

CHAPTER 4 *Impact of the Epidemic on the Labor Force and Government Revenues*

The labor force forecast is based on the social budgeting methodology developed by Ukraine's Ministry of Labor and Social Policies/National Academy of Sciences, jointly with the United Nations Development Program (UNDP), International Labor Organization (ILO), and the World Bank. Other methodological approaches included mid- and long-term projections of demand for social services and unemployment benefits payable by the Special Fund (social insurance against unemployment). Labor projections were constructed using State Statistics Committee data for 1998-2003 on the working-age population, labor force participation (economic activity), population not in the labor force (those on aged or disability pension, full-time students, discouraged workers, etc), and employed and unemployed populations. Data were disaggregated by five-year age groups and gender. The labor force forecast relied on the demographic projections in Chapter 3 (including projections of the population aged 15-70) and macroeconomic projections for GDP, labor productivity, and average monthly wages up to 2014. A hypothetical benchmark "no-AIDS" forecast was constructed, along with three "with-AIDS" projections based on three epidemic scenarios (medium, optimistic, and pessimistic). Details are provided in Annex 3.

Analysis at the National Level

As the first step, an assumption was made for the "no-AIDS" scenario that any person aged between 15 and 70 is a working-age person who is either in or out of

Table 4-1. Estimated Reduction in Selected Labor Market Indicators in the "No-AIDS" Scenario, 2004-14 (in Thousands) and Percentage of Reduction

Indicator	"No-AIDS" scenario			
	2004	2014	Reduction from 2004 to 2014	Percentage
Working-age population	36,173.9	33,751.9	2,422.0	6.7
Labor force	22,490.4	20,154.8	2,335.6	10.4
Employed	20,440.1	18,313.5	2,126.6	10.4
Unemployed	2,050.3	1,841.3	209.0	10.2

Source: Authors' calculations.

the labor force. The five-year age group and gender projections of the working-age population are based on actual labor force participation data for 1998-2003 and Chapter 3's demographic forecast. It is estimated that the working-age population shrinks by 2.4 million (6.7 percent) over the forecast period (2004-14). The projected labor force would decline by 2.3 million (10.4 percent) over the same period. State Statistics Committee data indicate that the labor force declined over 1998-2003 by 3.3 million (1.2 million males and 2.1 million females). The sex ratio of labor force also changed, with the share of males in the total labor force increasing from 49.2 percent in 1998 to 51.1 percent in 2003 (and a corresponding decline in the female share from 50.8 percent to 48.9 percent). This tendency is preserved over the ten-year forecast horizon, with the males' share reaching 52.3 percent. According to the forecast, total employment will decline 10.4 percent by 2014, from 20.4 million to 18.3 million. The number of unemployed decreases 10.2 percent over the period from 2.1 million to 1.8 million. Details are in Table 4-1.

Table 4-2. Estimated Reductions in Selected Labor Market Indicators due to the Epidemic, Compared to the “No-AIDS” Scenario, 2014 (in Thousands and as Percentage of Reduction)

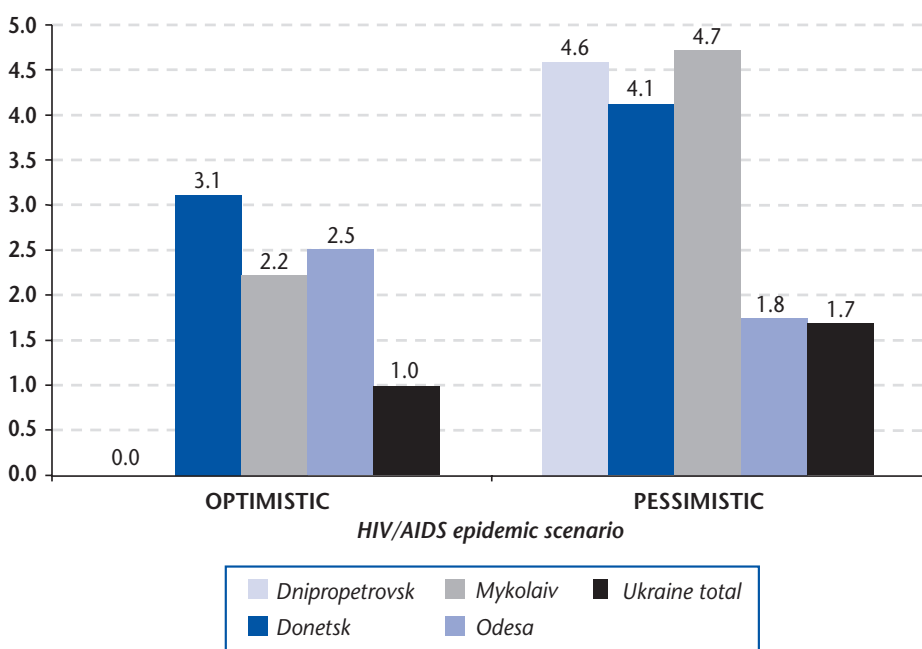
Indicator	AIDS epidemic scenario					
	MEDIUM Percentage		OPTIMISTIC Percentage		PESSIMISTIC Percentage	
Working-age population	441.1	1.3	268.1	0.8	472.8	1.4
Labor force	323.4	1.6	193.2	1.0	351.0	1.7
Employed	286.4	1.6	170.4	1.0	301.7	1.7
Unemployed	66.1	3.6	24.9	1.4	55.2	3.0

Source: Authors' calculations.

Labor Force in AIDS Epidemic Scenarios

The AIDS epidemic affects the size of a labor force significantly. Using Chapter 3's three epidemic scenarios and applying the methodology outlined in Annex 3, three projections were constructed for the working-age population, labor force, employment, and unemployment. Comparing the endpoint of projections in 2014 to the baseline “no-AIDS” value in

Figure 4-1. Regional Comparison of Estimated Labor Force Reduction from the Epidemic, Compared to the “No-AIDS” Scenario, 2014 (Percentage of Reduction)



Source: Authors' calculations.

2014, it is estimated that in 2014 the HIV/AIDS epidemic yields an additional decline of 0.8-1.4 percent in the working-age population, a 1.0-1.7 percent decline in the labor force and employment, and 1.4-3.0 percent reduction in unemployment (see Table 4-2).

Analysis at the Regional Level

To assess the epidemic's impact on the regional level, four oblasts were selected: Donetsk, Dnipropterovsk, Odesa, and Mykolayiv. The calculations were based on the hypothetical “no-AIDS” scenario and the three epidemic scenarios. Projections were made for the working-age, economically active, employed, and unemployed populations by gender using the same methodology as in the national level analysis. Results confirm the expected reduction in the size of the working-age population and labor force, including a reduction in the

employed population in all four oblasts. As Table 4-3 demonstrates, these oblasts suffer from a far stronger HIV/AIDS impact on the labor force and employment than the national average: by a factor of 2-2.5 in the pessimistic scenario. Details of the estimations are provided in Annex 3. Figure 4-1 illustrates the additional burden of HIV/AIDS on the labor force in 2014 in these oblasts compared to the national average.

Impact of Epidemic on Government Budget Position and Special Social Protection Funds

The study estimated forgone revenue to the state and special funds (including pension and social insurance funds covering temporary disability, unemployment, and social protection of those with permanent disabilities) caused by

Table 4-3. Regional Comparison of Estimated Losses from the Epidemic in Selected Labor Market Indicators, Compared to the “No-AIDS” Scenario, 2014 (Percentage of Reduction)

Percentage decline compared to “no-AIDS” 2014 baseline in:	Working-age population		Labor force		Employed		Unemployed	
	Optimistic	Pessimistic	Optimistic	Pessimistic	Optimistic	Pessimistic	Optimistic	Pessimistic
<i>Dnipropetrovsk</i>	NA	2.5	NA	4.6	NA	4.6	NA	4.6
<i>Donetsk</i>	1.3	2.2	3.1	4.1	3.1	4.1	3.1	4.1
<i>Mykolaiv</i>	1.2	1.2	2.2	4.7	1.1	3.6	9.2	11.6
<i>Odesa</i>	1.2	1.8	2.5	1.8	4.8	4.8	6.6	6.6
Ukraine total	0.8	1.4	1.0	1.7	1.0	1.7	1.4	3.0

Note: “NA” = not available: no optimistic scenario was constructed for Dnipropetrovsk due to lack of data.

Source: Authors’ calculations.

the epidemic. Such forgone revenue results from a reduction in the number of people employed and an increase in the number who cannot work due to illness. See Annex 4 for methodology, definitions, assumptions, and results from this section.

Revenue forgone through unpaid taxes and levies due to the reduction in employment was estimated using two epidemic scenarios: optimistic and pessimistic. Using the projected reduction in employment, forgone state revenues are calculated as the amount of unpaid personal income tax; forgone pension fund contributions (unpaid fees for mandatory state pension insurance); forgone revenue to the disability social insurance fund (unpaid premiums to the fund); and forgone revenue to the unemployment social insurance fund (unpaid levies to this fund), respectively.

Using the estimates of reduction in employment, the average withholding rate, and the average monthly wages, the study calculates the annual forgone revenue to the state and special funds to be between 263.8 million and 418.8 million UHA (optimistic-pessimistic scenario), or 0.13-0.21 percent of the total.

On the expenditure side, direct budgetary costs take the form of permanent disability pensions from the pension fund for those who progress to AIDS, additional financial assistance from the social protection fund (SPF) for those disabled by AIDS, temporary

disability payments from the same fund for those infected with HIV and progressing to AIDS, and state assistance to children with HIV/AIDS.

This analysis assumes that everyone who develops AIDS becomes permanently disabled and eligible for a disability pension and related additional benefits. Based on the projected number of AIDS cases for 2004-14 and a range of assumptions for calculating the corresponding disability benefits (Annex 4), the estimated additional annual expenditure by the pension fund for permanent disability pensions to those who develop AIDS will reach 109.2-200.0 million UHA (optimistic-pessimistic) by 2014. The corresponding average growth rate of AIDS-related outlays from the pension fund is 13-15 percent per year (optimistic-pessimistic scenarios). The total additional annual expenditure from the SPF related to permanent disability from AIDS is estimated to reach 19.5-35.5 million UHA by 2014 (optimistic-pessimistic), a 3-7 percent increase in total outlays from these funds. Adding the guaranteed minimum pension to children with HIV/AIDS yields an additional 3.5-8.3 million UHA payment from the SPF.

Before developing full-blown AIDS, those infected with HIV become progressively ill, requiring sick leave from work, which is funded by a social protection (temporary disability) fund. Overall, 524,000 persons in the optimistic and 721,100 persons in the pessimistic scenarios will receive temporary

disability benefit over 2004-14. This translates into an additional annual outlay of UAH 6.8-11.5 million by 2014 (Annex 4).

Table 4-4 lists these calculations, providing estimates of total non-medical annual state costs associated with social protection and pensions for HIV/AIDS victims, plus the forgone revenue, at UHA 402.8-673.0 million, depending on the epidemic scenario. Health expenditure associated with HIV/AIDS is estimated in Chapter 5.

Table 4-4. Total Additional Annual Non-medical Budgetary Losses/Costs Associated with HIV/AIDS, 2014

In 100,000 UAH

Category	Optimistic	Pessimistic
<i>Forgone revenue</i>	263.8	418.6
<i>Expenditures</i>		
<i>Pension fund: Permanent disability due to AIDS</i>	109.2	200.0
<i>Additional assistance to permanently disabled (SPF)</i>	19.5	35.5
<i>Temporary HIV disability payments (SPF)</i>	6.8	11.5
<i>Assistance to children with HIV/AIDS</i>	3.5	8.3
<i>Total additional expenditures</i>	139.0	255.3
Total budgetary costs	402.8	673.9

Source: Authors' calculations.