CHAPTER 6 Policy Implications and Conclusions

Our findings after assessing the short- to medium-term (2004-14) socioeconomic impact of the HIV/AIDS epidemic in Ukraine demonstrate that if not curtailed, the spread of this disease is likely to have grave effects on the population and economy. Allowed to grow at its current rate, the epidemic will have a long-lasting and destructive effect not only at the individual level but to the society at large. AIDS has become a reality of life in many countries, impeding human development, limiting the rights of children and adults to healthy and productive lives, and affecting living standards. As this study shows, Ukraine's potential epidemic would likely undermine the economy, reducing the labor force and revenues and increasing government costs.

The cumulative number of people infected with HIV is estimated to reach 479,000-820,000 by 2014, with another 29,000-94,000 contracting it each year. The adult prevalence rate may reach 1.9-3.5 percent that same year, and those needing ART may increase to 130,000 (77,000 in the optimistic scenario). Annually, AIDS would cause an estimated 35,000-65,000 deaths, with similar numbers developing the disease each year. AIDS would account for almost a third of all male deaths and a staggering 60 percent of female deaths in the 15-49 age group by 2014, reducing life expectancy by 2-4 (3-5) years for males (females). The spread of HIV/AIDS would exacerbate Ukraine's already-adverse demographic situation: without AIDS, low fertility rates would drive the Ukrainian population down to 44.2 million by 2014; with it, an additional 300,000-500,000 would be lost, leaving a total population of 43.9-43.7 million.

Echoing the underlying demographic decline of 10.4 percent from 2004 to 2014, HIV/AIDS will cause an additional 1-2 percent reduction in labor force nationwide. The epidemic could contribute to labor force shrinkage in the worst-affected oblasts at rates of 2.7-3.6 percent for Donetsk and 2.2-4.2 percent for Odesa. The worst-affected oblasts in terms of HIV prevalence have the highest output per worker and the highest agricultural wages that drive inward migration. Younger people are most affected, with a pronounced gender differential (the sharpest decline is for females in the 15-19 age group). Longer-term negative demographic consequences follow from the reduced fertility among young, HIV-infected women.

As labor takes its hit, so do families and children. The medium scenario posits that 42,000 orphans will have lost both parents to AIDS by 2014, with another 105,000-169,000 having lost one parent, depending on the scenario. Those children are at risk of impeded access to quality education, health care, and even basic needs, unless they receive adequate assistance from the government. Implications include not only increased HIV/AIDS but even greater threats to society.

While its revenue shrinks with the workforce, the government would also experience increased medical expenditure and social security outlays. The study finds that depending on the cost scenario for ART and hospitalizations, annual AIDS care expenditure may be reach 630 million UAH by 2014 (estimate range: 41-629 million UAH, quite wide due to the high degree of uncertainty about exogenous factors such as future treatment costs).

Revenue losses through the fall in employment due to HIV/AIDS, forgone income taxes, and unpaid pension and social security (temporary disability and unemployment) levies are estimated to reach 263-418

million UAH (in optimistic-pessimistic scenarios). At the same time, projected additional budget expenditure in 2014 will require an extra 109-200 million UAH for permanent disability pensions due to HIV/AIDS, 20-35 million UAH in additional pensions from the social protection fund, 7-12 million UAH in temporary HIV disability payments, and 3-8 million UAH in AIDS orphan pensions. Thus, the total estimated HIV/AIDS-related additional benefits are 139-255 million UAH per year by 2014.

The study applied several macroeconomic models to estimate the magnitude of the macroeconomic effects likely to be caused by the HIV/AIDS epidemic in Ukraine based on the range of plausible scenarios. Implications from the models include the following mid-term effects (by 2014 with AIDS, compared to the "no-AIDS" baseline scenario):

- 1-6 percent reduction in the level of output (GDP in constant prices),
- 2-8 percent reduction in total welfare, and
- 1-9 percent reduction in investment.

The CGE analysis also demonstrates a decline in wages for unskilled, skilled, and highly skilled worker groups, driven by the HIV/AIDS-associated decline in labor productivity. On a sectoral level, the labor-intensive industries with the greater share of skilled and highly skilled workers proved to be especially vulnerable in terms of the production and export indicators.[14]

Sectoral analysis suggests that labor-intensive sectors whose labor inputs suffer from the epidemic will be among the worst affected. Based on the CGE, sectors such as production of non-energy materials as well as metallurgy and metal processing would be most affected, with output falling by up to a third in the worst-case scenario. Given the relative share of these sectors in the country's trade structure, the worst-case scenario anticipates a fall of 40 percent in exports of these sectors, which translates into 5.5 percent fall in GDP, an 8 percent fall in total welfare, and a 9 percent fall in investment. The macroeconometric model produces stronger effects for the agriculture sector, due to the higher estimated labor share in the production function.

In line with other international studies, the modeling results for Ukraine demonstrate that the HIV/AIDS epidemic could lead to potentially catastrophic consequences without an effective and timely national response. Even within the short to medium term, the study shows that the cost of inaction would be high and the long-term implication could be even higher.

The epidemic's distribution as reported here calls for attention to and effective targeting of the young, females, and those in the worst-affected oblasts. Prevention and treatment programs need to reach these groups and areas, and the messages and services must fit their needs. In addition, the pattern of transmission requires a prevention strategy focused on harm-reduction programs as well as sex education for young populations. Even though the mode of transmission is evolving toward heterosexuals, IDUs still constitute the majority of new infections. Special effort will have to be made to reach this marginalized group.

Given the important role they play in the Ukrainian economy, the worst-affected oblasts of Donetsk, Dnipropetrovsk, Odesa, and Mykolaiv should be treated with priority in implementing the HIV prevention, education, and treatment measures.

Due to the data limitation, this study could model only the impact of ART, one of many possible interventions. Nevertheless, the study demonstrates that prevention and treatment could be cost-effective,

[14] The most affected sectors in the CGE model are production of non-energy materials; mining of coal and peat; manufacture of chemicals and rubber; metallurgy and metal processing; and electric energy. The result of the macroeconometric model is the opposite, with agriculture posting the largest losses (1.2-2.3 percent of the baseline), followed by transport and communications (1.1-2.2 percent). Sectoral output in mining is estimated to decline by 0.1-0.2 percent. The model applied the largest losses to the labor force in the agricultural sector, which coincidentally is concentrated in the eastern oblasts with the highest HIV prevalence rates. See Annex 7 for details.

and scaling up the treatment could avoid the otherwise expected overburdening of the health system and escalating costs. Although not modeled here, preventive education measures must complement ART to enhance its impact.

Last, timing is crucial: as study results demonstrate, the epidemic is still spreading, so timely, effective interventions, including making ART available, could reverse the epidemic and reduce its negative impact on socioeconomic development in Ukraine.