



CHAPTER III LITERATURE REVIEW

3.1 Concept of WTP and WTP measurement

Willingness to pay is defined as the maximum amount of money that may be contributed by an individual to equalize a utility change. WTP is one approach to the valuation of health benefits. The technique is based on the principle that the maximum amount of money an individual is willing to pay for a commodity is an indicator of the value to him/her of that commodity.

Direct measurement of WTP for particular goods or service can be assessed by asking people directly how much they would be willing to pay for specific health service. This approach allows people to take account of all factors (e.g. disposable income, taste, education level, severity of illness etc.) which are important to them in the provision of the service

For direct measurement of an individual's WTP for non-market goods, the contingent valuation (CV) method is attractive.

Two approaches to the CV method: open-ended valuation questions using a bidding game approach, and binary valuation questions. Each of these two valuation methods, binary valuation and the bidding game has its own limitations.

In open-ended valuation questions, respondents are asked to state their maximum WTP for the service. A so-called "bidding game", which resembles an auction, is used. 1. Potential consumers are presented with a detailed description of the hypothetical scenario, and a description of the product or service being evaluated. 2. Potential consumers are asked questions concerning their estimation of the maximum amount they would be willing to pay to obtain or prevent a hypothetical specified change in health.

In general, regression analysis is used to assess WTP studies. WTP has been positively associated with education, income and belief, and the ideological acceptance of health care (*Golan and Shechter, 1993*).

3.2 Determinants of individual characteristics:

- **Age:** As many study mentioned, age is the one of important characteristics that can affect to the knowledge about HIV/AIDS of people and also age may be a risk characteristics with people in age of active sexuality from 15-49 yrs. People with higher experience in the life usually have better knowledge about HIV/AIDS or in other word when the age of people increase the knowledge about HIV/AIDS also increase. Simultaneously, the willingness to pay for HIV counselling and testing service depends on age and knowledge about HIV/AIDS. People with high knowledge and experience of living are willing to pay more to get HIV counselling and testing.

- **Gender:** Gender is a culture-specific construct. There are significant differences in what women and men can or cannot do in one culture as compared to another. But what is fairly consistent across cultures is that there is always a distinct difference between women's and men's roles, access to productive resources, and decision-making authority. Typically, men are expected to be responsible for the productive activities outside the home while women are expected to be responsible for the reproductive and productive activities within the home. In addition, in almost every country worldwide women have less access to and control of productive resources than men, creating an unequal balance of power that favors men. Gender gaps between women and men in literacy, school enrollment, labor force participation, land ownership, and access to credit testify to this imbalance in power (*UNIFEM 2000*). In the era of HIV/AIDS the gap in knowledge is an important reason that can explain the high prevalence in woman. Many study showed that in general man had better knowledge about HIV/AIDS than woman and man also more often access the service of HIV such as counselling and testing service.

- **Place of living:** There are differences between urban and rural area, such as the presence of good road connections, market activities and health-related programs. Those characteristics could indicate the level of exposure to different external information sources as well as creating different patterns of receptiveness and interpretation of information about HIV/AIDS spread and its consequences. Generally, people in urban area have higher knowledge in comparison with people in rural area (*Laura Bernardi*).

Many evidences convinced that people in urban area are willingness to pay for HIV/AIDS counselling and testing higher than people in rural area.

- **Educational level:** Level of education is the most important characteristic of people it influences most to knowledge about HIV/AIDS. Knowledge about HIV/AIDS increases as the level of education increases. Education leads to the acquisition of information and increases the extent to which such information is processed, used and passed on to individuals or members of a social network (*Uche C. Isiugo-Abanihe*). The people with higher education realize the importance of knowledge and the source of knowledge provision like HIV/AIDS counselling and testing service. The willingness to pay for HIV/AIDS counselling-testing service increases as the level of education and knowledge increase.

- **Income:** Income of individual has been considered as an important characteristic that can affect to knowledge about HIV/AIDS and the willingness to pay for counselling and testing service. In general, when income of people increase their knowledge and willingness to pay for HIV/AIDS counselling and testing service also increase.

3.3 Related researches:

3.3.1 Age, health, and the willingness to pay for mortality risk reductions: a contingent valuation survey of Ontario residents

Much of the justification for environmental rulemaking rests on estimates of the benefits to society of reduced mortality rates. This research aims to fill gaps in the literature that estimates the value of a statistical life (VSL) by designing and implementing a contingent valuation study for persons 40 to 75 years of age, and eliciting WTP for reductions in current and future risks of death. Targeting this age range also allows us to examine the impact of age on WTP and, by asking respondents to complete a detailed health questionnaire, to examine the impact of health status on WTP.

This survey was self-administered by computer to 930 persons in Hamilton, Ontario, in 1999. The survey uses audio and visual aids to communicate baseline risks of death and risk changes and are tested for comprehension of probabilities before being

asked WTP questions. We credit these efforts at risk communication with the fact that mean WTP of respondents faced with larger risk reductions exceeds mean WTP of respondents faced with smaller risk reductions; that is, our respondents pass the external scope test.

Our mean WTP estimates for a contemporaneous risk reduction imply a VSL ranging approximately from \$1.2 to \$3.8 million (1999 C\$), depending on the size of the risk change valued, which is at or below estimates commonly used in environmental cost-benefit analyses by the Canadian and the U.S. governments. Interestingly, we find that age has no effect on WTP until roughly age 70 and above (the VSL is about \$0.6 million for this age group) and that physical health status, with the possible exception of having cancer, has no effect. Study also found that being mentally healthy raises WTP substantially. In addition, compared with estimates of WTP for contemporaneous risk reductions, mean WTP estimates for risk reductions of the same magnitude but beginning at age 70 are more than 50% smaller.

3.3.2 Knowledge and attitude towards voluntary counseling and testing for HIV: a community based study in northwest Ethiopia.

The attitude of the respondents towards People Living with HIV/AIDS (PLWHA) was also assessed. Urban dwellers are in most cases, in a better position (i.e., more knowledgeable) with regard to the modes of HIV transmission and its preventive measures. For example, subjects residing in urban centers were nearly 3 times more knowledgeable about the protective effect of the 'correct use of condoms for every sexual intercourse' compared to people living in rural areas and this difference was statistically significant (OR = 2.8, $P < .001$). Moreover, urban dwellers were 7.6 times more knowledgeable with regard to the fact that healthy-looking people could be carriers of HIV compared to the rural settlers. (OR = 7.6, $P < .001$)

In relation to the question who needs VCT service, there was a considerable disparity between the responses of the urban and rural dwellers. In particular, the response of the rural respondents was more than 3 times greater than the urban dwellers in citing that the female sex workers are the ones who need VCT service (OR = 3.4, 95%

C.I (2.6 to 4.4), $P < .001$). The same Table shows the various responses of the study subjects with regard to the measures that a person would take if he/she is found positive/negative for HIV by taking account of urban-rural differentials. When asked whether they would agree to accept antiretroviral treatment during pregnancy in order to protect the new born from infection, the majority of the women (426 or 85.5%) agreed to take the antiretroviral drug. The male respondents were also asked the same question whether they would support if their partners take antiretroviral drug during pregnancy. In this regard, the majority (444 or 90.8%) of the male respondents replied that they would support their female partners.

When we compared the urban and the rural residents about their willingness to pay for VCT service, the urban dwellers showed 3.9 times more willingness than the rural ones and the difference was statistically significant ($OR = 3.9$, 95% CI ($2.7 < OR < 5.4$), $P < .001$).

3.3.3 Assessing the cost and willingness to pay for voluntary hiv counselling and testing in Kenya

Voluntary counselling and testing (VCT) should be an important component in a country's HIV/AIDS prevention and care strategy. However, the high cost of VCT raises concerns about the affordability of VCT in low-income countries. This study was designed to assess the national cost of VCT and to identify potential ways of introducing VCT more affordable.

An economic evaluation was performed of VCT in two rural health centres in Thika District and urban health centre in Nairobi, Kenya. A contingent valuation study was also performed among VCT clients. Estimates were developed regarding the national of offering VCT services in Kenya.

VCT added US\$ 6800 per year to the average cost of providing services at each of these three health centres. The evaluation revealed that the incremental cost, from the government's perspective, of adding VCT is approximately \$16 per client. The estimated incremental cost per client is significantly less than a previous cost estimated in Kenya which estimated a cost per client of \$26. The difference in cost estimates is in part

attributable to the emphasis of this project on integrating VCT services into existing health centres, rather than creating stand-alone sites. The cost of VCT services might be further reduced to as little as \$8 per client if a government health worker could perform the counselling. A contingent valuation study indicated that most VCT would be willingness to pay at least \$2 for service. However, if the full cost of the service were charged to the client, less than 5% clients indicated that they were willing to pay for the service.

Integrating services into existing health centres can significantly reduce the cost of VCT. Additional cost reductions may be feasible if health centre staffs are hired to perform the counselling. Furthermore, it appears that some level of cost recovery from VCT clients is feasible be recovered from the clients. The national provision of VCT in all Kenya health centres is likely to be an affordable option, although additional operational research is required to determine the most appropriate way of scaling up VCT services throughout the country.

3.3.4 Socioeconomic Impacts of HIV/AIDS on Individuals and Households in Vietnam

3.3.4.1 Financial Impact

One of the most frequently observed ways in which HIV/AIDS affects households and individuals is through the sudden and tragic loss of income and economic security as household earnings decline and medical expenses increase. Household resources erode quickly while exposure to economic risk is exacerbated by the stress of illness as, first, adults and, then, children become caregivers for sick family members. Owing to the burden of HIV/AIDS, female-headed households generally undergo the most severe distress. In responding to the needs of children who have lost one or both parents to HIV/AIDS, extended families become further impoverished and indebted. Research conducted for the United Nations Development Program (UNDP) in the Philippines, India, and Thailand revealed that efforts to cope with HIV/AIDS crippled household income-earning capacity, diminishing the resources of extended family members and causing family members to turn to self-employment in the informal sector (*Bloom and Godwin, 1997*). Per capita consumption expenditure is low in Viet Nam, with 59 percent allocated to food. Most households have no reserves to pay for a sudden increase in

health care expenditures or to weather a sudden loss in income. As a result, AIDS can cause poor households to dissolve and push nonpoor households into poverty. A 1999 survey conducted by the Hanoi Research and Training Center for Community Development (*Narayan, 1999*) reports the following qualitative household wealth indicators described by respondents from among the poorest households in Viet Nam (*see Table 3.1*). It paints a picture of limited resources and insecure livelihoods.

Table 3.1 **Qualitative Household Wealth Indicators**

Type of Household	Reported Household Wealth Indicators
Poor Households	Live in unstable houses, often constructed with mud
	Lack television or radio
	Unable to save money
	Some have children who cannot attend school or must leave school permanently
	Usually have enough food until the next harvest, although sometimes lack food for one to two months per year
	Unable to use surrounding natural resources to their benefit
Very Poor Households	Live in unstable houses that often need to be rebuilt every two to three years Very Poor Households
	Lack wells or easy access to fresh water

Source: Hanoi Research and Training Center for Community Development, 1999

Given these profiles and the protracted illness or death of a family member, households that

Can not satisfy their need for food or cash undertake other income-generating activities. Poorer families typically initiate low-risk/low-return income-generating activities, which further reduce their ability to save and thus magnify their vulnerability to loss, including loss from HIV/AIDS.

Table 3.2 (*Donahue, 1998*) illustrates the types of strategies households use to try to manage loss; while not unique to the HIV/AIDS epidemic, these common responses relate to the size and severity of the loss and relative economic stability of the household and show the diminution of household resources over time.

Table 3.2 Three Stages of Loss Management

Stage	(Selected) Loss-Management Strategies
1. Reversible Mechanisms and Disposal of Self-Insuring Assets	Seeking wage labor or migrating temporarily to find paid work
	Switching to production of low-maintenance (usually less nutritious) subsistence food crops
	Liquidating savings or other assets such as livestock
	Tapping obligations from extended family or community members
	Borrowing from formal/informal sources of credit
	Decreasing spending on education and nonurgent health care
2. Disposal of Productive Assets	Selling land, equipment, tools
	Borrowing at exorbitant interest rates
	Further reducing consumption, education, or health expenditures
	Reducing amount of land farmed and types of crops
3. Destitution	Depending on charity
	Breaking up household
	Migrating in response to distress

Source: Donahue, 1998

Households and entire communities are linked and made vulnerable in terms of both risk of HIV infection and the capacity to cope with HIV infection and its present and future impacts on other household and community members.

3.3.4.2 Impact on Work and School

Education is widely seen as critical to social mobility, equality of opportunity, the development process, and poverty alleviation. Children in families affected by AIDS may face reduced opportunities to enjoy the benefits of education. Children, especially girls, are often required to care for AIDS-infected family members and often stay home from school to do so. The death of a parent may further reduce educational opportunities for children. As a result, children's school attendance and educational attainment may suffer. Research has also shown that children are much less likely to complete their education when a parent, particularly the mother, has died. Studies have demonstrated a strong relationship in Vietnam between household income and children's academic success (*Behrman and Knowles, 1999*).

As educational opportunities diminish, the vulnerability of children and youth to HIV infection is expected to increase. HIV/AIDS is causing unprecedented threats to children's well-being, including deepening poverty, the pressure for girls and then boys to drop out of school as financial resources are redirected, the assumption of adult work and care-taking responsibilities, and anxiety and loss of family as siblings are placed with relatives to spread the economic burden of their care.

3.3.4.3 Impact on Orphans

It is estimated that approximately 22,000 children (under the age of 15 years) in Viet Nam had lost their mothers or fathers or both to AIDS by the end of 2001. As HIV/AIDS moves through families, killing parents and leaving elderly grandparents as primary care providers, some children or adolescents become the heads of household. Others leave abusive or destitute situations to fend for themselves. A growing but undocumented numbers of street children reside in neighboring Phnom Penh (Cambodia) and major cities elsewhere in Southeast Asia.

Recognizing that psychosocial problems relating to loss and bereavement may affect these children's development and behavior, a number of centers "for the care of HIV-affected orphans"—in Ho Chi Minh City, Hai Phong, and the provinces of Quang Ninh, Cao Bang, and Kien Giang—began providing services around AIDS Day 2002 (*Sternin, n.d.*).

Stigma associated with HIV/AIDS frequently compounds the emotional distress and vulnerability of orphans and children affected by the disease. The scale of the problems facing orphans and children is much larger than the interventions implemented to address them.

3.3.4.4 Examples from the Region

Studies in Thailand and India (*Bloom and Godwin, 1997*) found that the consequences of the death of a productive member of the household extend well beyond just lost income. The Thai study found that the economic impacts of an AIDS-related death were particularly severe because AIDS affects young people, reducing the forgone income of the deceased by 30 percent more than households that experienced the death of a main income earner from other causes; and AIDS is more likely to affect an already disadvantaged population with limited coping mechanisms and alternatives. Studies show that the household impact of HIV/AIDS on the poor will be greater because poorer households are limited.

In a study of the impact of HIV/AIDS mortality on rural households in Chiang Mai, Thailand (conducted during 1992 and 1993; Pitayonon et al., 1997), the economic impact of an AIDS death measured in terms of direct and indirect costs was substantial (and far greater than the impact of death from other causes in the same communities). The direct medical care cost for each HIV/AIDS patient was about US\$1,000, equivalent to six months' worth of the average household income and about 25 times the Thai government's per capita health expenditure.

Other direct costs include expenses for funerals and mourning rituals, fees charged by additional hospitals, and programs to care for orphans. Family coping responses included spending down savings and borrowing and selling possessions, including land and livestock, thus confirming the intensification of poverty as households respond to HIV/AIDS.

Similarly, a survey of three provinces in China, which included interviews with PLWHA (The Socioeconomic Impact of HIV/AIDS Research Team, 2002), indicated that only 21 percent of respondents retained their employment after becoming infected. The survey confirmed that medical expenses (in-patient and out-patient treatment) of PLWHA far exceeded per capita annual income. With AIDS patients paying three-quarters of medical bills themselves, care and treatment of AIDS patients in China remains a substantial burden for households.

3.3.4.5 Impacts of HIV/AIDS on the Health Sector

The government of Viet Nam has placed great value on the expanded provision of health and social services post-Doi Moi. With a high degree of social organization and in-place community development mechanisms, Viet Nam's well-developed health infrastructure delivers basic services through a network of 10,000 commune health centers, each reaching approximately 8,000 people. However, a lack of resources has resulted in the imposition of user fees at national, provincial, and district levels (in 1989), while immediate access to health care remains a problem, especially among the rural poor. Scarcity of drugs at the commune level forces patients to purchase drugs at local pharmacies. In short, several challenges to health sector reform remain, providing a backdrop for complementary HIV-related services, including

- Expanding health services to remote areas inhabited by minority groups, which account for 10 percent of Viet Nam's population;
- Modernizing and rehabilitating the health infrastructure in the rest of the country;

- Regulating the fast-developing private sector;
- Balancing the bias toward curative medicine by instituting prevention programs (especially given Viet Nam's relatively high literacy rate);
- Organizing community-based health education/HIV prevention programs;
- Improving supervisory and management capacities and oversight of referral at each level;
- Ensuring rapid drug procurement;
- Addressing multidrug-resistant TB; and
- Providing sustainable, effective HIV/AIDS services in both urban and rural settings

HIV/AIDS affects the health sector in a number of ways. First, by increasing the demand for health care services, HIV/AIDS can raise costs and reduce resources available for other health needs. Second, HIV/AIDS can affect the supply of high-quality health care by reducing the availability of trained doctors, nurses, and other health care professionals.

3.3.4.6 Demand for Services and Impact on Health Care System

As the number of people with HIV/AIDS increases, the demand for health care services will increase. Among the many services required to respond to the epidemic are palliative care to treat pain and other symptoms, the treatment of opportunistic infections (OIs) (such as TB), prophylaxis to prevent OIs, and antiretroviral (ARV) therapy. In addition, the health sector is responsible for providing many important prevention programs such as the treatment of STIs, voluntary counseling and testing (VCT), programs for the prevention of mother-to-child transmission of HIV (PMTCT), distribution of condoms, and safe blood transfusions.

The requirement for hospital beds illustrates the demands on the health care system for HIV/AIDS-related care and treatment. If we assume that each AIDS patient requires an average of 20 days in a hospital each year, then the 6,000 to 7,000 new cases of AIDS this year will require 130,000 hospital bed-days, just 0.2 percent of the available bed-days. However, in the next 10 years, the annual number of AIDS cases is likely to increase to 60,000. This 10-fold increase in hospitalization requirements will cause more resources to be shifted to AIDS and away from other health care priorities.

To expand the prevention program to reach most of the population in need of such services, similarly large increases will be required to make prevention services widely available.

Table 3.3 illustrates the increased health services required in Viet Nam by 2007 to meet the goals of the United Nations Declaration of Commitment on HIV/AIDS.

Table 3.3 **Increasing Service Requirements for Prevention Programs**

Service	2003	2007
Condoms distributed	60 million	3.05 billion
Cases of STIs treated	260,000	530,000
Number of VCT sessions conducted	80,000	340,000
Number of pregnant women provided with counseling and testing	300,000	810,000

Source: National Standing AIDS Bureau, 2002

3.3.4.7 Impact on Supply of Health Care Workers

Viet Nam's approximately 850 government hospitals employ about 27,000 doctors and 46,000 assistant doctors. The private sector has developed rapidly in urban centers; in 1995, there were 15,000 registered private practitioners. No HIV infections have been reported among health service employees; however, standard adoption of universal precautions, including training to avoid transmission via needle stick injuries, remains a challenge throughout the health sector. While specific data quantifying the number of health care workers who acquire and/or die of HIV/AIDS each year are not available, the number of workers could diminish as a consequence of HIV/AIDS as the demand for medical services increases. A survey of 1,178 health workers conducted in 2000 in three provinces experiencing a noticeable spread of HIV revealed a lack of knowledge about HIV/AIDS among doctors and physicians. According to Viet Nam's National Committee for AIDS Prevention and the MOH, more than 94 percent of surveyed doctors and physicians provided incorrect answers to questions about the main symptoms of the disease, and only one-third of respondents had received training in HIV/AIDS prevention (MOH, 2002b). Results demonstrate the need for systemwide preparedness planning to build the skills needed for providing both preventive and curative HIV/AIDS services.

3.3.4.8 Health Care Expenditures

Requirements for health sector spending on HIV/AIDS are likely to increase by 20-fold or more in the coming years as the number of people needing care grows and prevention efforts expand to cover more of the population in need. Viet Nam spent US\$129 per person on health care services in 2000, the last year for which WHO data on spending calculated in "international" dollars are available. Given Viet Nam's population of 80 million, total health spending is currently about 10 billion "international" dollars.

At the full level required, total spending in 2007 for HIV/AIDS will absorb 2.1 percent of total health spending, or nearly 5 percent of all public health spending. These comparisons suggest that financing the necessary prevention, care, and treatment services will test the commitment, capacity, and will of the Vietnamese economy. Donor assistance, particularly as it facilitates the transfer of essential technology, will continue to be critical to program success. International assistance from the Global Fund for HIV/AIDS, TB, and Malaria and other donors will provide some of the additional funds; however, much of the increased

Neighboring countries provide several lessons in the financing of health care services:

- As one of the first countries in the region to include ARVs as part of its standard care package, Thailand encouraged local private production of generic ARVs, subsidizing triple drug regimens produced by the Thai Government Pharmaceutical Organization (GPO). This measure substantially pushed down the cost of the drugs over time, from more than 30,000 Baht per month (US\$720) before 2000 to less than 6,000 Baht per month (US\$144) by mid-2001. Regimens now produced by GPO cost only 1,200 Baht per month (US\$29), which is the amount most Thais can afford. In 2001, the Thai government provided treatment to 1,500 PLWHA; in 2002, the number expanded to 12,000 PLWHA. By late 2004, ARV distribution will become part of the Thai “30 Baht” national health scheme, enabling all of the estimated 50,000 to 60,000 Thai PLWHA who meet medical eligibility requirements set by the Ministry of Public Health to receive ARVs distributed through provincial hospitals around the country.

- Surveys in three provinces of China (The Socioeconomic of HIV/AIDS Research Team,

2002) show that while funding for AIDS prevention increased more than 10-fold from RMB (*Yuan Renminbi*) 11.4 million (US\$1.4 million) in 1995 to RMB 92.61 million (US\$11.2 million) by 2000, the per capita amount totaled less than US\$ 0.01 (RMB 0.06) in the latter year. According to some estimates, China will need US\$395 million if it is to achieve reasonable coverage of prevention interventions (only) by 2005, or an annual investment of US\$78.5 million. Accordingly, the annual per capita investment must increase more than six-fold to US\$0.06.

Source: UNAIDS, 2002a.