Economics of Tobacco Taxation in Ukraine

Hana Zarubova Ross, PhD
Surveillance and Health Policy Research,
American Cancer Society, Atlanta, Georgia

Samina Shariff, MPH
Surveillance and Health Policy Research,
American Cancer Society, Atlanta, Georgia

Anna Gilmore, PhD
University of Bath & European Centre on Health
of Societies in Transition, London School of
Hygiene and Tropical Medicine, London, UK

"If tax represents 70 percent of the retail price, the number of smokers would decline by almost 2 million, and about 1 million tobacco-related deaths would be avoided. At the same time, the government would collect an additional UAH 5.8 billion (US$ 1.2 billion) in excise tax revenue per year."

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Monitor tobacco use and prevention policies

Protect people from tobacco smoke

Offer help to quit tobacco use

Warn about the dangers of tobacco

Enforce bans on tobacco advertising, promotion and sponsorship

Raise taxes on tobacco

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International Union Against Tuberculosis and Lung Disease (The Union)
68 boulevard Saint Michel, 75006 Paris - FRANCE
Tel : +33-1 44.32.03.60, Fax : +33-1 43.29.90.87
email: union@iuatld.org; web: www.iuatld.org

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Acronyms and Abbreviations

BAT: British American Tobacco

ECU: European Currency Unit

EIU: Economist Intelligence Unit

EU: European Union

FCTC: Framework Convention on Tobacco Control

FDI: Foreign direct investment

FSU: Former Soviet Union

GDP: Gross domestic product

GYTS: Global Youth Tobacco Surveys

JTI: Japan Tobacco International

KIIS: Kiev International Institute of Sociology

OECD: Organization for Economic Cooperation and Development

RYO cigarettes: Roll-your-own cigarettes

TTC: Transnational Tobacco Company

VAT: Value-added tax

WCO: World Customs Organization

WHO: World Health Organization

Executive Summary

Ukraine has about 16.5 million smokers and one of the highest rates of male smoking prevalence in the world. More than 66 percent of adult males consume tobacco, primarily in the form of cigarettes. Female smoking prevalence traditionally has been lower than that of males, but increased following the collapse of the former Soviet Union. In 2005, female smoking prevalence was 20 percent, reaching 30 to 32 percent among younger to middle-aged women. Youth smoking prevalence is also high; 29 percent of boys and 20 percent of girls aged 11 to 17 years smoke cigarettes. Few Ukrainians have quit smoking, an indication that tobacco control measures are not well developed.

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Tobacco-related diseases are responsible for approximately 115,000 premature deaths a year and contribute substantially to the country's declining life expectancy and population. This report examines the potential of using taxation as an effective tobacco control measure to reverse these unfavorable trends, taking into account Ukrainian historical and socio-economic perspectives.

Tobacco-related diseases are responsible for approximately 115,000 premature deaths a year and contribute substantially to the country's declining life expectancy and population.

As of December 2006, low-priced filtered cigarettes were sold for as little as 1 UAH ($0.20 USD).

The Ukrainian cigarette market has changed significantly since the entrance of transnational tobacco companies in the mid-1990s. Transnational tobacco companies now control about 97 percent of the market. As of 2006, Philip Morris Ukraine had the largest market share at 34 percent; other transnationals with significant market share are Imperial Tobacco, British American Tobacco, and Japan Tobacco International. Virtually all (97.3 percent) of the cigarettes consumed in Ukraine are produced locally, although primarily using imported tobacco leaves.

Ukrainian smokers increasingly prefer filtered cigarettes to the previously common non-filtered varieties. Smokers also have a wider range of cigarette brands and prices from which to choose compared to the time before privatization of the tobacco industry. As of December 2006, a pack of low-priced filtered cigarettes cost as little as UAH 1 (US$ 0.20), middle-priced filtered cigarettes cost UAH 2 (US$ 0.39), and the most expensive brands cost UAH 7 (US$ 1.37).

Cigarettes in Ukraine are becoming cheaper and more affordable over time compared to basic goods such as bread. Between 2000 and 2006, real cigarette prices fell between 14.2 percent (for local brands) and 26.2 percent (for foreign brands). By comparison, the real price of a kilogram of white bread decreased during the same period by only 12.3 percent. The nearly 90 percent increase in real disposable income

between 2000 and 2005 has made cigarettes even more affordable.

In addition to opportunity costs (i.e., money spent on tobacco that could otherwise be spent on other goods and services), smoking causes other economic losses as well. The annual productivity loss due to smoking-related premature mortality is at least US$ 3 billion, or 3.6 percent of the Ukraine GDP. Losses due to smoking-related morbidity and health care expenditures are likely enormous, but their magnitude is yet to be determined.

The system of cigarette taxation in Ukraine is characterized by differential treatment of filtered and non-filtered cigarettes.

The Ukrainian government has introduced some tobacco control measures. For example, the current tobacco control law prohibits the sale of tobacco products to people younger than 18 years, partially bans outdoor advertising, prohibits smoking in some public places (smoking is still allowed in bars and restaurants), and requires cigarette packs to have printed tar levels, and nicotine yields. Although Ukraine signed the Framework Convention on Tobacco Control in 2006, implementation of its provisions and enforcement of existing tobacco control measures are far from optimal. For example, tobacco is still frequently sold to minors, and billboard advertisements for tobacco products remain ubiquitous.

The system of cigarette taxation in Ukraine stipulates different specific excise taxes for filtered and non-filtered cigarettes. Since July 2007, the specific excise tax on filtered cigarettes is UAH 13 (US$ 2.6) per 1,000 cigarettes; for non-filtered versions, the specific excise tax is UAH 5 (US$ 1.0). For both, the *ad valorem* excise tax is 10 percent of the wholesale price. The total excise tax must not be less than 24 percent of the maximum retail price net of value-added tax (VAT) plus the excise tax. The total tax (excise tax plus VAT) comprises about 34 percent and 36 percent of the retail price for filtered and non-filtered cigarettes, respectively — far below the 67 to 80 percent level established by countries with effective tobacco control policies. The existing low tax rates also result in low cigarette tax revenue, which represents a missed opportunity for the government to reduce cigarette consumption as well as recover some of the economic costs imposed by smoking.

To analyze tobacco tax as a public policy tool in Ukraine, we present three options — increasing the total tax to 50 percent, 64 percent and 70 percent of the retail price. Increasing the tax level to 70 percent yields the maximum public health and tax revenue gains. Under such a scenario, the average tax per pack of filtered cigarettes would increase from UAH 0.8 to UAH 3.8 (US$ 0.8). If the tax increase were passed fully onto the consumer, the retail price for this type of cigarette would increase by approximately 120 percent.

The response to such a price increase depends on the price sensitivity of consumers. We estimate that cigarette sales are not very responsive to changes in

The total tax (excise plus value-added tax) represents about 34 and 36 percent of the retail price for filtered and non-filtered cigarettes, respectively. Increasing the tax level to 70 percent yields the maximum public health and tax revenue gains: Ukraine could avert between 249,000 and 994,000 tobacco-related deaths.

price, a finding similar to estimates from the Russian Federation and consistent with the low-end estimates of price elasticity from low- and middle-income countries. Low sensitivity of the population to cigarette prices may be the result of low real cigarette prices, the wide range of price choices that allows smokers to adapt to tax increases by switching to a cheaper brand, the high social acceptability of smoking, and the limited public health efforts to curb smoking.

Assuming the lower bound of estimated price elasticity (ranging from -0.1 to -0.2) and a tax increase that sets the tax at 70 percent of retail price level, Ukraine could prevent between 249,000 and 994,000 tobacco-related deaths. This could potentially save up to UAH 1.7 billion (US$ 356 million) annually just by lowering the productivity loss due to premature tobacco-related mortality. Fewer workplace smoking breaks would generate production gains of up to UAH 1.2 billion (US$ 249 million), assuming that one cigarette lasts about seven minutes and that one-third of all cigarettes are consumed in the workplace. The overall productivity gain would amount to about UAH 3 billion (US$ 605 million) or 0.7 percent of GDP, based on 2005 GDP estimates. Apart from saving lives and reducing costs associated with tobacco use, the maximum tax increase would also generate the greatest increase in government revenue by increasing cigarette excise tax revenues 246 to 300 percent, which would contribute an additional UAH 5.8 to 7.1 billion (US$ 1.2 to 1.4 billion) in revenue per year. If only 2 percent of this additional excise tax revenue was allocated to tobacco control measures, UAH 115 to 141 million (US$ 24 to 29 million) would be available each year to promote healthier lifestyles in Ukraine, including support for tax collection administration and other tobacco control measures.

The maximum tax increase would generate the greatest increase in government revenue by increasing the excise cigarette tax collection by 246 to 300 percent, contributing an additional UAH 5.8 to 7.1 billion (US$ 860 million to 1 billion) in excise revenue per year.

If only 2 percent of an additional excise tax revenue was allocated to tobacco control measures, UAH 115 to 141 million (US$ 24 to 29 million) per year would be available to promote healthier lifestyles.

Given the potential for cigarette tax policy to improve public health and reduce costs associated with smoking, there is an urgent need to implement a substantial tobacco tax increase in Ukraine. Experience in both low- and high-income countries confirms that increasing the tobacco tax is among the most effective and practical interventions to reduce tobacco use, and has the significant added benefit of increasing government revenues. The tax increase, however, needs to be part of Ukraine's comprehensive tobacco control strategy, which would include other measures such as a wide-ranging and enforced advertising ban and smoke-free air laws.

The tax increase, however, needs to be part of Ukraine's comprehensive tobacco control strategy, which would include other measures such as a wide-ranging and enforced advertising ban and smoke-free air laws.

Recommendations

- Increase the tax level on cigarettes so that the total tax represents at least 70 percent of the retail price.
- Let the specific component of the excise tax drive the tax increase to achieve the maximum public health benefits.
- If the *ad valorem* component of the excise tax is retained, use the maximum retail price as a base for the total excise tax.
- Ensure automatic inflation adjustment for the specific component of the cigarette excise tax.
- Equalize excise tax rates on filtered and non-filtered cigarettes.
- Equalize excise tax rates on cigarettes and other smoked tobacco products.
- Earmark a portion of tobacco taxes for public health, medical care and law enforcement.
- Shift the responsibility for setting excise tax rates from the legislative to the executive branch of the government to simplify and shorten the process of adopting new tobacco tax rates.
- Adopt other tobacco control measures called for by the Framework Convention on Tobacco Control.

I. Introduction

Male smoking prevalence in Ukraine is among the highest in the world. In 2005, approximately 67 percent of males aged 15 and older were current smokers.[1] Female smoking prevalence in 2005, though lower than for men, was still 20 percent. Smoking was more prevalent among younger women,[1] which portends future high smoking rates among women as the cohort ages.

Male smoking prevalence in Ukraine is among the highest in the world.

The accumulated burden of tobacco-related disease among men under 75 years of age in the former Soviet Union is the highest in the world.[2] In Ukraine alone, approximately 100,000 die each year from smoking-related diseases.[3] The extent and duration of the smoking epidemic in Ukraine can also be documented by the estimated incidence of lung cancer. The 2002 age-adjusted lung cancer incidence for Ukraine males and females was 58.0 and 7.4 per 100,000 people, respectively.[4] By comparison, the incidence of lung cancer in the UK for the same year was 48.1 and 24.9 per 100,000 males and females, respectively.[4] Based on these data, Peto et al attribute 50 percent of all male cancer deaths and 5 percent of all female cancer deaths in Ukraine to smoking.[3] However, a decline in age-standardized death rates for lung cancer has also been observed in Ukraine among both males and females since 1992.[5,6] One possible explanation for this decline is changes in data collection procedures since the collapse of the Soviet Union. Evidence exists of substantial under-reporting of cancer deaths among the elderly, especially in rural areas, and of major changes in coding practices in the early 1990s.[6] Other possible explanations for the declining lung cancer death rates are historical trends such as birth cohort effects[6] and competing mortality from other causes — particularly accidents and acute cardiovascular diseases, from which people often die at younger ages than they do from cancer.[6] It can be expected, however, that the downward trend in standardized lung cancer death rates will reverse in the future, especially among females if their increasing trend in smoking prevalence is confirmed.

In Ukraine approximately 100,000 die each year from smoking-related diseases.

Tobacco use is contributing substantially to a declining male life expectancy in Ukraine, which dropped from 66.2 years in 1989 to 62.2 years in 2007.

No estimates exist regarding the impact of secondhand smoke on public health in Ukraine, but evidence from other countries suggests that the mortality burden associated with passive smoking amounts to about 15 percent of that from active smoking.[7] Based on that percentage, the total death toll from tobacco in Ukraine would increase to 115,000 people a year.

Tobacco use contributes substantially to the declining male life expectancy in Ukraine, which dropped from 66.2 years in 1989 to 62.2 years in 2007.[8] By comparison, men in Western Europe can expect to live 76.6 years on average.[8] In line with its impact on life expectancy, tobacco use also contributes to the ongoing population decline in Ukraine. Between 1995 and 2005, Ukraine's population declined by 4.6 million people.[9] Although some of this population loss can be attributed to job seekers leaving Ukraine for work opportunities abroad, much is due to

premature mortality, particularly among men. Based on 1990 mortality patterns, about 20 percent of men age 35 will be killed by tobacco before age 70, compared with approximately 10 percent in OECD countries.[3] Demographic experts expect the population decline to continue, estimating that Ukraine's population will fall from 46.3 million people in 2007 to 44.0 million people by 2015, a further decline of 2.3 million (5 percent) within the next 8 years.[8]

The population crisis and its negative economic consequences can be addressed by implementing multiple public health measures, including evidence-based tobacco control interventions.

This population decline and its negative economic consequences can be addressed in part through implementation of multiple public health measures, including evidence-based tobacco control interventions. Studies in both low- and high-income countries confirm that increasing tobacco taxes is among the most effective and practical interventions to reduce the harm caused by tobacco use.[10,11]

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II. Data and Methods

Data on tobacco consumption, production, and sales in Ukraine were obtained from various international and local data sources publicly available on the internet. Some of these include the World Health Organization (WHO),[12] WHO Europe's Tobacco Control[13] and European Health for All databases,[14] the American Cancer Society's Tobacco Control Country Profiles (TCCP),[15,16] and the World Bank Group's Economics of Tobacco Control data.[17] Data on Ukraine's population, inflation rates, exchange rates, and purchasing power parity were obtained from the United States Census Bureau,[18] United Nations Statistics Division,[19] and the World Bank's World Development Indicators.[20] Other information came from published reports by independent market research organizations such as ERC Group Plc,[21–23] Euromonitor International,[24] and the Economist Intelligence Unit.[25] Additionally, data were obtained through review of published literature, internet searches, and through direct contact with national experts who provided official data published by the government of Ukraine. All data were compared to assure their maximum accuracy and completeness while identifying the most appropriate source for each measure of interest.

In this report, smoking prevalence is measured as the percentage of current smokers in the population unless indicated otherwise. Prevalence data are based on surveys conducted in Ukraine in February 2000, June 2001, November 2002, and June 2005. The 2000 survey was a nationally representative household survey that collected data on 1,590 individuals aged 18 years and older.[26] The 2001 survey was administered to 2,506 individuals (1,168 men and 1,338 women) older than 15 years of age, using an omnibus format in which tobacco-related questions were included along with a variety of other topics.[27] The omnibus technique was used again for the 2002 survey, which included 2,260 individuals (1,057 men and 1,203 women) older than 15 years of age.[27] Both of these surveys were conducted by the Ukrainian Institute of Social Research. The 2005 survey, conducted by the Kiev International Institute of Sociology (KIIS), used a more extensive questionnaire covering all areas of tobacco control and obtained data from 2,152 individuals (920 men and 1,232 women) older than 15 years of age.[28] However, comparability of these surveys requires caution. For example, the 2000 and 2001 surveys consider "current smokers" as those smoking every day, whereas the 2002 and 2005 surveys define "current smokers" as those smoking every day or on some days. There are also differences in the urban/rural composition of the surveys among years. For example, 17 percent of the respondents in the 2001 survey were from major cities, compared to 27 percent of respondents in the 2002 and 2005 surveys. Prevalence data were also obtained from reports published by ERC, which purport to be based on trade data and data from the United Nations, but the actual method to determine the prevalence is not known. Finally, the Living Conditions, Lifestyles, and Health study of 2001 was used to conduct cross-country comparisons of smoking rates.[29] The study reports the results of cross-sectional surveys conducted in eight former Soviet republics (Armenia, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, and Ukraine) among representative national samples of the population aged 18 years and older.

The analysis of cigarette prices and their affordability in Ukraine is based on cigarette and bread prices from the Economist Intelligence Unit (EIU) World Cost of Living Survey[25] as well as from local sources. The EIU survey is conducted semi-annually to assess the prices of goods in more than 130 of the world's major cities in nearly 90 countries.[30] Prices were collected in March and September from 2000 until 2003, in June and December from 2004 until 2006, and in June 2007. We use a simple average to obtain one data point for each year for the period from

2000 to 2006, and prices from June 2007 were used for 2007. The survey considers the prices of two cigarette brands (Marlboro and a typical local brand) sold at three types of outlets (high-volume supermarket, mid-price retail outlet, and low-priced retail outlet). In order to assess the affordability of cigarettes, foreign and local brands in the lowest-priced retail outlets were selected for each year.

The Ukraine State Statistical office is the local source of cigarette prices.[31] When comparing these prices to those reported by the EIU, the EIU prices are higher. Personal communication with the EIU data collection authorities reveals a possible reason for this price difference: Unlike prices reported by the State Statistical office, the EIU prices reflect average prices encountered by expatriate executives and their families living abroad in selected foreign cities. The EIU data thus do not reflect local shopping patterns, but are influenced by higher-income foreign nationals shopping in more expensive stores. It can be expected that in a country such as Ukraine, expatriates would face higher prices than local consumers. However, the difference between the two price data sources does not affect the trend analysis using the EIU prices because the method of data collection stays constant over time.

The interpretation of economic indicators and their trend over time is extremely difficult in Ukraine. Since its independence in 1991, the country has gone through periods of rapid inflation, established a new data collection system, and built a new market-oriented economic system. These events make it challenging to obtain valid and meaningful data to perform an original analysis of time-series data capable of estimating price elasticity of cigarette demand. Nevertheless, an attempt was made to generate such estimates using macro-level monthly data from January 1997 to May 2006 obtained from the State Statistics Committee. Variables used to conduct the analysis included domestic cigarette sales, cigarette prices, and household income. Legal domestic cigarette sales data were calculated using domestic production, import and export data, and by applying the formula *sales = domestic production + imports – exports*. Average inflation-adjusted cigarette prices, weighted by the share of filtered and non-filtered cigarettes on the market, were used as an overall measure of the price associated with cigarette consumption. Average monthly household income, adjusted seasonally and by the consumer price index, measures the impact of income on cigarette consumption.

Except for the regression analysis, the data presented in this report focus primarily on the period from 2000 to 2007, owing to the unstable data collection system in place prior to 2000.

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III. Demand for Tobacco Products and Tobacco Tax Policy

Tobacco Use Prevalence and Intensity, and Type of Tobacco Products Consumed

Historically, the prevalence of smoking in Ukraine has been high among men but relatively low among women. In the early 1980s, it ranged from 35 to 80 percent among men (depending on the methodology used to provide the estimates and the source of the sample) and about 10 percent among women.[32]

Data on recent smoking prevalence trends are extremely limited. The ERC Group provides annual prevalence estimates for adults (individuals aged 15 years and older) from 1996 to 2003,[33] but the source of the estimates is unclear, and it is unknown whether consistent methods were used for all years (Table 3.1).

A national household survey conducted in 2000 provides cross-sectional prevalence estimates for adults (aged 18 years and older) using methodology similar to studies conducted in other countries of the former Soviet Union.[34] This study asked respondents, "Have you ever smoked?" and "Do you still smoke?" followed by questions about the quantity smoked and the age of smoking initiation. Age-specific prevalence estimates from this study (Table 3.2) can be used to make inferences about smoking trends. The survey found that 56.9 percent of men and 10 percent of women were current smokers. Among men, smoking prevalence varied from 67.9 percent for 30- to 39-year-olds, to 32.6 percent among those aged 60 and older. Among women, smoking prevalence ranged from 23.6 percent among 18- to 29-year-olds, to 0.8 percent among those aged 60 and older.

A third source of prevalence information is a paper by Andreeva and Krasovsky that presents data on smoking prevalence in adults (aged 15 years and older) from three national surveys of tobacco use conducted in 2001, 2002, and 2005 (Table 3.3).[35] The 2002 and 2005 surveys used the WHO-recommended

Table 3.1: Smoking Prevalence in Ukraine, 1996–2003[a]

	1996	1997	1998	1999	2000	2001	2002	2003
Prevalence (%)								
Adult Males (15 years of age and older)	55.0%	54.5%	56.0%	58.0%	60.0%	61.0%	61.0%	61.0%
Adult Females (15 years of age and older)	9.8%	9.7%	9.8%	9.9%	10.0%	10.2%	10.2%	10.2%
Adult Total	30.3%	30.0%	30.7%	31.7%	32.6%	33.2%	33.2%	33.2%
Number of Smokers (Millions)								
Adult Males (15 years of age and older)	10.2	10.0	10.3	10.6	11.0	11.2	11.1	11.1
Adult Females (15 years of age and older)	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3
Adult Total	12.4	12.2	12.5	12.8	13.2	13.4	13.4	13.4

Note:
[a] Number of smokers calculated using prevalence data and population information.
Source:
Prevalence information obtained from ERC Statistics Intl Plc. Ukraine. 2004.

Table 3.2: Smoking Prevalence in Ukraine, 2000

Age Group (years)	Male (%)	Female (%)
18–29	61.5	23.6
30–39	67.9	15.8
40–49	65.6	9.8
50–59	55.6	4.3
60+	32.6	0.8
All	56.9	10.0

Source:
Gilmore A, et al. Epidemiology of smoking in Ukraine, 2000. Prev Med. 2001;33:453-461.

question, "Currently do you smoke every day, some days, or not at all?" Those who smoked every day or some days were considered current smokers. By comparison, the 2001 survey asked, "Do you smoke? Yes/No," and those who responded "Yes" were defined as current smokers. Using the definition for current smoker, male smoking prevalence increased substantially from 2001 to 2002 but remained unchanged from 2002 to 2005. Female smoking prevalence, on similar measure, has been increasing during the entire period, reaching 20 percent in 2005 with the highest rates, 30 to 32 percent, found among younger to middle-aged women.

Finally, cross-country comparisons of smoking rates were made using data from the 2001 Living Conditions, Lifestyles, and Health study, which used the same methodology in all eight countries surveyed.[36] This survey found that in 2001, 52.5 percent of men and 11.1 percent of women in Ukraine were current smokers (defined as smoking at least one cigarette per day). The prevalence estimates suggested that smoking rates among men in Ukraine do not differ significantly from those in Russia (60.4 percent). Of the eight countries compared, only Kazakhstan had significantly higher male smoking rates (65.3 percent) and Moldova significantly lower male smoking rates (43.3 percent)

Table 3.3: Smoking Population in Ukraine, 2001, 2002, 2005

	2001	2002	2005
Prevalence (%)			
Adult Males	54.8%	66.8%	66.8%
Adult Females	11.5%	17.9%	20.0%
Number of Smokers (Million)			
Adult Males	10.0	12.2	12.1
Adult Females	2.5	4.0	4.4
Adult Total	12.5	16.2	16.5

Source:
Andreeva T, Krasovsky K. Changes in smoking prevalence in Ukraine in 2001-2005. Tob Control. 2007;16:202-206.

than Ukraine. Among women, smoking rates in Ukraine were similar to those observed in Russia (15.5 percent), Belarus (12.1 percent), and Kazakhstan (9.3 percent). Although women's smoking rates in Ukraine were higher than those observed elsewhere — such as in Georgia (6.3 percent), Kyrgyzstan (4.5 percent), Moldova (3.9 percent), and Armenia (2.4 percent) — such differences did not reach significance at the 99 percent level due to the small numbers of female smokers and thus the wide confidence intervals.

The smoking prevalence estimates for men and women derived from the 2001 survey reported by Andreeva and Krasovsky were similar to those reported in 2001 in the Living Conditions, Lifestyles, and Health study and to those reported in 2000 by Gilmore et al.[34] Despite the similarities in results, prevalence estimates from the surveys should be compared with caution due to various methodological differences, including age groups studied and questions asked. In addition, prevalence estimates may be influenced by the representativeness and comparability of the survey samples with respect to urban versus rural residence.

All survey data examined indicate that there are major differences in smoking behavior between women living in rural and urban areas; chiefly, that those in urban areas have markedly higher rates of smoking.

All survey data examined indicate that there are major differences in smoking behavior among women living in rural and urban areas; chiefly, that those in urban areas have markedly higher rates of smoking (Table 3.4).[34–37] Such women tend to be more modern, more influenced by Western culture, and more exposed to tobacco advertising than those in rural areas, where social norms against female smoking

Smoking rates among health care professionals are high. In 2005, 43 percent of male and 15 percent of female health professionals were reported to be current smokers.

Table 3.4: Prevalence of Smoking by Place of Residence, 2000–2002, 2005

Year	Cities (having more than one million inhabitants)		City/ Regional Center		Town		Village	
	Male Prevalence (%)	Female Prevalence (%)	Male Prevalence (%)	Female Prevalence (%)	Male Prevalence (%)	Female Prevalence (%)	Male Prevalence (%)	Female Prevalence (%)
2000			63.8%	17.8%	56.3%	10.6%	52.9%	2.6%
2001	50.7 %	17.4%	56.3%	16.4%	56.6%	10.3%	54.5%	4.2%
2002	66.1%	26.3%	68.2%	24.1%	63.7%	15.6%	69.5%	9.6%
2005	65.5%	33.0%	64.0%	25.7%	68.8%	17.2%	68.8%	8.0%

Sources:
Prevalence for 2000: Gilmore A, et al. Epidemiology of smoking in Ukraine, 2000. Prev Med. 2001;33(5):453-461.
Prevalence for 2001, 2002, 2005: Andreeva T, Krasovsky K. Changes in smoking prevalence in Ukraine in 2001-2005. Tob Control. 2007;16:202-206.

prevail. Some of the difference in smoking behavior could be attributed to reductions in underreporting of smoking among women, which occurs as social norms regarding cigarette use shift towards greater acceptance. These norms have been undergoing major change in Ukraine, as well as in Russia, after the breakup of the Soviet Union.[35] Although comparability of surveys is limited, it seems that smoking prevalence has been increasing most rapidly among women living in cities,[35] a trend consistent with that observed in the former Soviet republics.[38]

Youth smoking prevalence in Ukraine is among the highest in the Eastern European countries.

Smoking rates among health care professionals in Ukraine are high. In 2005, 43 percent of male and 15 percent of female health professionals were reported to be current smokers.[39] It is therefore not surprising that a study conducted by the Institute of Cardiology found that only 13 percent of family physicians, cardiologists, and other physicians occasionally prescribed nicotine-replacement therapy (NRT) to their patients, and only 10 percent recommended NRT on a regular basis.[39]

Youth smoking prevalence in Ukraine is among the highest in the Eastern European countries. The Global Youth Tobacco Survey (GYTS) conducted in 1999 in the capital, Kiev, found that 46.8 percent of males and 33.8 percent of females aged 11 to 17 years were current smokers.[40] More recently, the 2005 GYTS study conducted nationwide in Ukraine showed that

The 2005 GYTS study conducted nationwide in Ukraine showed that 28.6 percent of males and 20.2 percent of females aged 11 to 17 years smoked cigarettes.

28.6 percent of males and 20.2 percent of females aged 11 to 17 years smoked cigarettes.[41] Half of the male and female smokers tried their first cigarette before the ages of 15 and 17, respectively.[37] The lower smoking rate recorded in the 2005 GYTS reflects lower smoking participation among rural youth.

Half of the male and female smokers tried their first cigarette before the ages of 15 and 17, respectively.

The smoking epidemic usually develops in four stages: first, spreading from relatively small pockets of a population, then gaining momentum by diffusing to other segments of the male population, followed in the third stage by increasing female smoking prevalence, and eventually receding in the fourth stage.[42,43] However, it appears that the smoking epidemic in Ukraine may have developed differently. Historical data on male smoking and tobacco-related mortality rates suggest that smoking among men has been at a high level for some time and, contrary to the predictions of the four-stage model, has failed to exhibit a post-peak decline.[36] Therefore, men in Ukraine appear to be in stage three to four of the smoking epidemic, with high rates of smoking and smoking-related mortality that have failed to decline as has happened in the West, while women appear to be in stage two of the smoking epidemic with signs of rising smoking prevalence.

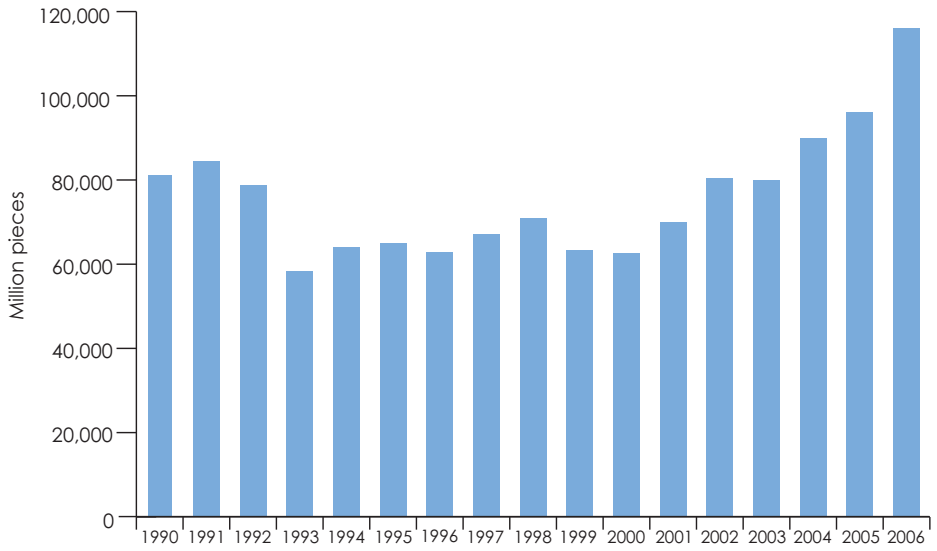
Average daily cigarette consumption in Ukraine is quite high, particularly among male smokers. The national survey conducted by KIIS in 2005 found that a majority of male smokers (56 percent) smoked between 11 and 20 cigarettes per day. Among female smokers, 38 percent smoked 6 to 10 cigarettes per day, 32 percent smoked 11 to 20 cigarettes per day, and 27 percent smoked fewer than 5 cigarettes per day.[37] The average daily cigarette consumption was 16 cigarettes for males and 11 cigarettes for female smokers.[37]

... 70.1 percent and 84.4 percent of young people were exposed to secondhand smoke inside and outside home, respectively.

On the basis of smoking prevalence and demographic data, it is estimated that in 2005 about 12 million males and 4 million females aged 15 and older smoked in Ukraine (Table 3.1). Given the high smoking prevalence, high cigarette consumption, and widespread social acceptability of smoking, large segments of the population are regularly exposed to secondhand smoke. GYTS data collected in Kiev in 1999 showed that 49.9 percent of teens aged 11 to 17 years were exposed to secondhand smoke inside homes, and 74.2 percent of teens were exposed outside homes.[40] The 2005 GYTS conducted in both urban and rural areas detected even higher exposure to environmental tobacco smoke — 70.1 percent and 84.4 percent of young people were exposed to secondhand smoke inside and outside home, respectively.[41]

The increasing smoking prevalence and high average cigarette consumption are reflected in total cigarette sales in Ukraine. Data on consumption from 1990 to 2006 (Graph 3.1) are based on duty-paid sales. The initial decline in consumption until 1993 is a continuation of a trend that began with the collapse of the former Soviet Union, which resulted in the dismantling of the state-owned cigarette industry. Consumption in the early 1990s, however, may be underestimated due to an increase in smuggling as transnational tobacco companies (TTCs) attempted to establish their brands before their new production facilities became fully operational (the first TTC investment in Ukraine was in 1992). The decline in duty-paid sales in 1999 could be linked to both the economic crisis experienced in 1998 and to an increase in cigarette tax rates from 2 to 2.5 European Currency Units (ECU*) in 1999. Duty-paid sales have steadily

Graph 3.1: Cigarette Consumption in Ukraine, 1990–2006



Sources:
ERC Statistics Intl Plc. Ukraine. 2006.
Krasovsky K. Cigarette Consumption in Ukraine-Data from the Ukraine State Statistical office. 2007: Personal communication with Dr. Ross.

* A predecessor of the Euro.

In 2005, per capita consumption in Ukraine based on legal sales was 2,044 cigarettes or approximately 102 packs. By 2015, the annual per capita consumption in Ukraine is expected to increase to 2,534 cigarettes or 127 packs per person.

increased since 2000, reaching approximately 116 billion cigarettes in 2006 (an 86 percent increase).[45] In 2005, per capita consumption in Ukraine based on legal sales was 2,044 cigarettes or approximately 102 packs.[46] By comparison, per capita consumption in the United Kingdom in that year was 836 cigarettes or 42 packs.[47] By 2015, annual per capita consumption in Ukraine is expected to increase to 2,534 cigarettes or 127 packs per person.[46] Because some portion of duty-paid sales is not consumed in Ukraine, estimates of consumption in Ukraine based on official sales statistics may be inflated.

The preference for various cigarette types has changed in Ukraine since privatization of the tobacco industry, with the previously more popular non-filtered cigarettes losing market share. Based on a national survey conducted in 2001, 3 percent of smokers in Ukraine smoked expensive (UAH 5 to 6 (US $1) per pack) cigarettes, 25 percent smoked premium cigarette brands (e.g. Marlboro), 48 percent smoked local filtered brands, and 24 percent smoked local non-filtered cigarettes.[48] By 2007, non-filtered cigarettes accounted for only 16 percent of all cigarette sales.[39] The majority of consumers of non-filtered cigarettes live in rural areas, where incomes are lowest (20 to 23 percent of the Ukrainian population lives in villages).[39] Also, since cigarettes without filters are mostly preferred by older smokers, their market share is likely to decrease even more in the future.[39] The demand for high-priced cigarette brands and low-tar cigarettes is growing the fastest. The share of high-priced brands, for example, reached 11.1 percent in the first half of 2006,[46] and their popularity is mounting in both urban and rural areas.[49]

The demand for high-priced cigarette brands and low-tar cigarettes is growing the fastest.

Many smokers in Ukraine would like to quit their smoking habit. Based on the 2005 national survey, 69 percent of male smokers and 65 percent of female smokers reported a desire to quit smoking.

Apart from cigarettes, consumption of other forms of tobacco such as cigars, roll-your-own (RYO) tobacco, and pipe tobacco is low. Cigars, however, are slowly gaining popularity.[39] The recent appearance of cigar clubs, specialist saloons, online shops, and magazines is expected to contribute to a growing interest in the product.[39] Among the most affluent segment of the population, cigars are perceived as a symbol of wealth and prosperity. Other products such as RYO tobacco and pipe tobacco are not widely consumed in Ukraine and are sold primarily in specialist shops and occasionally in kiosks.[39] RYO and pipe tobacco were consumed by approximately 1 and 0.01 percent of smokers, respectively, in 2005.[39]

Many smokers in Ukraine would like to quit their smoking habit. Based on the 2005 national survey conducted by KIIS, 69 percent of male smokers and 65 percent of female smokers reported a desire to quit smoking.[37] This proportion was substantially higher among younger age groups. About 66 percent of male smokers and 60 percent of female smokers reported having made an attempt to quit,[37] and 24 and 29

... ex-smokers constituted only 9 percent of the adult Ukraine population in 2005, 15 percent among males and 4 percent among females.

percent of male and female smokers indicated a desire to access cessation services.[37] However, only 2 percent reported having received an offer of cessation help from their doctors.[37] Despite the desire and attempts to quit, ex-smokers constituted only 9 percent of the adult Ukraine population in 2005 (15 percent of males and 4 percent of females).[37] By comparison, 30 percent of males in the United Kingdom were ex-smokers in 2000.[50] The prevalence of ex-smokers is often used as an indication of the success of tobacco control policies.

Prices of Tobacco Products and Their Affordability

The Ukrainian cigarette market is characterized by a wide range of cigarette prices. As of December 2006, a pack of 20 non-filtered cigarettes sold for as little as UAH 0.75 (US$ 0.15), a pack of low-priced cigarettes with filters for UAH 1 (US$ 0.20), middle-priced cigarettes with filters for UAH 2 (US$ 0.39), and the most expensive brands sold for UAH 7 (US$ 1.37) per pack.[51] Since July 2005, Ukrainian law

As of December 2006, a pack of 20 non-filtered cigarettes was sold for as little as UAH 0.75 (US$ 0.15), a pack of low-priced cigarettes with filters for UAH 1 (US$ 0.20), middle-priced cigarettes with filters for UAH 2 (US$ 0.39), and the most expensive brands sold for UAH 7 (US$ 1.37) per pack.

There is no penalty for selling cigarettes at prices lower than the maximum retail price.

requires the maximum retail price be printed on every cigarette pack. The schedule of cigarette prices is periodically submitted to taxation authorities that report to the Supreme Rada Committee, the Ukrainian government body in charge of taxation policy.[52] The law provides for the seizure of product and a fine equal to the total cost of the product, or at least UAH 1,000 (US$ 205), if a retailer sells cigarettes at prices higher than indicated on the pack.[53] However, there is no penalty for selling cigarettes at prices lower than the maximum retail price.[53]

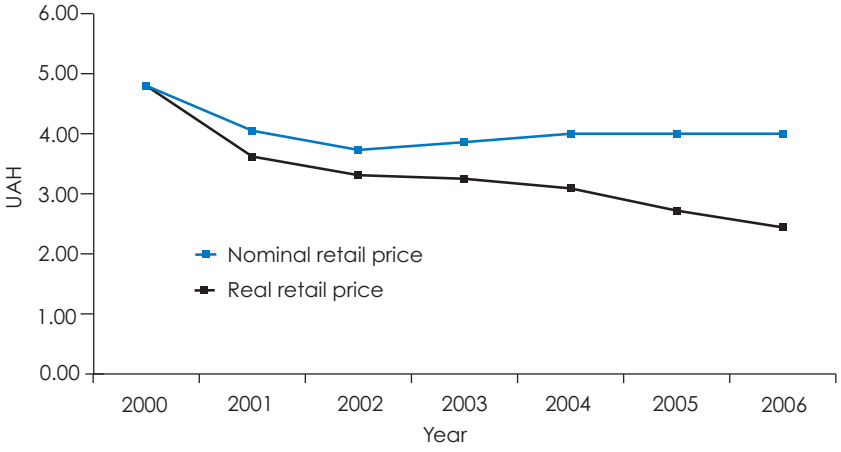
Nominal cigarette prices in Ukraine increased between 1996 and 1999 due to the tax policy's focus on revenue generation. As a result, real cigarette prices reached their peak from 1999 to 2000 but have declined since.[35]

The available time-series data on cigarette prices in Ukraine allow us to study the period between 2000 and 2006 with reasonable accuracy. Using EIU data, Graph 3.2 documents the trend in average nominal and real prices of Marlboro-type cigarettes in Ukraine. Both nominal and real prices have declined during this period — nominal prices by 16.7 percent and real prices by 26.2 percent.

The trend in average nominal and real prices of local cigarette brands with filters was examined using both EIU and the Ukraine State Statistical Office data.

Nominal prices of local filtered cigarette brands increased by 7.1 percent between 2001 and 2006, while real prices declined by 27.1 percent.

Graph 3.2: Nominal and Real Retail Prices of Marlboro-Type Cigarettes, 2000–2006



Sources:
Based on lowest retail price, EIU data.
Inflation information obtained from the World Bank's World Development Indicators.

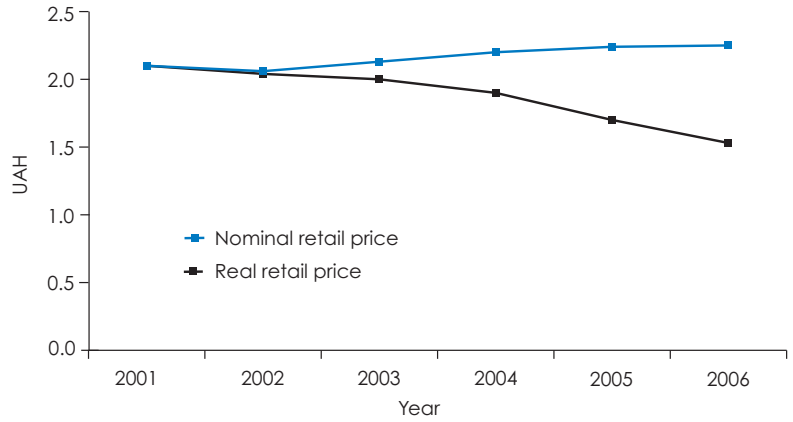
The results are broadly similar, showing increasing nominal prices but declining real prices of local filtered cigarettes in the period from 2001 to 2006. According to the State Statistical Office data (Annex 5), nominal prices of local filtered cigarette brands increased by 7.1 percent between 2001 and 2006, while real prices declined by 27.1 percent (Graph 3.3). The average nominal price for local filtered brands in 2006 was UAH 2.25 (US$ 0.46), but should have been at least UAH 3.31 (US$ 0.68) just to keep pace with inflation since 2001.

Graph 3.4 shows the trend in the average nominal and real prices of local non-filtered cigarettes from 2000 to 2006 as reported by the Ukraine State Statistical Office. Both nominal and real prices have declined over time. The nominal price of non-filtered cigarettes declined from UAH 0.93 (US$ 0.17) in 2000 to UAH 0.75 (US$ 0.15) in 2006 (Annex 5), primarily due to the reduction of the excise tax rate for these types of cigarettes.[51] The decline in real cigarette prices during this period (50.5 percent), however, is much larger than the decline in nominal prices (19.4 percent). The nominal prices for non-filtered cigarettes would have had to reach, on average, UAH 1.23 (US$ 0.24) in 2006 to keep pace with the inflation between 2000 and 2006.

The decline in real cigarette prices between the years 2000 and 2006 may have contributed to the increase in smoking prevalence in Ukraine. Cigarettes are becoming cheaper even when compared to basic goods such as bread.

The decline in real cigarette prices between 2000 and 2006 may have contributed to the increase in smoking prevalence in Ukraine. Cigarettes are becoming cheaper compared even to basic goods such as bread. According to the EIU data, the real price of

Graph 3.3: Nominal and Real Retail Prices of Local Filtered Cigarettes, 2000–2006



Source:
Based on price data obtained from Ukraine State Statistical Office as reported in http://www.adic.org.ua/adic/reports/toh-2006/expenditures.htm#Table_5.

Graph 3.4: Nominal and Real Retail Prices of Local Non-Filtered Cigarettes, 2000–2006

Source:
Based on price data obtained from Ukraine State Statistical Office as reported in http://www.adic.org.ua/adic/reports/toh-2006/expenditures.htm#Table_5.

bread fell by 12.3 percent between 2000 and 2006, but the real price of Marlboro-type cigarettes fell by 26.2 percent during this period, more than twice as much. The increase in real disposable income, about 89 percent between 2000 and 2005,[39] made cigarettes even more affordable.

Expenditures on Tobacco Products and Costs of Smoking

The KIIS national survey of 2005 found that smokers who consumed between 1 and 10 cigarettes daily spent an average of UAH 22 (US$ 4.36) on cigarettes per month. Those who consumed 11 to 20 cigarettes daily spent an average of UAH 48 (US$ 9.51) per month, while those who consumed 21 or more cigarettes per day spent UAH 90 (US$ 17.83) per month.[37] Expenditures on cigarettes are significantly higher among those who smoke "light" rather than regular cigarettes (UAH 45 a month or US$ 8.91 versus UAH 38 a month or US$ 7.53).[37] Given that in 2007 the majority of Ukrainians lived on less than US$ 200 per month,[39] an average Ukrainian smoker spends between 2 to 9 percent of monthly income on cigarettes. Overall, estimated expenditures on tobacco products in Ukraine totaled UAH 8,331 million (US$ 1.6 billion) in 2005,[54] or 2 percent of GDP, even after accounting for the fact that some cigarettes sold legally are not consumed in Ukraine. This level of spending represents a nominal increase of 32 percent since 2001, when total expenditures on cigarettes were UAH 6,329 million or US$ 1.2 billion.[54] In real terms, however, the total expenditure on cigarettes appears to have been stable or increased slightly (by 0.3 percent) between 2001 and 2005. Given that the real prices of cigarettes fell during this period, the spending pattern also points toward increased cigarettes consumption in Ukraine.

Given that in 2007 the majority of Ukrainians lived on less than US$ 200 per month, an average Ukrainian smoker spends between 2 to 9 percent of his monthly outlay on cigarettes.

Estimates of total costs of smoking in Ukraine do not exist. However, it is possible to estimate the productivity lost due to premature tobacco-related deaths using international evidence. Most studies conclude that the consumption of one cigarette results in approximately 10 minutes of life lost.[55,56] Since the average smoker in Ukraine consumes about 15 cigarettes daily, he or she loses 10.4 percent of a year of life (or 38 days) due to daily smoking. Assuming the same percentage is lost from his or her productive time, smoking can deprive a person of about US$ 182.73 of income a year, assuming an average income of US$ 1,757 per capita (based on the 2005 GDP estimate).[57] Multiplying the lost income by the total number of smokers in Ukraine (16.52 million), the total productivity lost amounts to US$ 3 billion, or 3.6 percent of GDP.

This calculation underestimates the economic losses due to smoking since it does not include smoking-related health care costs, the loss of productivity due to smoking-related morbidity, and the costs associated with secondhand smoke. These costs are yet to be estimated in Ukraine.

Tobacco Tax Level, Tobacco Tax Structure, and Tax Collection

The system of cigarette taxation has undergone many changes since the independence of Ukraine in 1991 (Annex 1). We can roughly define four periods categorized by different tax policies.

The first period (1993–1995) was characterized by an *ad valorem* system (Box 3.1) and a declining tax rate. When privatization of the tobacco industry began in 1993, the Ukrainian government set the tobacco tax at 70 percent of the wholesale price for both filtered and non-filtered cigarettes.[58] However, in response to requests by the TTCs and other private producers, the government reduced cigarette excise tax rates in several steps to promote cigarette manufacturing. Thus, between 1993 and 1995 tax on filtered cigarettes fell from 70 to 40 percent of the wholesale price, and tax on non-filtered cigarettes fell from 70 to 10 percent of the wholesale price (Annex 1).[59]

The second tax period (1996–1999) was marked by government efforts to secure a specified level of tax revenue. That goal led to the replacement of the *ad valorem* excise tax regime by a specific excise taxation system in 1996, an equalization in the tax rates on filtered and non-filtered cigarettes, and the use of European currency (ECU) to set the tax rate instead of local currency subject to high inflation rates (Annex 1).

During the third tax period (1999–2003), the government decided to quote cigarette tax rates again in local currency and introduced a mixed tax system with both specific and *ad valorem* components. The tax rates once again differed for filtered and non-filtered cigarettes. The specific excise tax rate on non-filtered cigarettes relative to filtered cigarettes has declined since 2001, making these inexpensive cigarettes even more affordable and more attractive to price-sensitive consumers (Annex 1).

The switch from ECU to UAH resulted in a decrease in the specific excise tax rate by 22.4 percent. However, this decrease was compensated for by the addition of a tax earmarked for the Pension Insurance Fund, which provided retirement benefits to eligible individuals between the years 1999 and 2003 (Annex 1). This earmarked tax was abolished in 2004 with the introduction of the *ad valorem* component of the excise tax.

A mixed excise taxation system with both fixed and *ad valorem* components is characteristic of the fourth and current period of the cigarette tax history in Ukraine ...

A mixed excise taxation system with both fixed and *ad valorem* components is characteristic of the fourth and current period of Ukraine cigarette taxation, starting January 1, 2004. Unlike Russia, where the *ad valorem* tax is calculated using retail prices, Ukraine bases its *ad valorem* tax on wholesale prices. The *ad valorem* component is applied equally to both filtered and non-filtered cigarettes; initially, it was levied at a rate of 5 percent of the wholesale price but was increased to 10 percent of the same base in 2007. The specific excise tax is UAH 13 (US$ 2.6) and UAH 5 (US$ 1) per 1,000 filtered and non-filtered cigarettes, respectively (Annex 1). To prevent possible tax avoidance by declaring artificially low wholesales prices, the law also stipulates that the total excise tax (the specific excise tax plus *ad valorem*) cannot be lower than 24 percent of the maximum retail price after subtracting the VAT and the excise tax.

In absolute terms, the current Ukrainian tobacco excise tax policy favors non-filtered cigarettes by levying less than half the specific excise tax imposed on filtered cigarettes (as of July 2007, UAH 5 (US$ 1) versus UAH 13 (US$ 2.6) per 1,000 cigarettes). There is no economic, public health, or fiscal rationale justifying such a policy. From an economic perspective, an excise tax is intended to correct for externalities — costs imposed on others without requisite compensation. In the case of tobacco use, this cost is primarily associated with secondhand smoking.

Box 3.1: Types of Tobacco Taxes

Tax Type	Description
***Ad valorem* tax:** a percent of price (wholesale or retail)	**Pros:** ■ Offers governments the advantage of automatic tax increases with inflation and/or if prices increase for other reasons (e.g. producer price increases). **Cons:** ■ Tends to widen price differentials by making less-expensive brands relatively less expensive. ■ Allows industry to control the tax level by keeping its prices low (i.e. industry can lower its prices in response to a tax increase).
Specific excise tax: a fixed tax per cigarette	**Pros:** ■ Reduces price differentials by adding a fixed tax to every cigarette, regardless of retail price. ■ Addresses more efficiently the externalities associated with smoking by treating all cigarettes as equally harmful. ■ Industry price policies do not affect tax liability, thus allowing governments to better predict tax revenue. **Cons:** ■ Usually welcomed by manufacturers of more expensive cigarettes because they can better compete with cheaper cigarette brands. Higher profits then allow for increased marketing and lobbying.

Despite multiple tax rate changes from 2000 to 2007, the real tax rate remained almost unchanged and even dropped between 2005 and 2006.

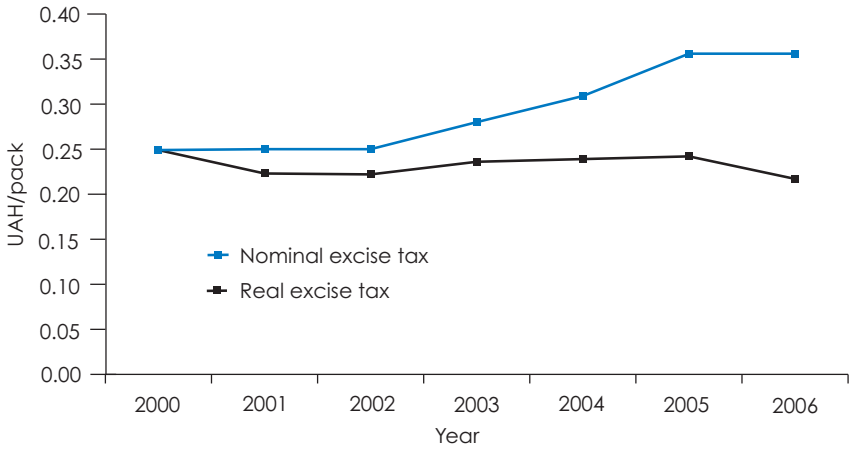
... excise tax on the average-priced filtered cigarette (about UAH 2.45 per pack) was UAH 0.42 per pack in 2007, approximately 17 percent of the retail price.

There is no reason to believe that non-filtered cigarettes create less secondhand smoke exposure than do filtered cigarettes. There is also no evidence that non-filtered cigarettes are less damaging to health than filtered varieties. For this reason, tobacco tax policy in many countries — including all European Union (EU) member states — does not distinguish between filtered and non-filtered cigarettes.

In addition to excise taxes, Ukraine also imposes a value-added tax (VAT) and import duties on cigarettes. The VAT is 20 percent of retail price inclusive of excise tax.[60] The import duty on non-filtered and filtered cigarettes has been 3 euros per 1,000 pieces since 2000.[39,61] The import duty is 5 euros per 1,000 pieces of cigars, 2.5 euros per kg of smokeless tobacco, and 1 euro per 100 kilograms of raw tobacco.[39,61] Exports of tobacco products from Ukraine are not subject to excise duty.

Despite multiple tax rate changes from 2000 to 2007, the real tax rate remained almost unchanged and even dropped between 2005 and 2006 (Graph 3.5).

Graph 3.5: Cigarette Excise Tax Rate on Local Filtered Cigarettes, 2000–2006

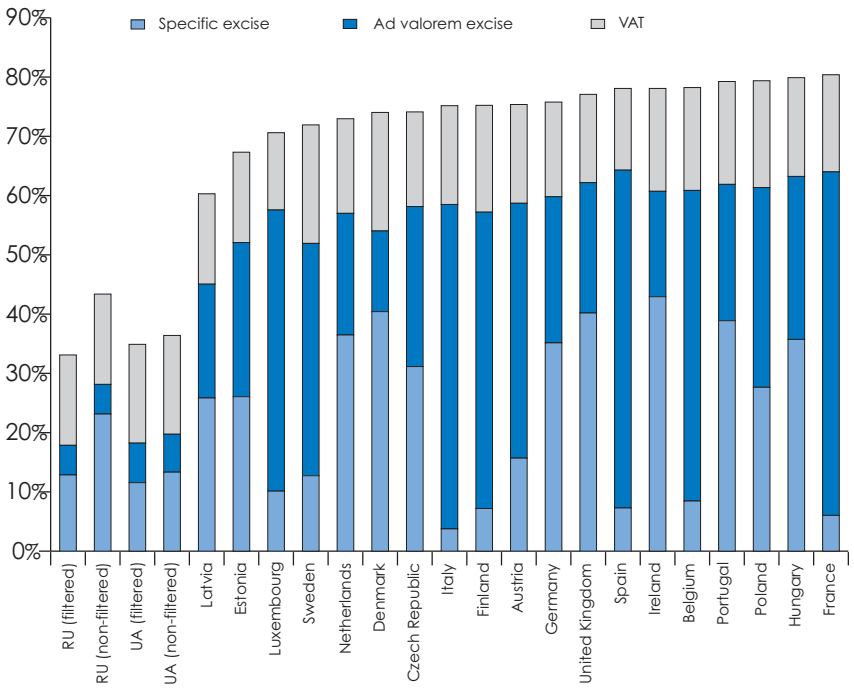


Source:
Based on price data obtained from Ukraine State Statistical Office as reported in http://www.adic.org.ua/adic/reports/toh-2006/expenditures.htm#Table_5.

Calculations based on data from the Ukraine State Statistical Office indicate that the excise tax on the average-priced filtered cigarette (about UAH 2.45 per pack) was UAH 0.42 per pack in 2007, approximately 17 percent of the retail price. On non-filtered cigarettes, the excise tax (UAH 0.15 = US$ 0.03) as a percentage of the retail price amounts to a slightly higher 20 percent, owing to the specific component of the excise tax. These levels are far below tax rates of two-thirds to four-fifths of the retail price noted in countries with successful Tobacco Control programs.[62] Graph 3.6 demonstrates that the 2007 tax rates on tobacco products in Ukraine were significantly lower than those in other European countries. The excise tax rate on non-filtered cigarettes was even lower than that in Russia.

To conclude, real prices of cigarettes in Ukraine have been falling since 2000 despite numerous changes in the tobacco tax system. In addition, tobacco tax levels in Ukraine are very low compared to other European countries. In view of these facts, from both public health and fiscal perspectives, cigarette taxes in Ukraine need to be increased.

Graph 3.6: Tax as a Percent of Retail Selling Price in Different Countries as of 2007



Sources:
Data on Ukraine is based on the following:
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Data on Russia is based on the following:
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Data on all countries is based on the following:
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IV. Supply of Tobacco Products and Industry Regulations

Ukraine is currently the second-largest cigarette market in the former Soviet Union, led only by the Russian Federation.

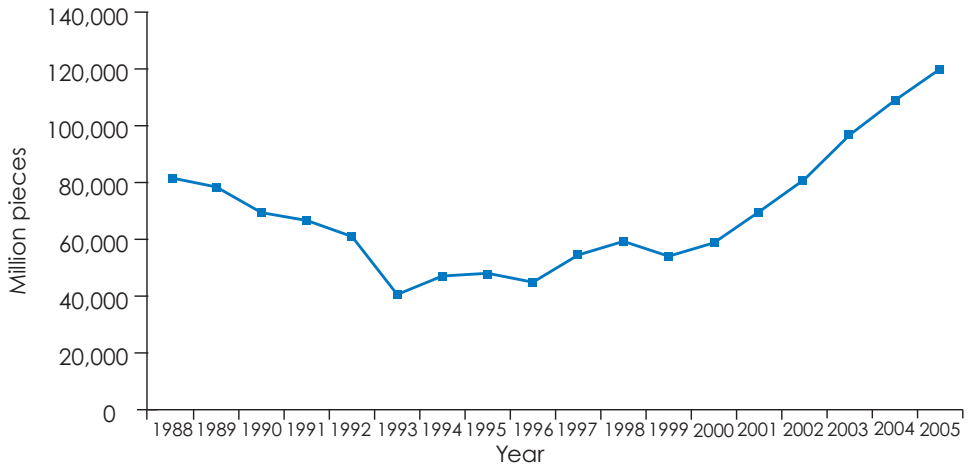
Production, Import, and Export

Ukraine is currently the second-largest cigarette market in the former Soviet Union, led only by the Russian Federation.[63] As in Russia, cigarette manufacturing in Ukraine has undergone a dramatic change since the collapse of the Soviet Union.

During the Soviet era, cigarette production was fairly stable at approximately 80 billion pieces annually.[64] However, economic turmoil accompanying the collapse of the Soviet Union resulted in declines in output in the late 1980s and a shortage of cigarettes in the early 1990s (Graph 4.1). The TTCs, keen to get a foothold in Ukraine — the second-largest market in the region — made their first investments in 1992 and soon acquired or established joint ventures with 6 of the 11 operating cigarette factories.[65,66] Production started to recover from 1993 onward (with minor occasional downturns experienced in 1996 and 1999, possibly linked to economic crises) (Graph 4.1). Evidence shows that the increase in production was attributable solely to the private sector.*[,67] Between 2000 and 2005, production rose by 104 percent from 58.7 to 120 billion pieces (Graph 4.1 and Annex 2).

Before the collapse of the Soviet Union, Ukrainian factories exported significant quantities of cigarettes to Russia.[68] However, the decline in domestic production during the 1990s limited exports to trade deals made in order to obtain hard currency.[68] Although estimates of the volume of cigarette trade reported by different organizations vary, we present the most consistent data after having compared multiple sources. These data (Graph 4.2 and Annex 4) suggest that, despite the low production levels in the early 1990s, exports continued and were particularly high in 1995, perhaps reflecting the country's need for hard currency at that

Graph 4.1: Cigarette Production in Ukraine, 1988–2005



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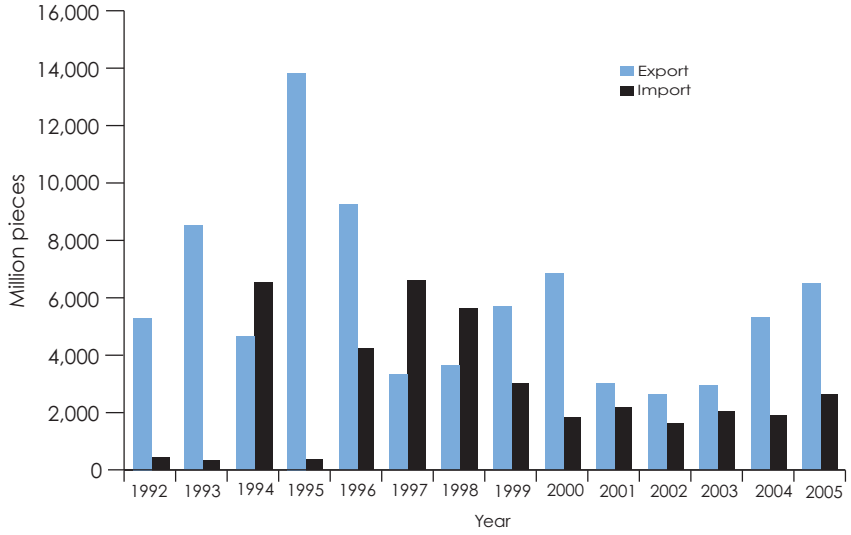
* The government in Ukraine still owns a small share of the tobacco industry.

Graph 4.2: Ukraine Cigarette Exports and Imports, 1992–2005



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time. Insufficient domestic production also led to an increase in the import of cigarettes during the 1990s. From 2000, however, imports reduced in line with the gradually increasing production levels, followed by signs of export recovery by the mid-2000s.[69] About five percent of the cigarettes produced in Ukraine were exported in 2005.

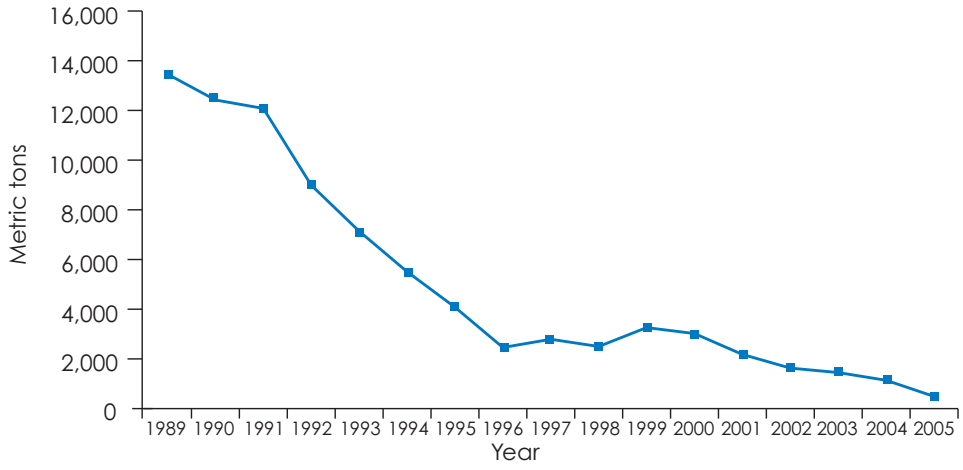
Currently, Ukraine and Russia are the largest exporters of manufactured cigarettes to the other countries of the former Soviet Union, and Ukraine is a major supplier of cigarettes imported into Russia.[70] Cigarettes imported into Ukraine arrive primarily from the EU countries and Russia.[71]

Unlike cigarette manufacturing, the production of raw tobacco in Ukraine has been declining since the 1980s.

Unlike cigarette manufacturing, production of raw tobacco in Ukraine has been declining since the 1980s (Graph 4.3). The geographic area devoted to cultivating tobacco leaves declined from 21,730 hectares in 1980 to 620 hectares in 2005.[69] Correspondingly, the amount of raw tobacco produced in Ukraine declined from 15,980 metric tons in 1980 to 490 metric tons in 2005.[69] The drop was caused by a number of factors, including droughts, discontinuation of Soviet subsidies for agricultural production,[72,73] and policies to discourage production that were part of Gorbachev's health campaign in the 1980s.* The main reason for the decline in raw tobacco production, however, was the shift in production from traditional Soviet cigarettes, which use local tobacco, to Western-blend cigarettes, which require imported leaf. As a result, cigarette factories in Ukraine now process mostly imported raw tobacco. Ukraine imported about 94,000 tons of raw tobacco in 2006,[70] almost its entire raw tobacco demand.[65] Though it needs more raw

* Gorbachev's health campaign, though focusing largely on reducing alcohol consumption, also aimed to reduce cigarette consumption through reducing supply of leaf and manufactured cigarettes.

Graph 4.3: Raw Tobacco Production in Ukraine, 1989–2005



Sources:
Alcohol and Drug Information Center (ADIC). Tobacco or Health in Ukraine: Economic Issues, 2006 Update. Kiev: International Centre for Policy Studies, 2006. Available from: http://www.adic.org.ua/adic/reports/toh-2006/index.html. Accessed June 12, 2007.

tobacco than it produces, Ukraine nonetheless exports some of its raw tobacco, largely to neighboring former Soviet Union countries, e.g. Russia and Belarus.[69]

Despite the net positive trade balance in cigarettes (Annex 4), the total balance of tobacco trade is negative, resulting from the import of raw tobacco leaves. In dollar terms, the trade deficit in 2005 was US$ 267.5 million.[69] It is estimated that in the 10-year period between 1996 and 2005, Ukraine spent US$ 1.4 billion of its hard currency on tobacco.[69]

As in most former Soviet republics, the Ukrainian cigarette market is characterized by a certain degree of smuggling and illegal production. Both small-scale and large-scale smuggling activities are common in Ukraine (Box 4.1).

In the early to mid-1990s, when the cigarette market was undersupplied and the TTCs had yet to fully ramp up production, contraband tobacco products were perceived to be widespread in Ukraine. However, estimates of the share of smuggled cigarettes during that time, mostly international brands, vary widely: A WHO estimate cites a figure of 5 to 9 percent,[74] whereas a Euromonitor estimate claims 40 to 60 percent of sales involve smuggled goods.[71]

Once the privately owned Ukrainian factories started to produce larger quantities of high-quality cigarettes, smuggling of international brands fell and cheap non-filtered products,* shipped largely from Russia and Moldova, became the most popular smuggled products.[71] According to the Euromonitor, smuggling fell from previous levels of 40 to 60 percent to 10 to 20 percent between 1997 to 1998,[71] and by 2005 the volume of smuggled cigarettes on the Ukraine market was negligible (representing about 2 percent of legal sales).[71] In addition to non-filtered cigarettes, smuggled products not produced in Ukraine now include cigars, cigarillos, RYO cigarettes, and pipe tobacco.[71]

* According to an unpublished report, smuggled cigarettes in 1999 were twice as cheap as legally produced ones. (Mashlyakivskyy M. Achieving Tobacco Control Policy Goals in Ukraine via Economic Tools. Unpublished Report. Budapest: Open Society Institute; 2004. Available at: http://jobfunctions.bnet.com/thankyou.aspx?authId=F3NP9ZM6NotOIk81/Cx/LEkN3uPf3EZaf1c7OA32chhMKoZBMdbwTRQPUiZmxMsM&&docid=161755&view=161755&load=1). Accessed September 21, 2007.

Box 4.1: Illicit Trade in Cigarettes: Bootlegging and Smuggling

- Bootlegging is the smaller-scale, illegal cross-border trade of tobacco products that are not intended for personal use. It typically involves quantities of cigarettes under 100,000 pieces. The tax on these cigarettes is usually collected in the country of origin.
- Smuggling involves a large-scale, organized illegal sale of tobacco on which no duty has been paid. Bootlegging is motivated by price differentials, whereas smuggling benefits from completely avoiding taxes (in most cases). Smuggling appears to be associated with the presence of organized crime and tobacco industry complicity.
- The industry profits from illicit trade in a number of ways: It stimulates consumption when the smuggled cigarettes are sold for prices lower than those for legal cigarettes (the industry gains its profit regardless of whether the market cigarettes enter is legal or illegal) and enables the industry to penetrate markets where it might otherwise be blocked. In addition the industry uses the presence of smuggled cigarettes to argue for a reduction in tobacco taxation, despite growing evidence of its own direct involvement in smuggling. Legal actions against the TTCs resulted in agreements, signed in 2004 and 2007, between the European Commission and both Philip Morris and RJ Reynolds (the latter now also encompassing Gallaher) to establish a system — including large settlement payments by the TTCs to the European Commission — to prevent smuggling and counterfeiting.

Further information on the tobacco industry's role in smuggling is available from the Center for Public Integrity websites (http://www.publici.org/story_01_030301.htm#newsstories). The content of the agreement between the European Commission and Philip Morris is available from: http://ec.europa.eu/anti_fraud/budget/agreement.pdf.

Source: Adapted from Gilmore A, Osterberg E, Heloma A, Zatonski W, Delcheva E, McKee M. Free Trade Versus the Protection of Health: The Examples of Alcohol and Tobacco. In: Maclehose L, McKee M, Nolte E, editors. Health Policy and European Union Enlargement. Berkshire: Open University Press; 2004. p. 198-224.

The decreased level of smuggling to Ukraine was confirmed by a 2005 survey, conducted by KIIS, of 2,239 respondents who were asked to show cigarette packs they had on hand. A great majority (95 percent) of the cigarette packs bore Ukrainian duty stamps and health warnings, indicating that they were legally bought. A majority of the illegal packs had Russian duty-paid stamps. Almost all the illegal cigarette packs were bought in small food stores or from street vendors (as opposed to in supermarkets or large stores).[80]

The decline in smuggling into Ukraine coincides largely with the increase in local production, implying that the TTCs were using illegal products until local production could be increased.[81] Although some have attributed the smuggling of cigarettes to tax differences between countries, overwhelming evidence suggests that such differences play a very small role.[82] An unpublished report using an econometric model of Ukraine's cigarette demand found that a 10 percent increase in the Ukrainian excise rate would lead to a maximum decrease of 1 percent in legal sales resulting from a 1 percent increase in smuggling.[83] The report suggests that smuggling is not caused by the tax differentials alone; rather, other important factors such as cigarette price (instead of tax) differentials, relative strength of law enforcement, and the level of corruption also determine the level of smuggling.[83]

Even though cigarettes smuggled into Ukraine represented a relatively small share of the market by the mid-2000s, cigarettes smuggled out of Ukraine are a source of concern for many European countries. An estimated 30 billion cigarettes (i.e., every fourth cigarette produced in Ukraine) are illegally exported from Ukraine.

Even though cigarettes smuggled into Ukraine represented a relatively small share of the market by the mid-2000s, cigarettes smuggled out of Ukraine are a source of concern for many European countries. An estimated 30 billion cigarettes (i.e. every fourth cigarette produced in Ukraine) are illegally exported from Ukraine.[84] Given the low tax rates in Ukraine, there is no need to avoid taxation — huge profits can be extracted even from cigarettes legally bought in Ukraine and later smuggled to EU countries.[85] The issue of smuggling from Ukraine can be addressed by focusing on tools such as markings, tracing and tracking, monitoring and data collection, penalties, confiscation of equipment, cigarettes and proceeds, cooperation, and licensing, among others. The measures are based on evidence that factors other than tax/price differentials, such as law enforcement and corruption, are more important in addressing the issue of smuggling.[86]

Structure of the Tobacco Market

After the collapse of the Soviet Union, the TTCs entered Ukraine's market in the early 1990s primarily through the purchase of old Soviet tobacco factories.[87] By 2000, the Ukrainian cigarette industry was dominated by the TTCs, which held more than 80 percent of the market (Table 4.1). This domination has subsequently increased; TTCs now control more than 97 percent of the market. Domestic producers have had difficulty competing with the TTCs and now are mainly producing low-quality, non-filtered cigarettes.[88] In 2006, the leading company in terms of sales volume was Philip Morris (PM) Ukraine (34 percent of market share),[71] followed by Reemtsma (Imperial Tobacco) (19 percent), Gallaher Ukraine (formerly Liggett-Ducat Ukraine) (17 percent), British American Tobacco (BAT) (15 percent), and Japan Tobacco International (JTI) (14 percent) (Table 4.1).[89] However, with JTI having taken over Gallaher in 2007,[90] its market share has increased to nearly that of PM, thus intensifying competition at the top end of the market.

Ukraine, like Russia, is one of the few countries in the region in which a truly competitive market was established after privatization in the 1990s.[66] The entry of foreign investors into the market was accompanied

Table 4.1: Manufacturer Market Share, 2000–2006

	% Volume						
	2000	2001	2002	2003	2004	2005	2006
Philip Morris Ukraine	22.6	28.5	27.2	32.5	32.8	33.4	33.6
Reemtsma-Ukraine	34.0	23.0	27.2	21.7	19.5	18.7	18.7
Gallaher Ukraine[a]	—	2.4	7.5	11.6	14.5	16.2	16.6
A/T BAT-Prilucky[b]	16.8	22.0	18.8	16.5	17.0	16.2	15.1
JTI Ukraine	8.6	8.6	11.2	12.5	12.3	12.9	13.7
Others	18.0	15.5	8.1	5.2	3.9	2.6	2.3

[a] *Included in the "Others" category for year 2000.*
[b] *Registered name for BAT*
Source:
ERC Statistics Intl Plc. Ukraine. Suffolk: ERC Group, 2006.

By the first half of 2006, the share of non-filtered and filtered cigarettes was 7.7 percent and 92.3 percent of sales, respectively, a clear indication of the preference for filtered cigarettes.

by many features of intense market competition, such as massive advertising campaigns and the introduction of branding previously unknown in Ukraine.[87] The TTCs soon became the largest advertisers on TV and radio.[72]

After the entry of the TTCs, the European Bank of Reconstruction and Development quickly recognized the tobacco sector in Ukraine as a major investment sector. Between 1992 and 2000, the total foreign direct investment (FDI) in the tobacco sector reached more than US$ 152.9 million, about 4 percent of all FDI during that period.[87] There is some evidence that cigarette consumption increased much more in countries of the former Soviet Union that received major tobacco investments than countries that did not receive similar investments.[72]

The Ukrainian cigarette market has changed with regard to product types since the entrance of the TTCs. In 1997, 74 percent of all cigarettes produced in Ukraine were non-filtered.[91] However, their share fell to 39 percent by 1999, partially in response to the tax equalization with filtered cigarettes in 1998.[91] The declining trend in production of non-filtered cigarettes stalled in 2001 when these cigarettes regained their tax advantage (at the expense of a 39 percent decline in tax revenue collected on these type of cigarettes).[92] Despite this boost, the share of non-filtered cigarettes began to fall again. By the first half of 2006, the shares of non-filtered and filtered cigarettes were 7.7 percent and 92.3 percent of sales,[89] respectively, indicating a clear preference for filtered cigarettes. Although full-flavored cigarettes continue to dominate with approximately two-thirds of sales, the popularity of "light" cigarettes is also increasing.[89] As detailed below, action has recently been taken to ban the use of this and other misleading cigarette product descriptors.

Tobacco Tax Revenue and Its Relative Importance to the State Budget

Government revenue from tobacco excise taxes has been increasing steadily in nominal terms since 1996 (Table 4.2). The temporary decline in excise tax collection in 2000, despite no observed changes in cigarette consumption compared to 1999, was the result of a tax policy change in which the government decreased the excise tax rate and introduced an earmarked component of cigarette tax (see Chapter III). Between 2001 and 2005, excise tax revenues increased from UAH 583 million to UAH 1.8 billion (US$ 114.3 million to US$ 352.9 million), a 206 percent increase in nominal terms and a 133 percent increase in real terms. Of the UAH 1.8 billion in excise tax revenue in 2005, about 70 percent came from specific excise tax and the remaining 30 percent came from the *ad valorem* component of the excise tax.[69] In 2005, tobacco excise tax revenue comprised 24 percent of the revenue collected from excise taxes and 1.8 percent of all tax revenues.

The cigarette tax collected is low relative to the size of the market. In 2004, excise tax collected in Ukraine (UAH 1.5 billion or US$ 0.28 billion) was

Between 2001 and 2005, the excise tax collection increased from UAH 583 million to UAH 1.8 billion. This represents a 206 percent increase in nominal terms, and a 133 percent increase in real terms.

Table 4.2: Tobacco Excise Revenues in Ukraine

	1996	1997	1998	1999	2000[a]	2001	2002	2003	2004	2005
Tobacco Excise Tax Revenue (million UAH)	54	129	287	522	446	583	684	865	1,465	1,782
Earmarked Tax for Pension Fund (million UAH)	–	–	–	30	128	143	178	220	–	–
Total Nominal Tobacco Excise Tax Revenue (million UAH)	54	129	287	552	574	726	862	1,085	1,465	1,782
Total Real Tobacco Excise Tax Revenue (million UAH)	110	226	457	708	574	648	764	914	1,132	1,213
Tobacco Excise Tax Revenue as % of Total Excise Tax Revenue	N/A	N/A	N/A	55.6%	34.8%	37.5%	25.4%	23.3%	24.0%	24.3%
Tobacco Excise Tax Revenue as % of Total Tax Revenue	N/A	N/A	N/A	3.9%	2.9%	3.3%	3.0%	2.0%	2.3%	1.8%
Tobacco Excise Tax as % of GDP	0.07%	0.14%	0.28%	0.40%	0.26%	0.29%	0.30%	0.32%	0.42%	0.43%

Note:
[a] Base year.
Source:
Author's calculation based on information from the State Tax Administration as cited in Alcohol and Drug Information Center (ADIC-Ukraine). Tobacco or Health in Ukraine: Economic Issues, 2006 Update. Kiev: International Centre for Policy Studies, 2006. Available from: http://www.adic.org.ua/adic/reports/toh-2006/index.html. Accessed June 12, 2007.

similar to that collected in Slovenia but far below that collected in Italy and in Germany, for example (Table 4.3). In 2004, Ukraine collected US$ 17 in tobacco taxes per smoker, whereas Italy collected approximately US$ 1,019 per smoker (Table 4.3). This low tax collection persists despite the excise tax collected on the estimated 25 percent of cigarettes sold but not consumed in Ukraine.

Regulation of the Tobacco Industry and Its Political Power

Very few tobacco control policies existed during the time Ukraine was a part of the Soviet Union. For example, tobacco products were taxed but at a very low level, obligatory health warnings on cigarette packs had already been mandated by 1979, and tobacco advertising was banned.[68]

As in most of the former Soviet Union, the entrance of TTCs in the early 1990s, with substantial FDI to the tobacco market, shaped tobacco control policies in Ukraine.[72] The TTCs used their political influence to secure a favorable environment for their business when Ukraine was in the process of adopting a new constitution with new legislation and taxation systems. Shortly after getting its independence in 1991, Ukraine lifted the tobacco-advertising ban. There were no civil society groups in Ukraine at that time to oppose tobacco industry influence.[72]

In late 2005, Ukraine adopted a tobacco control law,[93] but a majority of its provisions have not been

Table 4.3: Tax Collected in 2004

Country	Excise Tax Collected in Billion US$	Excise Tax Collected per Smoker in US$
Italy	10.74	1,019
Germany	15.69	829
France	10.46	817
Slovenia	0.29	709
Poland	2.52	256
Bulgaria	0.75	255
Russia[a]	0.81	18
Ukraine[b]	0.28	17

[a] *Gerasimenko N, Zaridze D, Sakharova G., editors. Health and Tobacco: Facts and Figures. 2007.*
[b] *ERC Group Plc; 2005.*
Sources:
European Commission. Consultation Paper on the Structure and Rates of Excise Duty Applied on Cigarettes and Other Manufactured Tobacco. Brussels: European Commission Directorate-General Taxation and Customs Union 2007. Available from: http://ec.europa.eu/taxation_customs/resources/documents/common/consultations/tax/consultation_paper_tobacco_en.pdf. Accessed August 12, 2007.

In late 2005, Ukraine adopted a tobacco control law but a majority of its provisions have not been fully implemented. Some tobacco control legislation exists, but enforcement remains weak.

fully implemented. Some tobacco control legislation exists, but enforcement remains weak.[71] Ukraine ratified the Framework Convention on Tobacco Control (FCTC) in 2006. Following one of the FCTC's articles, Ukraine banned the use, effective January 2007, of misleading descriptors on cigarettes such as "light," "super light," and "ultra light."[71]

Endnotes for Chapter IV

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V. Price Elasticity of Demand for Tobacco Products

To understand how the price of tobacco products influences consumer smoking decisions, economists estimate the price elasticity of cigarette demand. Price elasticity measures individuals' sensitivity to price changes. The price elasticity of demand for cigarettes has very strong policy implications. Once the price elasticity is known, one can determine how much to increase price in order to achieve a desired reduction in consumption along with a desired increase in government tax revenue. Estimates of the impact of price on cigarette demand in both low- and high-income countries fall in a relatively wide range depending on the population studied, the data used, and the methods used to estimate demand. However, the majority of evidence suggests that a 10 percent increase in cigarette prices would result in a 2.5 to 5 percent reduction in cigarette demand.[94]

Very few estimates of price elasticity in Ukraine exist, and most have not been published in peer-reviewed publications. For example, a 2002 study conducted by Krasovsky et al used micro-level data from a 2001 survey to estimate price elasticity for various income groups (high-, middle-, and low-income) and age groups (aged 14 to 17 years, 18 to 28 years, and 29 years and older) (Table 5.1).[95] The overall price elasticity of cigarette demand was estimated to be −0.4. Older smokers and those with higher incomes exhibited lower price elasticity (i.e. they are less sensitive to changes in cigarette prices).[95] The overall income elasticity was estimated to be +0.06, which means that a 10 percent increase in household income would cause the demand for cigarettes to rise by approximately 0.6 percent.[95]

One unpublished report suggests a total price elasticity of demand of −0.3 in the short term and −0.48 in the long term.[96] The study used macro-level monthly sales data based on production, import, and export information obtained from the Ukraine State Statistical Office for 1997 through 2003.[96] The elasticity of demand with respect to the excise tax was −0.06 in the short run, meaning that a 10 percent increase in the excise tax rate would reduce cigarette demand by 0.6 percent. The tax elasticity of demand was higher in the long run: −0.09.[96] The modest change in demand in response to tobacco tax (and the greater sensitivity to price increases) was attributed to low tobacco tax rates, given that a 10 percent increase in the tax rate would raise real cigarette prices by only 2 percent.[96] The income elasticity based on this study is +0.21 in the short run and +0.33 in the long run, meaning that a 10 percent increase in household incomes would increase cigarette consumption by 2.1 percent and 3.3 percent in the short and long run, respectively.[96] The income sensitivity is higher in this study compared to the 2002 study, a likely result of different data and methods used by the two studies.

Table 5.1: Price Elasticity of Demand by Income and Age

	Low Income	Middle Income	High Income
14–17 years	–0.65	–0.70	–0.52
18–28 years	–0.37	–0.42	–0.24
29+ years	–0.28	–0.33	–0.15

Source:
Krasovsky K, et al. Economics of Tobacco Control in Ukraine from the Public Health Perspective. Kiev: Polygraph Center TAT;2002:128.

A World Bank study published in 2004 reported a price elasticity of −0.49 for youth smoking participation, suggesting that a 10 percent increase in cigarette prices would reduce smoking participation by 4.9 percent among those aged 11 to 17 years.[97] The study used Global Youth Tobacco Survey data collected in 1999 from 100 schools in Kiev (4,156 participants) and concluded that a tax policy that increases cigarette prices was an effective tobacco control intervention to reduce youth smoking participation.[97]

Our estimate shows that a 10 percent decrease in cigarette affordability would reduce their sales by 1 percent, suggesting that price relative to income plays an important role in the demand for cigarettes in Ukraine.

We conducted our own price elasticity estimate based on monthly time-series data from January 1997 to May 2006, obtained from the State Statistics Committee. Similar to the unpublished study discussed above,[96] we controlled for household income and used legal sales as a measure of consumption. Contrary to the results of the previous study, we did not find cigarette prices to to have a substantial effect on legal domestic sales of cigarettes. A significant positive relationship, however, was found between the affordability of cigarettes, defined as the price of cigarettes relative to average income, and legal domestic sales. The estimate shows that a 10 percent decrease in cigarette affordability would reduce sales by 1 percent, suggesting that price relative to income plays an important role in the demand for cigarettes in Ukraine. The result of our analysis is consistent with estimates of price elasticity of cigarette demand in Russia, where the wide range of cigarette prices, high affordability of cigarettes, and weak tobacco control measures are believed to account for low price sensitivity, since customers can adjust to increases in prices and taxes either by switching to cheaper cigarettes or by spending relatively just a little extra on their purchases.

Given the low cigarette prices, wide price range of varieties, minimal public health effort to combat smoking, and the high level of social acceptability of smoking, the price responsiveness in Ukraine can be expected to be in the lower range of the –2.5 to –5.0 price elasticity estimates cited for countries with income levels similar to that of Ukraine.

No study in Ukraine or Russia examines the responsiveness to a cigarette price increase while controlling for cross-brand substitution. However, a nationally representative survey conducted in Ukraine in 2001 that asked questions related to this topic suggests that about 18 percent of smokers would switch to cheaper cigarettes if cigarette prices were "substantially increased," about 17 percent of smokers would try to quit smoking, 18 percent would smoke fewer cigarettes, and 31 percent would not change their behavior as a response to this unspecified "substantial" price increase.[95] Teenagers, particularly those from low-income families, anticipated quitting at a rate higher than that of adults.

To summarize, a majority of evidence suggests that consumers in Ukraine are responsive to changes in cigarette prices and their affordability, but the magnitude of the response is not clear. Given low real cigarette prices, the wide price range of cigarette types, minimal public health efforts to combat smoking, and the high level of social acceptability of smoking, price responsiveness in Ukraine can be expected to be in the lower range of the −2.5 to −5.0 price elasticity estimates cited for countries with income levels similar to that of Ukraine.[94]

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VI. Tobacco Tax Policy Options and Their Impact on Cigarette Consumption and Tax Revenue

This report demonstrates that Ukraine has a low level of tobacco taxes. The excise tax on filtered cigarettes in 2007 was approximately 17 percent of the retail price; including VAT, total taxes were approximately 34 percent of the retail price.* By comparison, tax rates in other Central and Eastern European countries such as Romania, Poland and Hungary are much higher, at 68.5 percent, 79.4 percent and 79.9 percent of retail price, respectively.[98] The World Bank has noted that taxes on cigarettes between two-thirds and four-fifths of the retail price are commonly seen in countries with effective tobacco control policies.[99] The existing tax levels on cigarettes in Ukraine fall far below these recommendations.

In order to reach a tax level high enough to discourage tobacco use, the Ukrainian government should consider changing its current tax rates. Presented below are three possible variants of a tax increase, which would increase the total tax so that it comprises 50 percent, 64 percent, and 70 percent of the retail price, respectively (Table 6.1). These tax increases can be implemented while preserving the current tax structure, which is characterized by a mixture of specific and *ad valorem* taxes. However, the tax increase will achieve the maximum impact if it is driven by the specific component of the tax, since that would reduce incentives for product substitution among cigarettes in different price categories.

… the tax increase will achieve the maximum impact if it is driven by the specific component of the tax, since that would reduce incentives for substitution among cigarettes in different price categories.

To predict changes in consumption and revenues, we examine the results using two levels of price elasticity of cigarette demand: –0.1, where a 10 percent increase in cigarette prices would result in a 1 percent decrease in cigarette demand; and –0.2, where a 10 percent increase in cigarette prices would result in a 2 percent decrease in cigarette demand. Since the limited research evidence from Ukraine is inconclusive with respect to the magnitude of the price elasticity, we have elected to use elasticity figures that fall into the lower range of the price sensitivity estimates to provide a conservative approximation of the impact of tax increases on cigarette consumption.[100] Lower price elasticity of cigarette demand is consistent with the wide range of cigarette prices on the market, high affordability of tobacco products, and high social acceptability of smoking and consumption of illegal products. Studies from the former Soviet Union confirm that the price elasticity of cigarette demand might be low among the Ukrainian population, which is demographically similar.

Our analysis uses filtered cigarettes to predict the impact of a tax increase because they constitute the largest share of the market. The retail price of this type of cigarette in 2007 was approximately UAH 2.45 (US$ 0.50) per pack, based on data from the Ukraine State Statistical Office.[101] The total tax based on the tax law effective since July 2007 amounts to approximately UAH 0.83 (US$ 0.17) per pack, or 34 percent of the retail price.[102]

The total tax based on the tax law effective since July 2007 amounts to approximately UAH 0.83 (US$ 0.17) per pack, or 34 percent of the retail price.

* A 20 percent VAT applied on a tax-exclusive basis is equal to 16.67 percent of the retail price.

Table 6.1: The Impact of Increasing Tobacco Taxes on Tobacco-attributable Mortality and Government Revenue

	2007 levels	Future values		
Average Retail Price Per Pack (UAH)	2.45	3.24	4.50	5.40
Average Tax Per Pack (UAH)	0.83	1.62	2.88	3.78
Tax as % of Retail Price	34%	50%	64%	70%
% Increase in Retail Price	—	*32%*	*84%*	*120%*
Reduction in Number of Smokers (thousands) Price Elasticities[a]				
–0.10		266.1	690.9	994.2
–0.20		532.3	1,381.7	1,988.5
Number of Lives Saved (thousands)[b] Price Elasticities				
–0.10	High (50%)	133.1	345.4	497.1
	Low (25%)	66.5	172.7	248.6
–0.20	High (50%)	266.1	690.9	994.2
	Low (25%)	133.1	345.4	497.1
Total Number of Current Smokers (thousands) Price Elasticities	**16,520**			
–0.10		16,253.9	15,829.1	15,525.8
–0.20		15,987.7	15,138.3	14,531.5
Additional Excise Revenue (UAH million) Price Elasticities				
–0.10		2,086.2	5,117.3	7,058.0
–0.20		1,938.5	4,435.8	5,770.6
Additional Excise Revenue (US$ million) Price Elasticities				
–0.10		426.9	1,047.2	1,444.3
–0.20		396.7	907.2	1,180.8
% Increase in Excise Revenue Price Elasticities				
–0.10		88.8%	217.8%	300.4%
–0.20		82.5%	188.8%	245.6%
Total Cigarette Tax Revenue (UAH million) Price Elasticities	**2,350**			
–0.10		4,435.9	7,467.0	9,407.6
–0.20		4,288.2	6,785.4	8,120.3
Total Cigarette Tax Revenue (US$ million) Price Elasticities	**480.8**			
–0.10		907.7	1,528.0	1,925.1
–0.20		877.5	1,388.5	1,661.7

Notes:

[a] *Assuming 50% impact on prevalence and 50% impact on smoking intensity.*

[b] *Assuming 25–50% of smokers will die from their habit and that those who do not quit face the same mortality risks as before the tax increase (World Bank. Curbing the Epidemic: Government and the Economics of Tobacco Control. Washington DC: World Bank; 1999:23.)*

Small discrepancies in calculation can occur due to rounding.

Formula for calculating % increase in revenue: [(number of times tax increased) x (1 — % of decline in consumption/100)—1] x 100.

A relatively small tax increase that raises the tax to 50 percent of the retail price could reduce the number of smokers by up to 530,000, avert 266,000 deaths (about 3.2 percent of the expected tobacco-related mortality in this cohort), and generate about UAH 1.9 billion (US$ 397 million) in additional excise revenues.

If taxes represent 70 percent of the retail price, the number of smokers would decline by almost two million, and about one million tobacco-related deaths would be avoided. At the same time, the government would collect an additional UAH 5.8 billion (US$ 1.2 billion) in excise tax revenue per year. This revenue gain could be smaller if a tax increase succeeds in reducing illicit trade activities (see Chapter VII for more details). But even if all illegal cigarette exports terminate, tax revenue would still increase by UAH 3.6 to 4.9 billion (US$ 743 million to US$ 1.0 billion), an increase of about 155 to 209 percent.

Our estimates suggest that increasing the tax level in Ukraine to that implemented in many European countries would not only reduce smoking-related mortality in Ukraine, but also yield substantial tax revenue gains.

Our estimates suggest that increasing the tax level in Ukraine to that implemented in many European countries would not only reduce smoking-related mortality in Ukraine, but also yield substantial tax revenue gains. To maximize the benefit of the proposed tax policy, the tax increase should be driven by the specific component of the tax, with part of the newly generated revenue invested in comprehensive tobacco control measures, including provision of tobacco cessation services to smokers who want to quit. If only 2 percent of the additional revenue were invested in public health in Ukraine (as is done, for example, in Thailand[103]), as much as UAH 115 million (US$ 24 million) a year would be available for promoting health, including implementation and enforcement of tobacco control measures under the Framework Convention on Tobacco Control. Such an investment would bring additional health and economic benefits to the Ukrainian people.

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VII. Other Implications of Tobacco Tax Policy

Smuggling and Product Substitution

The tobacco industry often raises the specter of an increase in smuggling activity to oppose tax increases.[104] Empirical studies in many countries including Ukraine suggest that the level of tobacco taxation alone does not explain smuggling; instead, it also depends on factors such as the level of corruption, social tolerance of illegal activities, presence of informal distribution networks and organized crime, and the volume of untaxed street sales.[105,106]

There are many reasons to believe that even a sizable tax increase is not likely to encourage substantial smuggling of cigarettes into Ukraine. In 2005, contraband cigarettes in Ukraine accounted for only 2 percent of the legal sales.[107] The average retail price of filtered cigarettes after the highest proposed tax increase would still be only about US$ 1 per pack, thus limiting the motivation for cigarette smuggling from most European countries. A rise in cigarette taxes in Ukraine would reduce the gap between cigarette prices in the EU and Ukraine, thereby curtailing incentives to bootleg cigarettes from Ukraine to other EU countries.

With regard to product substitution, if the tax increase is driven by a higher specific excise tax, the resulting decrease in price variation among different cigarette brands would limit substitution of goods from different price categories. Equalizing the tax rate on filtered and non-filtered cigarettes would also reduce product substitution, as it would minimize the effect of price elasticity of demand. In addition, tax equalization would reduce the affordability of low-end cigarettes commonly associated with higher youth smoking initiation and larger health disparities.

With regard to product substitution, if the tax increase is driven by a higher specific excise tax, the resulting decreased price variation between the different cigarette brands would limit substitution of goods from different price categories.

Employment and Poverty

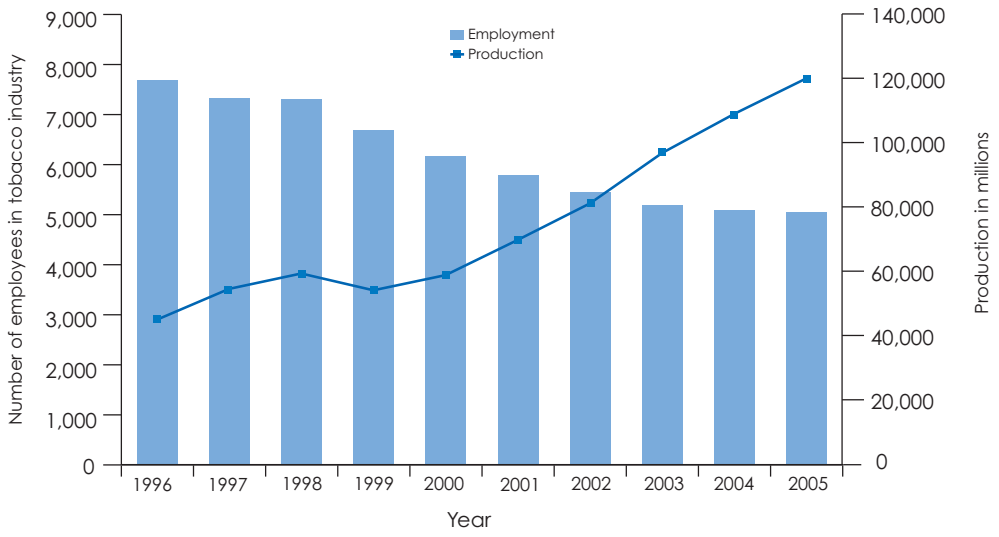
Ukraine, especially western Ukraine, struggles with high levels of unemployment,[107] but the impact of the proposed increase in tobacco taxes on employment is likely to be negligible. Employment in tobacco manufacturing in Ukraine has been declining since 1998 despite increasing cigarette production (Graph 7.1). It appears that cigarette manufacturing employment is determined by factors other than production, such as tobacco company employment policies and changes in technologies used in cigarette production.[106]

Ukraine, especially western Ukraine, struggles with high levels of unemployment, but the impact of the proposed increase in tobacco taxes on employment is likely to be negligible.

Likewise, higher tobacco taxes are not likely to have an impact on tobacco farming employment. Raw tobacco production in Ukraine has been declining since the 1980s,[108] and local leaf production is being replaced by raw tobacco imports as production and consumption shift from local to international cigarette brands.

People with low disposable incomes are also the most sensitive to price changes and will ultimately benefit most from decreased initiation, increased

Graph 7.1: Employment and Production in the Ukraine Tobacco Industry, 1996– 2005



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Creating a health promotion fund with only 2 percent of the newly generated cigarette tax revenue would make as much as UAH 115 million (US$ 24 million) a year available for this purpose.

cessation, and lower cigarette consumption.[109,110] A current smoker who quits can save on average about UAH 616 (US$ 126) per year. On the macro level, the total savings on tobacco products depends on the magnitude of tax increase. An increase in tax to 50 percent of the retail price will reduce the opportunity costs of smoking by up to UAH 312 million (US$ 63.9 million), while an increase in tax to 70 percent of the retail price would reduce these costs about four times that amount, UAH 1.2 billion (US$ 245.2 million), or 0.3 percent of the 2005 GDP (Annex 6). Given the higher price responsiveness of lower-income groups, these savings and the reduced economic burden associated with smoking would be experienced mostly by the poor, thus helping reduce economic disparity. To further benefit low-income groups, a portion of the newly generated revenue could be set aside to offer cessation services to help them quit. Creating a health promotion fund with only 2 percent of newly generated cigarette tax revenues would make as much as UAH 115 million (US$ 24 million) a year available for this purpose.

Trade, Foreign Exchange, and Economic Growth

Ukraine's tax policy currently discourages consumption of imported cigarettes. As a result, Ukraine has a net positive trade balance in cigarettes (Annex 4). However, the total balance of tobacco trade

Higher tobacco taxes would be beneficial for the overall economic growth by increasing labor productivity through lower mortality, lower morbidity, and reduced smoking breaks at work.

is negative due to import of raw tobacco leaves. In the 10 years between 1996 and 2005 alone, Ukraine spent an estimated US$ 1.4 billion of foreign currency on tobacco,[108] primarily raw tobacco imports. Reduced cigarette consumption resulting from a tax increase would enhance Ukraine's foreign exchange reserve.

Higher tobacco taxes would benefit overall economic growth by increasing labor productivity through lower mortality, lower morbidity, and reduced smoking breaks at work. Ukraine loses an annual estimated US$ 3 billion nationwide as a result of lost productivity due to premature smoking-related mortality. Higher cigarette taxes will mitigate this loss of productivity, with the extent of the savings dependent upon the magnitude of tax increase implemented. An increase in tax to 50 percent of the retail price will avert mortality-related productivity losses by a maximum of UAH 453 million (US$ 92.6 million), while increasing the tax to 70 percent of the retail price can potentially avert productivity losses amounting to UAH 1,737 million (US$ 355.5 million) (Annex 6). In addition, higher labor productivity due to fewer smoking breaks can represent up to UAH 1,218 million (US$ 249.3 million) per year in savings (Annex 6) under the maximum tax increase. Adding the productivity gains from reduced premature mortality and higher job productivity would amount to an annual benefit of UAH 770 million (US$ 157.5 million) (0.2 percent of 2005 GDP) with a tax increase to 50 percent of the retail price. A tax increase to 70 percent of the retail price would provide a much larger productivity increase: UAH 2,956 million (US$ 604.8 million), or 0.7 percent of 2005 GDP (Annex 6). Additional gains from lower health care expenditures and less sick time would be substantial, but a lack of data prevents them from being estimated at this time.

Endnotes for Chapter VII

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VIII. Discussion and Recommendations

Assessment of the burden that smoking imposes on a society typically focuses on two dimensions: its impact on public health and its economic consequences. From the public health perspective, tobacco taxes that factor in inflation and consumer purchasing power are the most effective tool for reducing tobacco use. From the economic perspective, a tax-driven increase in price is one of the most cost-effective methods to decrease the economic burden associated with smoking-related diseases.

Our calculations demonstrate that increase of the cigarette tax to 70 percent of the retail price not only yields the maximum public health benefits, but also generates the maximum tax revenue.

Given the current low level of cigarette taxes in Ukraine, a tax increase is a highly desirable public policy option. Our calculations demonstrate that increasing the cigarette tax to 70 percent of the retail price not only yields the maximum public health benefits but also generates the maximum tax revenue. These estimates are likely conservative, given that the long-term impact of tobacco tax policy is likely to be even greater because of the addictive nature of tobacco use.

Various studies have documented that large real tax increases are both practical and beneficial for public health. For example, New York City raised the tobacco excise tax from US$ 0.08 to US$ 1.50 in 2002,[111] and despite the availability of cheaper cigarettes from low-tax regions outside the city,[112] adult smoking prevalence declined by 19 percent in the next four years[113] and the youth smoking rate fell from 17.6 percent in 2001 to 8.5 percent in 2007.[113] South Africa,

A progressive tobacco tax policy can slow down the predicted population decline, increase labor productivity, and therefore boost the economic growth.

a country with a large low-income population, raised its tobacco excise taxes by 149 percent in real terms between 1994 and 1999, which reduced cigarette consumption by 21 percent and doubled tobacco tax revenues.[114,115] This example illustrates that substantial tax increases can achieve reductions in smoking prevalence even when cheaper, illicit cigarettes are available.

A progressive tobacco tax policy can slow Ukraine's predicted population decline and increase labor productivity, thereby boosting economic growth. To maximize its impact, a tax increase should be driven by the specific rather than the *ad valorem* component of the excise tax in order to reduce opportunities for product substitution. If the *ad valorem* component of the excise tax is retained, tax rates should be based on the maximum retail price instead of the wholesale price to make the process of tax calculation more transparent and reduce the potential for tax evasion.

Because all cigarettes regardless of type are equally harmful, there is a compelling economic reason to equalize excise tax rates on filtered and non-filtered cigarettes as well as on other tobacco products. Such equalization would further reduce cigarette consumption by limiting consumer motivation for product substitution as a way to avoid a tax increase as well as further increasing average cigarette prices.

In addition to raising the cigarette tax rate, the Ukraine government may also wish to study the practice of several EU countries such as France and Ireland, where a minimum retail price law forbids the sale of cigarettes below a certain price. The current tax

policy in Ukraine is based on the maximum retail price, which is convenient for tax collection but does not guarantee that cigarettes are not sold for less. Laws requiring a minimum retail price better address the need for smoking prevention and public health protection.

To maximize the public health benefit of the proposed tax policy, part of the newly generated cigarette tax revenue could be invested in providing cessation services to those who would like to quit and in enforcing other tobacco control measures, such as smoke-free laws that could reduce smoking among population segments less sensitive to cigarette prices. The idea of tax earmarking is not new in Ukraine; it was applied between 1999 and 2003 to raise money for the Pension Insurance Fund.

Finally, the government may want to revisit the process of passing tax legislation. Currently, the Ukraine tax system is regulated by laws adopted by the legislative branch of the government and not by orders issued by the executive branch. The process of tobacco tax amendment is complicated because any change in tax policy needs to be approved by the Parliament, allowing tobacco industry interference with government development of tobacco control policy.

Ukraine stands on the edge of a public health and demographic crisis due to extremely high smoking prevalence among males and rates among females that are likely increasing. The health care system lacks the capacity to adequately address smoking-attributable diseases, and the importation of Western culture's smoking habits without corresponding tobacco control measures to keep the system in balance may prove disastrous for the Ukraine economy. To prevent this scenario, a sizable tobacco tax increase accompanied by other tobacco control policies needs to be implemented as soon as possible. Further research also needs to be conducted to support this effort. Studies should focus primarily on estimating the price elasticity of cigarette demand — including the cross-price elasticity between different cigarette price categories — and on estimating the costs of smoking in the Ukraine, particularly those related to the health care system.

Recommendations:

- Increase the tax level on cigarettes so that the total tax represents at least 70 percent of the retail price.
- Let the specific component of the excise tax drive the tax increase to achieve the maximum public health benefits.
- If the *ad valorem* component of the excise tax is retained, use the maximum retail price as a base for the total excise tax.
- Ensure automatic inflation adjustment for the specific component of the cigarette excise tax.
- Equalize excise tax rates on filtered and non-filtered cigarettes.
- Equalize excise tax rates on cigarettes and other smoked tobacco products.
- Earmark a portion of tobacco taxes for public health, medical care and law enforcement.
- Shift the responsibility for setting excise tax rates from the legislative to the executive branch of the government to simplify and shorten the process of adopting new tobacco tax rates.
- Adopt other tobacco control measures called for by the Framework Convention on Tobacco Control.

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Annex 1

	Before 1993	Jan 93-Dec 93	Dec 93-Feb 94	Feb 94-Sep 95	1995	1996	1997	1998	1999	2000[c]	2001	2002	2003	2004	2005	2006	Jan 1-Jun 30 07	Since Jul 1, 07
		VAT=20%																
Filtered Cigarettes (specific excise tax/1000 pieces	Tobacco Industry State-owned	70% of whole-sale price	60% of whole-sale price	50% of whole-sale price	40% of whole-sale price	2 ECU	2 ECU	2 ECU[a]	2.5 ECU	UAH 10 + 5% whole-sale price (Pension payment)	UAH 10 +UAH 2.5 Pension payment	UAH 10 +UAH 2.5 Pension payment	UAH 11.5 +UAH 2.5 Pension payment	UAH 11.5 +5% of whole-sale price	UAH 11.5 +8% of whole-sale price	UAH 11.5 +8% of whole-sale price	UAH 12 +9% of whole-sale price	UAH 13 +10% of whole-sale price
Non-filtered Cigarettes (specific excise tax/1000 pieces			45% of whole-sale price	35% of whole-sale price	10% of whole-sale price	0.5 ECU	1 ECU	2 ECU[b]	2.5 ECU	UAH 10 + 5% whole-sale price (Pension payment)	UAH 5 +UAH 1.5 Pension fund payment	UAH 5 +UAH 1.5 Pension fund payment	UAH 5 +UAH 1.5 Pension fund payment	UAH 5 +5% of whole-sale price	UAH 5 +8% of whole-sale price	UAH 5 +8% of whole-sale price	UAH 5 +9% of whole-sale price	UAH 5 +10% of whole-sale price

[a] *Increased to 3 ECU per 1,000 pieces between September and December 1998.*
[b] *Increased to 2.3 ECU per 1,000 pieces between September and December 1998.*
[c] *Between November 6, 1999 and June 30, 2000: Specific excise tax rates for filtered and non-filtered cigarettes were 10 UAH and 7 UAH per 1,000 pieces, respectively.*
Note:
After subtracting the VAT and the excise tax, from March 31, 2005–January 1, 2007, the excise tax could not be lower than 22% of the maximum retail price. From January 1–July 1, 2007, the excise tax could not be lower than 23%, and since July 1, 2007, it could not be lower than 24% of the maximum retail price.

Annex 2: Cigarette Production, 1988–2005

Year	Production (Million pieces)
1988	81,659
1989	78,446
1990	69,397
1991	66,645
1992	60,990
1993	40,571
1994	47,083
1995	48,033
1996	44,900
1997	54,488
1998	59,275
1999	54,052
2000	58,774
2001	69,731
2002	81,088
2003	96,776
2004	108,946
2005	120,000

Sources:
Euromonitor International. Tobacco-Ukraine. 2007. Available from: www.portal.euromonitor.com. Accessed June 19, 2007.

United Nations Statistics Division. UNdata A World of Information. Available from: http://data.un.org. Accessed February 10, 2008.

Annex 3: Consumption and Consumption Per Capita, 1990–2006

Year	Consumption (Million)	Consumption Per Capita
1990	81,070	1,571
1991	84,552	1,634
1992	78,798	1,519
1993	58,379	1,125
1994	64,083	1,241
1995	65,073	1,270
1996	62,900	1,238
1997	67,125	1,333
1998	70,900	1,420
1999	63,370	1,280
2000	62,500	1,275
2001	70,000	1,443
2002	80,330	1,671
2003	80,000	1,846
2004	90,000	1,902
2005	96,000	2,044
2006	116,000	2,488

Note:
Consumption estimates are based on duty-paid sales only.

Sources:
ERC Statistics Intl Plc. Ukraine. 2006.
Krasovsky K, Cigarette Consumption in Ukraine — Data from the Ukraine State Statistical Office. 2007. Personal communication with Dr Ross.

Annex 4: Cigarette Trade, 1992–2005

Year	Export (Million pieces)	Import (Million pieces)	Net Trade
1992	5,295	437	4,858
1993	8,526	340	8,186
1994	4,647	6,521	–1,874
1995	13,830	355	13,475
1996	9,264	4,239	5,025
1997	3,336	6,600	–3,264
1998	3,651	5,634	–1,983
1999	5,691	3,014	2,677
2000	6,861	1,838	5,023
2001	3,019	2,178	841
2002	2,626	1,606	1,020
2003	2,932	2,038	894
2004	5,300	1,891	3,409
2005	6,500	2,628	3,872

Sources:
Alcohol and Drug Information Center (ADIC). Tobacco or Health in Ukraine: Economic Issues, 2006 Update. 2007. Available from: http://www.adic.org.ua/adic/reports/toh-2006/index.html. Accessed June 12, 2007.

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Annex 5: Nominal Average Prices of Filtered and Non-filtered Cigarettes per Pack in UAH as Reported by the Ukraine State Statistical Office

	1999	2000	2001	2002	2003	2004	2005	2006
Filtered	1.17[a]	1.42[a]	2.10	2.06	2.13	2.20	2.24	2.25
Non-filtered	0.76	0.93	0.90	0.76	0.73	0.72	0.75	0.75

[a] *Before 2001, only prices of domestic filtered cigarettes were included in the estimate. Since 2001, both domestic and imported filtered cigarette brands were included. For this reason, only prices since 2001 can be used to assess the trend in the 2000s.*

Source:
Ukraine State Statistical Office, as reported in http://www.adic.org.ua/adic/reports/toh-2006/expenditures.htm#Table_5.

Annex 6: Impact of Increasing Tobacco Taxes on Productivity and Savings of Quitters

	Increase Tax Rate To:		
	50%	**64%**	**70%**
Savings of Quitters (million UAH)			
Price Elasticities			
–0.10	155.9	414.4	599.1
–0.20	312.3	829.3	1,198.3
Savings of Quitters (million US$)			
Price Elasticities			
–0.10	31.9	84.8	122.6
–0.20	63.9	169.7	245.2
Productivity Savings from Reduced Mortality (million UAH)			
Price Elasticities			
–0.10	226.3	601.1	868.9
–0.20	452.5	1,202.2	1,737.3
Productivity Savings from Reduced Mortality (million US$)			
Price Elasticities			
–0.10	46.3	123.0	177.8
–0.20	92.6	246.0	355.5
Time Gained from Reduced Smoking Breaks at Work (million hours)[a]			
Price Elasticities			
–0.10	36.9	98.2	141.9
–0.20	73.9	196.3	283.7
Savings from Reduced Smoking Breaks at Work (million UAH)			
Price Elasticities			
–0.10	158.8	421.3	608.9
–0.20	317.2	843.0	1,218.3
Savings from Reduced Smoking Breaks at Work (million US$)			
Price Elasticities			
–0.10	32.5	86.2	124.6
–0.20	64.9	172.5	249.3
Total Productivity Savings (million UAH)			
Price Elasticities			
–0.10	384.6	1,022.3	1,477.8
–0.20	769.7	2,044.7	2,955.6
Total Productivity Savings (million US$)			
Price Elasticities			
–0.10	78.7	209.2	302.4
–0.20	157.5	418.4	604.8

[a] *Assuming that one cigarette lasts about seven minutes and that one-third of cigarettes are consumed in the workplace.*

Note: Small discrepancies in calculation can occur due to rounding.

Formula:

***Savings of quitters** = number of quitters/non-initiators x average number of cigarette packs consumed per smoker x average price per pack in 2006*

***Productivity savings from reduced mortality** = number of quitters and non-initiators x annual earnings lost per smoker*

***Time gained from reduced smoking breaks at work (hours)** = number of quitters and non-initiators x hours lost from smoking per year per smoker (assuming an eight-hour work day, 2000 hours a year)*

***Savings from reduced smoking breaks at work** = hours gained from reduced smoking breaks x GDP per capita in 2005/work hours per year*

Annex 7: Addendum

A legislative amendment adopted at the end of 2007 revised the 2008 tax rates on tobacco products (Table 1). Subsequently, tobacco taxes were increased in 2008, first in January and again in September.

Tables 2 and 3 show the impact of the 2008 tobacco tax changes on cigarette prices, tax rates, and government revenue in Ukraine in nominal and real terms, respectively, applying our simulation model. The departure point for our analysis is the average 2007 retail price of a pack of filtered cigarettes as reported by the Ukraine State Statistical office.[116] The cigarette retail prices in Table 2 are the actual average cigarette retail prices as reported by the Ukraine State Statistical office except for the period of September–December 2008 when we calculated the November and December prices using October 2008 price and 25 percent yearly inflation.[117]

To analyze the extent to which the tobacco industry passed the tax increases on to consumers, we calculated both the actual and the expected increase in average cigarette retail price. The expected increase in price took into account the general level of inflation and the tax change. The difference between the expected and actual price increases suggests that the manufacturers were trying to cushion their customers from the full impact of tax increases and inflation.

Our simulation model predicts a 2008 cigarette tax revenue of UAH 3.0 billion, while the estimate by the Statistical office for 2008 is close to UAH 3.4 billion. The difference is likely due to the positive impact of income on cigarette consumption in Ukraine since the real GDP as well as pensions and wages rose in 2008.[118,119] In addition, higher income may have led to the substitution from cheaper to more expensive cigarettes, thus increasing the tax per pack collected.

Table 3 shows the inflation-adjusted impact of 2008 cigarette tax increases. Despite the increase in the share of tax as a percentage of retail price, the real cigarette prices increased by less than 2%. The tax increases may have reduced the number of smokers by

Table A7.1: Tobacco Excise Tax Changes in 2008

			Jan 1–Aug 31 2008	Sep 1–Dec 31 2008
Filtered cigarettes	Specific excise (UAH per 1,000 cigarettes)		14	30
	Specific excise (UAH per pack)		0.28	0.60
	Ad valorem excise	up to full max retail price	–	–
		up to max retail price freed from excises and VAT	12.5%	16%
	Minimal excise tax (UAH per 1,000 cigarettes)		18	40
	Minimal excise tax (UAH per pack)		0.36	0.80
Non-filtered cigarettes	Specific excise (UAH per 1,000 cigarettes)		5	13
	Specific excise (UAH per pack)		0.10	0.25
	Ad valorem excise	up to full max retail price	–	–
		up to max retail price freed from excise and VAT	12.5%	16%
	Minimal excise tax (UAH per 1,000 cigarettes)		8	18
	Minimal excise tax (UAH per pack)		0.16	0.36

Table A7.2: Impact of 2008 Tobacco Tax Changes on Filtered Cigarette Prices, Tax Rates and Government Revenue in Ukraine in Nominal Terms

		2008 Tax changes		2008 Total
	Values as of 2007 (excise tax per pack pack = 0.26 UAH +10% of wholesale price)	Jan 1–Aug 31, 08 (excise tax per pack = 0.28 UAH +12.5% wholesale price)	Sep–Dec 31,08 (excise tax per pack = 0.60 UAH +16% wholesale price)	Jan 1–Dec 31, 08
Average retail price per pack (UAH)	**2.45**	2.64	3.11[a]	
Wholesale price[b]	**1.62**	1.70	1.72	
Specific excise tax	**0.26**	0.28	0.60	
Ad valorem excise	**0.16**	0.21	0.27	
VAT	**0.41**	0.44	0.52	
Average tax per pack (UAH)	**0.83**	0.93	1.39	
Tax as % of retail price	34%	35%	45%	
Actual increase in retail price (%)		8%	18%	27%
Expected increase in retail price (%)		15%	23%	39%
Additional excise revenue (UAH million) Price elasticities	**2,350**			
–0.10		206.1	408.0	614.2
–0.20		220.3	396.9	617.2
Additional excise revenue (US$ million) Price elasticities	**480.8**			
–0.10		42.1	83.4	125.5
–0.20		45.0	81.1	126.1
Increase in excise revenue (%) Price elasticities				
–0.10		8.8%	16.0%	26.1%
–0.20		9.4%	15.4%	26.3%
Total cigarette tax revenue (UAH million) Price elasticities	**2,350**			
–0.10		2,555.8	2,757.7	2,963.8
–0.20		2,570.0	2,746.6	2,966.9

Notes:

[a] *Price for Nov 08 and Dec 08 was calculated based on Jan–Oct 08 prices and the 2008 level of inflation of 25%*

[b] *Wholesale price was calculated based on the retail price and the value of tax; it includes costs, manufacturer's profit, retail margin and retailer's profit*

Average exchange rate for Jan–Nov 2008 of 0.20434 USD per UAH was used.

Table A7.3: Impact of 2008 Tobacco Tax Changes on Filtered Cigarette Prices, Tax Rates, Number of Smokers, Tobacco-related Mortality in Real Terms

		2008 Tax changes		2008 Total
	Values as of 2007 (excise tax per pack pack = 0.26 UAH +10% of wholesale price)	Jan 1–Aug 31, 08 (excise tax per pack = 0.28 UAH +12.5% wholesale price); inflation of 17%	Sep–Dec 31,08 (excise tax per pack = 0.60 UAH +16% wholesale price); inflation of 25%	Jan 1–Dec 31, 08
Average retail price per pack (UAH): nominal	**2.45**	2.64	3.11	
Average retail price per pack (UAH): real (adjusted for 2008 inflation)	**2.45**	2.25	2.49	
Average tax per pack (UAH): nominal	**0.83**	0.93	1.39	
Average tax per pack (UAH): real (adjusted for 2008 inflation)	**0.83**	0.80	1.11	
Tax as % of real retail price	34%	35%	45%	
Real increase in retail price (%)		–8%	10%	<2%
Reduction in number of smokers (thousands) Price elasticities[a]	**16,520**			
–0.10		–66.7	86.5	19.8
–0.20		–133.4	173.0	39.6
Tobacco-related mortality averted (thousands) Price elasticities[b]	**8,260**			
–0.10	High (50%)	–33.4	43.3	9.9
	Low (25%)	–16.7	21.6	4.9
–0.20	High (50%)	–66.7	86.5	19.8
	Low (25%)	–33.4	43.3	9.9
Remaining number of smokers (thousands) Price elasticities	—			
–0.10		16,586.7	16,433.5	16,500.2
–0.20		16,653.4	16,347.0	16,480.4

Notes:
[a] *Assuming 50% impact on prevalence and 50% impact on smoking intensity*
[b] *Assuming 25–50% of smokers will die due to their habit*

up to 20,000, as the model predicts. However, this level of reduction may have been thwarted by the positive impact of higher income on tobacco use.

Three new competing cigarettes tax proposals were introduced to the Ukraine parliament in 2008 (Table 4).

The potential impact of these legislative drafts is analyzed in Tables 5 and 6.

Table 5 shows the impact of the tax proposals in nominal terms, that is, not adjusted for inflation, starting from the December 2008 average retail price of a cigarette pack. The first tax proposal, Draft Law

Table A7.4: Overview of the Three Tobacco Excise Taxes Proposals

			Draft law # 3281	Draft law # 3409		Draft law # 3306			
				from Jan 1, 2009	from July 1, 2009	from Jan 1, 2009	from July 1, 2009	from Jan 1, 2010	from Jan 1, 2011
Filtered cigarettes	Specific excise (UAH per 1,000 cigarettes)		60	37.5	47.0	37.5	45.0	52.0	not identified
	Specific excise (UAH per pack)		1.20	0.75	0.94	0.75	0.90	1.04	
	Ad valorem excise	up to full max retail price	20%	–	–	–	–	–	–
		up to max retail price freed from excises and VAT	–	16%	16%	16%	16%	16%	not identified
	Minimal excise tax (UAH per 1,000 cigarettes)		100	40.0	40.0	47.0	60.0	80.0	100.0
	Minimal excise tax (UAH per pack)		2.00	0.80	0.80	0.94	1.20	1.60	2.00
Non-filtered cigarettes	Specific excise (UAH per 1,000 cigarettes)		35	15.6	19.5	15.6	19.5	27.0	not identified
	Specific excise (UAH per pack)		0.70	0.31	0.39	0.31	0.39	0.54	
	Ad valorem excise	up to full max retail price	20%	–	–	–	–	–	–
		up to max retail price freed from excise and VAT	–	16%	16%	16%	16%	16%	not identified
	Minimal excise tax (UAH per 1,000 cigarettes)		50	18.0	18.0	25.0	32.0	40.0	50.0
	Minimal excise tax (UAH per pack)		1.00	0.36	0.36	0.50	0.64	0.80	1.00

#3281, would more than double the current total average cigarette tax from UAH 1.44 to UAH 2.96 per pack, and the total tax would represent 62 percent of the retail price. The other two laws would be inferior in that their impacts fall even further below the World Bank recommended 67% to 80% tax to retail price ratio. Draft Law #3281 is also superior as far as tax income generation. If this law is adopted, Ukraine could collect up to UAH 6.7 billion, or USD 1.4 billion in cigarette tax revenue in 2009.

Table 6 analyzes the real, inflation-adjusted impact of the tax proposals, assuming 10% inflation in 2009. Since Draft Law #3281 does not specify the effective date for the tax increase, our calculation is based on its immediate implementation. The simulation results show that from the public health perspective Draft Law #3281 is superior, resulting in a potential decline of 766,000 in the number of smokers and preventing up to 383,000 tobacco-related deaths. The real impact of Draft Laws #3409 and #3306 is much smaller, also due to the impact of inflation on real cigarette prices. Our estimates clearly favor Draft Law #3281 from both the public health and the fiscal perspective. However, it will be important that any new tax legislation keeps the pace with inflation and income growth in order to maintain its sustained impact on tobacco use in Ukraine.

Table A7.5: Impact of the Proposed Tobacco Tax Changes on Filtered Cigarette Prices, Tax Rates and Government Revenue in Ukraine in Nominal Terms

		Tax proposals		
	Values as of December 2008 (excise tax per = 0.60 UAH + 16% of wholesale price)	Law #3281 (excise tax per pack = 1.20 UAH +20% of retail price in effect immediately)	Law #3409 (excise tax per pack = 0.94 UAH + 16% of wholesale price by July 1, 2009)	Law #3306 (excise tax per pack = 1.04 UAH + 16% of wholesale price by January 1, 2010)
Average retail price per pack (UAH)[a]	**3.27**	4.79	3.81	4.06
Wholesale price[b]	1.83	1.83	1.93	2.02
Specific excise tax	0.60	1.20	0.94	1.04
Ad valorem excise	0.29	0.96	0.31	0.32
VAT	0.55	0.80	0.63	0.68
Average tax per pack (UAH)	**1.44**	2.96	1.88	2.04
Tax as % of retail price	44%	62%	49%	50%
Nominal increase in retail price (%)		46%	16%	24%
Additional excise revenue (UAH million) Price elasticities	**3,400**[c]			
–0.10		3,262.2	1,001.0	1,356.6
–0.20		2,938.2	952.8	1,295.6
Additional excise revenue (US$ million) Price elasticities	**694.8**			
–0.10		666.6	204.5	277.2
–0.20		600.4	194.7	264.7
Increase in excise revenue (%) Price elasticities				
–0.10		95.9%	29.4%	39.9%
–0.20		86.4%	28.0%	38.1%

Notes:

[a] *Price for Dec 08 was calculated based on Jan 08–Oct 08 prices and the 2008 level of inflation of 25%*

[b] *Wholesale price was calculated based on the retail price and the value of tax; it includes costs, manufacturer's profit, retail margin and retailer's profit. Future values based on 10% yearly inflation.*

[c] *Based on revenue prediction for 2008*

Average exchange rate for Jan–Nov 2008 of 0.20434 USD per UAH was used

Table A7.6: Impact of the Proposed Tobacco Tax Changes on Filtered Cigarette Prices, Tax Rates, Number of Smokers, Tobacco-related Mortality and Government Revenue in Ukraine in Real Terms

		Tax proposals		
	Values as of December 2008 (excise tax per pack = 0.60 UAH + 16% of wholesale price)	Law #3281 (excise tax per pack = 1.20 UAH +20% of retail price in effect immediately)	Law #3409 (excise tax per pack = 0.94 UAH + 16% of wholesale price by July 1, 2009)	Law #3306 (excise tax per pack = 1.04 UAH + 16% of wholesale price by January 1, 2010)
Average retail price per pack (UAH): nominal	**3.27**	4.79	3.81	4.06
Average retail price per pack (UAH): real[c]	**3.27**	4.79	3.63	3.69
Average tax per pack (UAH): nominal	**1.44**	2.96	1.88	2.04
Average tax per pack (UAH): real[c]	**1.44**	2.96	1.79	1.85
Tax as % of retail price	44%	62%	49%	50%
Real increase in retail price (%)		*46%*	*11%*	*13%*
Reduction in number of smokers (thousands)[e] Price elasticities[a]	**16,520**			
–0.10		383.1	89.4	104.6
–0.20		766.1	178.9	209.3
Tobacco-related mortality averted (thousands)[b] Price elasticities	**8,260**			
–0.10	High (50%)	191.5	44.7	52.3
	Low (25%)	95.8	22.4	26.2
–0.20	High (50%)	383.1	89.4	104.6
	Low (25%)	191.5	44.7	52.3
Remaining number of smokers (thousands) Price elasticities	**–**			
–0.10		16,136.9	16,430.6	16,415.4
–0.20		15,753.9	16,341.1	16,310.7
Additional excise revenue: real–real (UAH million) Price elasticities	**3,400[d]**			
–0.10		3,262.2	791.4	924.2
–0.20		2,938.2	745.5	868.7
Additional excise revenue: real–real (US$ million) Price elasticities	**694.8**			
–0.10		666.6	161.7	188.8
–0.20		600.4	152.3	177.5
Increase in excise revenue: real (%) Price elasticities				
–0.10		95.9%	23.3%	27.2%
–0.20		86.4%	21.9%	25.6%

Notes:

[a] *Assuming 50% impact on prevalence and 50% impact on smoking intensity*

[b] *Assuming 25–50% of smokers will die due to their habit*

[c] *Assuming 10% inflation in 2009*

[d] *Based on revenue prediction for 2008*

[e] *Number of smokers predicted for 2008 using –0.1 price elasticity*

Average exchange rate for Jan–Nov 2008 of 0.20434 USD per UAH was used

Endnotes for Annex 7

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Notes

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