrowings ……thousand dong **Total:……thousand dong**
A10	**In last 12 months, has your family experienced shortages of food?** Yes *(how many months?_____)* 1 No 2 No idea/ no calculation 99
A11	**What is your family's frequency in using the food group?** *(Please tick X into the relevant cell)*

	Frequency of using			
	Daily	*At least once a week*	*At least once a month*	*Once in several months*
Animal protein *(Meat, Fish, Egg, Milk)*				
Plant protein *(Bean)*				
Staple food *(Rice, Wheat)*				
Others *(Corn, Potato, Cassava)*				
Animal fat				
Vegetable oil (Oil, Butter, Peanut, Sesame..)				
Vegetable				
Fruit				

Ref	Question
A12	**Why don't you have these kinds of food everyday?** *(Multiple choices)* Prices of foods are so high that I can't afford 1 Market/supper market is too far from my home for me to buy 2 Those foods are not available in market or supermarket 3 I thought that it is not necessary to eat 4 Others (Explain……) 5 Do not answer 99

Ref	Question	
A13	**Housing condition** *(Surveyor observes):*	
	Stable house (Tiled, concrete, multi-floor)	1
	Semi-stable house (Tiled, single level)	2
	Simple house (Thatch, bamboo)	3
	Other (explain)……	4
A14*	**The total area for living of the HH including kitchen, separated toilet?**	
	.....m^2	
A15	**Are you living in your own house or rental house?**	
	Own house	1
	Rental house	2
	Borrowed house	3
A16	**Does it have separated latrine of hygiene in your house?**	
	Yes	1
	No	2
A17	**What is the water source used by your family?** *(Multiple choices)*	
	Bond, river and stream water	1
	Dug well	2
	Drilling well	3
	Tap water	4
	Raining water	5
	Other (explain_____)	6
A18	**Furniture of the family** *(Surveyor observes and check if the furniture are borrowed from land lord or family/friend):*	
	Television	1
	Fridge	2
	Washing machine	4
	Computer	5
	Phone/Cell phone	6
	Air conditioner	7
	Electricity/Gas cooker	8
	Water heater	9
	Others *(do not list our non-valuable furniture)*	99
A19	**The family's mean of transportation** *(Multiple choices).* - Bike…… ……unit - Motorbike……unit - Boat……unit - Car, lorry……unit - Others (explain)……..unit	

Ref	Question
A20	**Does your family have poor card?** Yes 1 No 2 No idea 99
A21	**Which class in commune among below, you think your family belongs to:** Rich 1 Well-off 2 Middle 3 Poor 4 Destitute 5 No idea 99
A22	**How much money does your family spend, specifically for what?** *(including borrowing/ debt for expenditure)* **A. Expenditure during the last month** 1. Expenditure on food……thousand dong 2. Expenditure on utilities *(Water, Electricity)*: ……thousand dong 3. Rental house fee: ……thousand dong 4. Education: ……thousand dong 5. Others:……thousand dong **B. Expenditure during the last 12 months** 6. Construction, renovation……thousand dong 7. Medicine and Health care: ……thousand dong 8. Furnitures *(TV, Fridge, Motor-bike, Computer..)*:……thousand dong 9. Travel:……thousand dong 10. Others *(Wedding, social events..)*:……thousand dong
A23*	**For last one year, has your family had any remarkable change? The reason for that change?**

	Change		Reason
	Yes	No	
Health	1	2	
Accommodation	1	2	
Work and Income	1	2	
Family relation	1	2	
Others	1	2	

PART B - USING MEDICAL SERVICE AND COST FOR HEALTHCARE

Thank you for completing the first section, now we will proceed to the second section of the questionnaire. Here we would like to ask some information on healthcare status of your household members, especially the PLHIV. Furthermore, we would like to know the expenditure that your household pays for healthcare services and medicine for PLHIV. We wish to find out whether your household can afford this expenditure and how do you cope with it and whether it leads to your loss of income.

There are also some questions on people in your family who died of HIV/AIDS in the last one year if any. We apologize to recall your sorrow, but your contribution of information will help us develop the study to support other PLHIV and their families. However, if you feel it is difficult to answer these questions we will gladly move to another section.

B1. Is there any member in your household get sick during the last 12 months?

Currency Unit: Thousand dong

Code *(see A2)*	Name of sick person	Disease/ sickness?	Infected/ Repeated for how many times	Inpatient during the last 12 months		Outpatient during the last 12 months		Amount covered by medical insurance	How is your HH affordability to the sickness?	Number of caretaker for sick person?
				No. of days	*Total cost*	*No. of days*	*Total cost*			
					(7)		(7)		(8)	

(7) Total cost (thousand dong): Surveyor suggests and together calculate the amount for each time of sickness that each family member suffers

Total cost including: (Note for Surveyor: Total cost here is of direct cost)

- Direct cost for medical service: hospital fee, medicine cost, testing cost, medical dressing and other medical materials.

- Direct cost not for medical service: transporting to medical units, accommodation, meal and lobby...

(8) The family's affordability for each time of sickness:

Affordable to fully cover	1
Affordable to partially cover	2
Unaffordable	3

B2. Information on HIV/AID infected member in your family?

(Please ask information of PLHIV only, including any one died in the last 12 month)

Ref	Question	Person 1	Person 2
B2.1	**Code of PLHIV (See A2)**		
B2.2	**Have you ever used drug?** Yes No Don't answer	 1 2 99	 1 2 99
B2.3	**Year of confirming HIV(+)** Year…….. Do not remember	 00	
	Non-hospitalized Illness Episodes *(Ask details during the last 12 months)*	**Person 1**	**Person 2**
B2.4	**Were you <u>non-hospitalized</u> in the last 12 months?** Yes No	 1 2->B2.14	 1 2->B2.14
B2.5	**How many times did you fall ill in the last 12 months for which you were <u>not hospitalized</u>?**	……. times	……. times
B2.6	**Nature of illness** *(Describe main symptoms)*		
B2.7	**No. of days ill**	……. days	……. days
B2.8	**Did you seek treatment?** Yes No	 1-> B2.10 2	 1->B2.10 2
B2.9	**If no, reasons for no treatment?** *(Multiple choices)* Illness not considered serious No medical facility nearby No doctor was willing to treat me Financial constraints Lack of time/long waiting Fear of stigma and discrimination Any other (specify……)	 1 2 3 4 5 6	 1 2 3 4 5 6
B2.10	**Sources of treatment** *(Multiple choices).* SC/PHC/CHC Government hospital Private hospital/Nursing home Private doctor Charitable institution Chemist shop Faith healer/religious person Home remedy Any other (specify)	 1 2 3 4 5 6 7 8 9	 1 2 3 4 5 6 7 8 9

Ref	Question	Person 1	Person 2
B2.11	**Duration of treatment (No. of days)**	..... days	..... days
B2.12	**No. of days bedridden**	..... days	..... days
B2.13	**No. of days not going to work**	..... days	..... days
	Hospitalized Illness Episodes *(Ask details during the last 12 months)*	**Person 1**	**Person 2**
B2.14	**Were you hospitalized in the last 12 months?** Yes No	 1 2 -> B2.23	 1 2 -> B2.23
B2.15	**If yes, no. of times hospitalized in the last 12 months?**	..... times	..... times
B2.16	**Nature of illness** *(Describe main symptoms).*		
B2.17	**No. of days hospitalized.**	..... days	..... days
B2.18	**Source of treatment** *(Multiple choices).* SC/PHC/CHC Government hospital Private hospital/Nursing home Private doctor Charitable institution Chemist shop Faith healer/religious person Home remedy Any other (specify.....)	 1 2 3 4 5 6 7 8 9	 1 2 3 4 5 6 7 8 9
B2.19	**In the last 12 months how many days could you not go to work due to illness?**	..... days	..... days
B2.20	**Did you undergo any surgery in last 12 months?** Yes No	 1 2->B2.23	 1 2->B2.23
B2.21	**If yes, were you charged extra for AIDS kits and fumigating O.T. used for your surgery?** Yes No Do not know	 1 2 -> B2.23 99 -> B2.23	 1 2 -> B2.23 99 -> B2.23
B2.22	**If yes, how much did you pay?** (thousand dong)	.....	.....
	ARV and OI treatment *(Ask PLWHA only)*		
B2.23	**Are you taking ARV on a regular basis?** Yes No	 1 2 -> B2.26	 1 2-> B2.26

Ref	Question	Person 1	Person 2
B2.24	**If yes, source of obtaining ARV** *(Multiple choices).* State Clinic/Private Health Clinic/Community Health Clinic Government hospital Private hospital/Nursing home Private doctor Charitable institution Chemist shop Faith healer/religious person Home remedy Any other (specify……)	 1 2 3 4 5 6 7 8 9	 1 2 3 4 5 6 7 8 9
B2.25	**Total amount spent per month for ARV treatment** *(thousand dong).* ARV Hospital fee Testing cost Transportation cost to medical unit Accommodation and food cost during health examination and ARV treatment Others **Total amount:**		
B2.26	**If no, why have you not taken ARV?** *(Multiple choices).* I do not know where I can get ARV I can not meet adherence so I dropt ARV treatment My HIV status has not needed ARV treatment yet Costs for ARV treatment are too high for me to pay I do not know about ARV treatment Do not answer	 1 2 3 4 5 99	 1 2 3 4 5 99
B2.27	**Are you taking any other medicine on a regular basis?** Yes No	 1 2 -> B2.29	 1 2 -> B2.29
B2.28	**If yes, how much are you spending per month for other medicine?** (thousand dong)		
	Nutritious care *(Ask PLWHA only)*		
B2.29	**Have you been advised to take nutritious diet to improve your health condition?** Yes No	 1 2	 1 2

Ref	Question	Person 1	Person 2
B2.30	**Do you use foods that have been advised?** **Yes** **No**	 1 2 -> B.2.32	 1 2 -> B.2.32
B2.31	**If yes, what additional food items are you consuming? (List Items)** Animal protein *(Meat, Fish, Egg, Milk)* Plant protein *(Bean)* Staple food *(Rice, Wheat)* Others *(Corn, Potato, Cassava)* Animal fat Vegetable oil *(Oil, Butter, Peanut, Sesame..)* Vegetable Fruit	 1 2 3 4 5 6 7 8	 1 2 3 4 5 6 7 8
B2.32	**If no, why don't have you use those foods?** Prices of foods are so high that I can't afford Market/supper market is too far from my home for me to buy Those foods are not available in market or supermarket I thought that it is not necessary to eat Others (Explain……) Do not answer	 1 2 3 4 5 99	 1 2 3 4 5 99

Ref	Question
B3	**What is monthly average cost for medical care, health examination and treatment for HIV/AID infected member?** 1. HIV/AIDS medicine:……..……thousand dong 2. Other medicines: ……..……thousand dong 3. Hospital fee:……thousand dong 4. Testing cost:……..……..thousand dong 5. Transportation cost to medical unit: …….. ……thousand dong 6. Accommodation and eating cost during health examination and treatment: ……..…….....thousand dong 7. Others: ……...……thousand dong 8. Average days of each treatment period/ month:……day 9. Number of caretaker:……person
B4	**How much <u>per month</u> did you (HIV+ person) lose by not being able to work?** ……thousand dong
B5	**How much <u>per month</u> did the care giver(s) lose by not being able to work?** ……thousand dong
B6	**What additional responsibilities are taken up by other family members of the infected to cope up with the additional expenditure/loss of income/ burden of work?** *(Multiple answers possible)* Use past savings 1 Employer reimburses 2 Medical insurance 3 Mortgage assets 4 Liquidation of assets/durable 5 Loan from employer 6 Borrow from friends and relatives 7 Borrow from moneylender and other financial institutions 8 NGO supports 9 Support from extended family 10 Wife had to take-up job in order to support the family 11 Children had to take-up job in order to support the family 12 Had to take up additional job to meet the increasing expenditure 13 Not applicable 14 Insurance 15 Any other (specify)…… 16

PART C - FAMILY ENVIRONMENT

In this section, we would like to learn about the impact of HIV/AIDS on your family, such as your family participation to the activities for PLHIV, the impact of HIV/AIDS to women and children in the family, and the emotional burden of the care givers when taking care for the PLHIV in the family.

The surveyor will help to circle the option you choose for the answer. As these are the sensitive questions, if you find any difficulty in understanding them, please do not hesitate to ask the surveyor to make them clearer. In case you find any question too sensitive and you do not want to give answer, please ask the surveyor to move to another question.

Max	Question
	Participate in community activities
C1	**Did you or members of your family ever participate in activities for PLWHA and IEC (Information, Education, and Communication)?** Yes 1 No 2 -> C3
C2	**If yes, which ones have you participated in?** 1)…….. 2)…….. 3)……..
C3	**Have you ever participated in publicizing and training activities on the policy and statutes on HIV/AIDS?** Yes 1 No 2 -> C5
C4	**If yes, how many times?**_____ **Where did you participate?** 1)…… 2)…… 3)……
C5	**If no, will you participate in the future?** Yes 1 No 2 Do not now 3
	Impact on Women *(Ask women only)*
C6	**If you are positive, what has been the attitude of the family towards you?** *(Multiple choices).* Blamed for immorality and husband's infection 1 Not allowed to mix with others and participate in family activities 2 Burdened with additional work 3 Denied access to children 4 Denied access to properties 5 No impact 6 Do not answer 99
C7	**If you are negative and your spouse is positive, what protection do you have against infection?** Abstinence from sex 1 Use of condoms 2 Do not use 3 Do not answer 99

Max	Question	
C8	**If you are negative and your husband is positive, has any of the following happened:** *(Multiple choices).*	
	Discussing with husband the needs and ways of safe sex to avoid HIV infection	1
	Coming under pressure from the husband to have unsafe sex	2
	Jointy (with husband) deciding abstinence	3
	Refusing sex with the husband	4
	Becoming a victim of violence for refusing sex	5
	Do not happen	6
	Do not answer	99
C9	**If you are not living with your husband and his family, when did you stop living with them?**	
	After my husband was tested positive	1
	After I was tested positive	2
	After husband's death	3
	Other (Explain: ……..)	4
	Refuse to answer	99
C10	**If not living with husband and his family, are you getting any support from them?**	
	Yes	1
	No	2
C11	**If your husband has died because of HIV-related illnesses, after his death, were you:** *(Multiple choices).*	
	Asked to leave the household	1
	Denied share in his family property?	2
	Denied entry into your maternal/ancestral home	3
	Denied access to your children	4
	Forced to give up inheritance rights	5
	Forced to liquidate assets	6
	No applicable	7
	Do not answer	99
C12	**Did/do you have a say in the following matters/can you decide on your own?** *(Multiple choices).*	
	Buying household assets like land, house, flat etc.	1
	Seeking healthcare for self	2
	Seeking healthcare for children	3
	Whether or not to have a child	4
	Whether you can refuse to have sex with your husband/partner any time	5
	Make your husband/partner use condom during intercourse	6
	Do not answer	99
C13	**Who earn the main income to cover the health care cost for PLHIV?**	
	Wife HIV+	1
	Husband HIV+	2
	People > 60 years old	3
	Children < 18 years old	4
	Others, please specify……	5

Max	Question	
	Impact on Children in the family	
C14	**Are all the children in the family enrolled in a school?**	
	Yes	1 -> C16
	No	2
	No applicable (No children)	3 -> C19
C15	**If no, what are the reasons for not going to school?** *(Multiple choices are possible)*	
	Could not afford school fee	1
	Had to take care of sick	2
	Had to take care of younger sibling	3
	Had to take up a job	4
	Had to take up other household work	5
	Child too sick to attend school	6
	School is inaccessible	7
	Expelled from school due to HIV status of the HH	8
	Expelled from school due to any other reason	9
	Admission denied due to HIV status	10
	Dropped from school due to HIV status	11
	Child not interested in studies	12
	Education not considered necessary	13
	Teacher's attitude discouraging	14
	Quality of education is bad	15
	School infrastructure is a problem	16
	Repeated failure	17
	Do not answer	99
C16	**Are all the children in the family studying in the same school since beginning?**	
	Yes	1 -> C18
	No	2
C17	**If no, reason for change of school? (Multiple choices are possible)**	
	Could not afford the previous school	1
	Better education	2
	No facility for higher classes	3
	Better accessibility	4
	Expelled from school due to HIV status of the HH	5
	Expelled from school due to any other reason	6
	Dropped from school due to HIV status	7
	Failed in the class	8
	Change of residence	9
	Fear of stigma and discrimination	10
	Do not answer	99

Max	Question	
C18	**What changes happen to your children when they knew there is HIV-infected person in your family?** *(Multiple choices are possible)*	
	They do things by themselves no longer ask for parents or tell parents their difficulties	1
	They began to do housework by themselves	2
	They study much harder	3
	They have secret and no more like talking with parents about themselves	4
	They often get angry with other members of family	5
	They often quarrel with somebody even fight	6
	They often keep quite and avoid to contact with people	7
	No changes	8
	Do not answer	99
Perceived impact of HIV on family		
C19	**Please give the impacts on your family when one of the household members has been HIV infected** *(Multiple choices are possible).*	
	Effect on family structure---Decease of family member leads to deformity of the family	1
	Effect on psychology---Feeling psychological pressure and discrimination	2
	Effect on economic---Reduction in labor force-lose of income, heavy economic burden	3
	Effect on children---Discriminated in school or to be an orphan	4
	Other, pls specify……..	5
	No effects	6
	Do not answer	99
Emotional burden of care givers		
C20	**Have you and your family members ever** *(Multiple choices):*	
	Being afraid and cautious when caring for PLHIV	1
	Being ashamed of having a PLHIV as a family member	2
	Being hurt due to stigmatization	3
	Being worried about the impacts of HIV/AIDS on the family members	4
	Being worried about the patient's health and life.	5
	Being heart-broken on the patient's death	6
	Other 1……	7
	Other 2……..	8
	Other 3……	9
Impact on Employment		
C21	**Are you currently working /engaged in an income earning activity?**	
	Yes	1-> Part D
	No	2

Max	Question
C22	**If no, since when you have stopped working?** Year…….. Never employed -99
C23	**What are the reasons for stop working?** *(Multiple choices).* Too ill to work 1 Dismissed from work 2 Factory/office closed 3 Took voluntary retirement 4 Discriminated at work place 5 Left the workplace for fear of stigma 6 Felt too depressed to do any work 7 Any other (specify)…….. 8 Do not answer 99

PART D - STIGMA AND DISCRIMINATION

The surveyor will help to tick to the option you choose for the answer.

This is the most difficult section of the questionnaire as it may recall bad memory for you. Stigma and discrimination toward PLHIV is always the big issue in society. Your contribution will help us to learn more about this issue to ease the situation for you and others. If you find that it is too difficult to answer any question, please ask the surveyor to move to another question.

Max	Question	Answer		
		Yes	No	Not applicable
	Stigma and discrimination towards HIV+ people This section is applicable for HIV+ people only			
	Verbal Abuse			
D1	Someone scolded me.			
D2	Someone insulted me.			
D3	I was blamed for my HIV status.			
D4	I was told that I have no future.			
D5	I was told that I am punished.			
D6	Someone mocked me when I passed by.			
	Negative Self-Perception			
D7	I felt completely worthless.			
D8	I felt ashamed of having this disease.			
D9	I felt that I am no longer a person.			
D10	I felt that I brought a lot of trouble to my family.			
D11	I felt that I did not deserve to live.			
D12	I am scared that others will know about my status and want to relocate this place			
D13	I am worried about the impact on my family and children			
D14	I feel depressed often and am unable to work or do productive things including support to the family			
D15	I think of death most of the time			
	Healthcare Neglect			
D16	I was discharged from the hospital while still needing care.			
D17	I was shuttled around instead of being helped by a nurse.			
D18	In the hospital or clinic, my pain was ignored.			
D19	I was denied surgery			
D20	The hospital let others know about my HIV status			
D21	I was kept in an isolated ward			
D22	I was refused treatment because I was told I was going to die anyway.			
D23	At the hospital, I was left in a soiled bed.			
D24	I was denied healthcare.			
D25	At the hospital/clinic, I was made to wait until last.			
	Right Neglect			
D26	My property was taken away.			

Max	Question	Answer		
		Yes	No	Not applicable
D27	I have been coerced into an abortion or sterilization because of my HIV status.			
D28	Someone has been told about my HIV status without me wanting them to know.			
D29	I was not allowed to own assets/land/house.			
D30	My children were taken away because of my HIV status.			
	Social Isolation			
D31	People cut down visiting me.			
D32	People ended their relationships with me.			
D33	A friend would not chat with me.			
D34	I was refused entry to, removed from or asked to leave a public establishment due to HIV.			
D35	I was forced to change my place of residence because I am known to be HIV-positive.			
	Fear of Contagion			
D36	People do not share eating utensils with me anymore.			
D37	People stopped eating with me.			
D38	I was asked to leave because I was coughing.			
D39	I was asked not to touch someone's child.			
	Workplace Stigma			
D40	Someone tried to get me fired from my job.			
D41	My job description or duties changed because of my HIV status.			
D42	I lost my job because of my HIV status.			
D43	I left the job for the fear of stigma and discrimination			
	Stigma and discrimination towards family of HIV+ people This section is applicable for head of household only			
D44	The other students don't want to sit with children in my family as a family member's infection of HIV.			
D45	The other students don't want to play with children in my family as a family member's infection of HIV.			
D46	The children are frequently beaten or mocked at as a family member's infection of HIV.			
D47	School denied admission to the children.			

Max	Question	Answer		
		Yes	No	Not applicable
D48	Children were not allowed in village heath clinic.			
D49	HIV status of a family member affected the marriage prospects of other family members.			
D50	HIV status of a family member affected the job prospects of other family members.			
D51	I had to change my location because somebody/self in the family after tested HIV.			
D52	My community members and relatives stopped visiting us			
D53	Community members and relatives stopped inviting us for social events			
D54	Social entitlements were denied to the family or delayed			
D55	We felt social exclusion			

PART E - STATUS OF SUPPORT/SERVICE RECEIVING

Please note that the purpose of this study is NOT to provide any support to PLHIV and their family. By studying the support you receive, we will understand the status of the support provided to PLHIV.

Max	Question	
	Support	
E1	**Have you ever sought for any support?**	
	Yes	1
	No	2 -> E3
E2	**If yes, what type?** *(Multiple choices).*	
	Loan	1
	Support for school fee	2
	Financial support for health care	3
	Support for food	4
	Support medication	5
	Others, pls specify……..	6
E3	**Have you ever received any support?**	
	Yes	1
	No	2 -> E5
E4	**If yes, what type?** *(Multiple choices).*	
	Loan	1
	Support for school fee	2
	Financial support for health care	3
	Support for food	4
	Support medication	5
	Others, pls specify……..	6
E5	**Do you have any difficulty when seeking/receiving these support?**	
	Yes	1
	No	2 -> E7
E6	**If yes, what are these difficulties?** 1)…….. 2)…….. 3)……..	
E7	**Have you ever receive support from** *(Multiple choices).*	
	Neighbor	1
	Friend/Relatives	2
	Mass organization/	3
	Government	4
	NGO	5
	Others, pls specify……	6

Max	Question		
E8	**Have your children ever received waiving of school fee?**	Yes	1
		No	2
E9	**Have you joined any support group?**	Yes	1
		No	2 -> E11
E10	**If yes, please give name of the organization:** 1. …… 2. …… 3. ……		
E11	**For how many months have you joined the support group?** …… months		
E12	**What kind of support are you getting?** 1…….. 2…….. 3……..		
E13	**Do you need any support to improve your economic status?**	Yes	1
		No	2
E14	**If yes, what do you want to be supported? (Multiple choices).**	Loan	1
		Training job	2
		Income generation	3
		Donate money	4
		Medical support	5
		Other 1:……..	6
		Other 2:……	7
		Other 3:……	8
E15	**Do you know how to get those supports?**	Yes	1
		No	2
E16	**If yes, what should you do?** *(Multiple choices).*	Ask my parents/parents in law	1
		Ask friends/relatives	2
		Charitable organization/NGO	3
		Mass organization	4
		Government	5
		Help myself	6
		Other (Explain)……..	7

Max	Question		
E17	**In your opinion, what job is in line with HIV infected people?** 1. …….. 2. …….. 3. ……..		
E18	**In your opinion, what difficulties do HIV infected people face when they participate in activities of improving their economic status?** 1. …… 2. …… 3. ……		
	Access to HIV services		
E19	**Do you know where one can get free condom?**	Yes No	1 2
E20	**Do you know where one can get clean and free needle?**	Yes No	1 2
E21	**Do you know where one can get methadone treatment?**	Yes No	1 2
E22	**Do you know where one can get ARV treatment?**	Yes No	1 2
E23	**Do you know where one can get CD4 count test?**	Yes No	1 2
E24	**Did you/your wife go for pregnancy after you knew that you had been HIV infected?**	Yes No	1 2
E25	**Have you ever heard about mother-to-child transmission prevention?**	Yes No	1 2
E26	**To give birth to the baby or go for abortion?**	Birth Abortion Do not know	1 2 99
E27	**Have mother-to-child transmission preventive medication provided?**	Yes No	1 2

Max	Question		
E28	**Were you ever forced or persuaded to undergo an abortion?**		
		Yes	1
		No	2 -> E30
E29	**If yes, by whom?** *(Multiple choices).*		
		Husband	1
		Parents-in-law	2
		Other relatives	3
		Friends	4
		Medical personnel	5
		Any other, please specify……..	6
E30	**Do you have any difficulty in accessing these health services?**		
		Yes	1
		No	2 -> E33
E31	**If yes, what are they?** *(Multiple choices).*		
		Lack of money	1
		Being refused	2
		Negative attitude from health staff	3
		Negative attitude from other patients	4
		Far from home	5
		Fear of stigma	6
		Long waiting time	7
		Service is not available	8
		Others, please specify……	9
E32	**How did you over come it?** *(Multiple choices).*		
		Help from neighbors	1
		Help from friends	2
		Help from mass organizations	3
		Help from peers	4
		Others, please specify……	5
E33	**Have you ever denied using these health services?**		
		Yes	1
		No	2 -> the end
E34	**If yes, why have you denied?** 1. …… 2. …… 3. ……		

THE END

You have completed the questions with us. We would like to send you a small amount of allowance to compensate for the time you spent with us. Again, we confirm to keep your information confidential.

We would like to sincerely thank for your support and wish you and your family our best wishes!