

# The Economics of Tobacco and Tobacco Taxation in Egypt

Khaled Hanafy

Arab Academy for Science, Technology & Maritime Transport

Ashraf Salah Eldin Saleh

Arab Academy for Science, Technology & Maritime Transport

Mariam Ezzat Badr Eldin Elmallah

Alexandria University

Haidy Mohamed Amer Omar

Arab Academy for Science, Technology & Maritime Transport

Dina Bakr

Arab Academy for Science, Technology & Maritime Transport

Frank J. Chaloupka

University of Illinois at Chicago

“Raising the average cigarette tax to £E 4.08 per pack (70% of retail price) would prevent over 600,000 premature deaths in current and future smokers and raise cigarette tax revenues by almost £E 5.2 billion.”



- 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@theunion.org](mailto:union@theunion.org); web: [www.theunion.org](http://www.theunion.org)

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## Executive Summary

Egypt has the largest population of tobacco users in the Arab world.<sup>1</sup> Tobacco use prevalence and per capita cigarette consumption have been rising steadily for many years, and significant numbers of Egyptian adolescents consume tobacco products. Given Egypt's relatively low tobacco product prices, significant increases in tobacco taxes will reduce tobacco use and its harmful health and economic consequences while generating substantial new revenues.

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### **Tobacco use prevalence and per capita cigarette consumption have been rising steadily for many years, and significant numbers of Egyptian adolescents consume tobacco products**

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Tobacco use in Egypt is largely concentrated among males, with nearly 40% of adult males smoking some form of tobacco in 2009.<sup>2</sup> Female smoking prevalence is low, but has increased more rapidly than male prevalence in recent years as social norms against women's smoking have weakened.<sup>3</sup> Based on estimates from the 2009 Global Adult Tobacco Survey, almost one-third of men smoke cigarettes, while 0.2% of women smoke cigarettes. Overall, 19.7% of Egyptian adults (38.1% of men) currently use tobacco, whether smoked or smokeless.

Youth smoking is a growing problem in Egypt, with the 2005 Global Youth Tobacco Survey showing tobacco use prevalence of 16% and 7.6% among male and female students aged 13 to 15 years. The relatively higher prevalence ratio for girls to boys compared to the ratio for women to men suggests that prevalence among future cohorts of adult females will rise rapidly

in coming years if interventions are not implemented. Many Egyptian youth are regularly exposed to tobacco smoke at home (38.7%) or in public places (43.7%).

Cigarette consumption has been rising more or less steadily since the 1970s, more than doubling between 1990 and 2007 from 39.2 billion cigarettes in 1990 to 84.6 billion cigarettes in 2007. Per capita cigarette consumption rose by over 50% during this period, to over 1,050 cigarettes annually. Most non-cigarette use of tobacco in Egypt is water pipe use, with estimated prevalence of adult male water pipe use in 2009 at about 6.2%, and a prevalence of slightly less than 0.3% among women. In addition, almost 5% of Egyptian men and 0.3% of Egyptian women use smokeless tobacco.

Tobacco-attributable deaths in Egypt are estimated to be nearly 170,000 per year. Reflecting the gender-specific patterns of tobacco use, over 90% of these are among men. As in other countries, the majority of these deaths result from lung and other cancers, strokes, ischemic heart and other cardiovascular diseases, and respiratory diseases. An estimated £E 3.4 billion (US\$ 616 million)\* is spent annually to treat diseases caused by tobacco use.

### **Tobacco Manufacturing and Employment**

Tobacco farming has long been banned in Egypt and all tobacco leaf used for producing tobacco products is imported; Egypt is the ninth largest raw tobacco importer in the world. The cigarette market is dominated by the Eastern Tobacco Company (ETC), which maintains a nearly 80% market share, and is slowly transitioning from a government monopoly to a private company. The Egyptian government currently

\* An exchange rate of 1£E = 0.18 US\$ is used throughout, corresponding to the official rate in September 2009. The Egyptian pound-US dollar exchange rate has remained in the range of 0.17 to 0.19 US dollars since 2005.

continues to hold a majority stake in ETC, which in addition to producing its own cigarette brands, produces various multinational brands under license. Its Cleopatra brand family is by far the most popular in Egypt.

Given the absence of tobacco farming in Egypt, tobacco-dependent employment is limited to employment in tobacco product manufacturing, with nearly all of this employment in cigarette production for ETC; in 2006, ETC employed 12,120 people. In 2006, the total labor force in Egypt was 20.1 million, implying that employment in ETC cigarette production accounted for just over 0.06% of overall employment.

### Tobacco Control Efforts

Egypt is a signatory to the World Health Organization (WHO) Framework Convention on Tobacco Control (FCTC), signing this global public health treaty in June 2003 and ratifying it in February, 2005. While Egypt's tobacco control policies fall short of those called for by the FCTC, as with many low-to-middle income countries, they have become increasingly comprehensive. Egypt has been making recent progress on advertising bans and restrictions on tobacco promotion and sponsorship, in addition to better monitoring, pictorial warnings and smokefree cities. Challenges remain, including those of ensuring smokefree environments in restaurants and hospitals. There have, however, been other forms of censure — prominently, a fatwa, or religious ruling, against tobacco smoking was issued in 1999.

Tobacco control in Egypt faces several challenges — partial and uneven restrictions on tobacco company marketing, incomplete restrictions on smoking in public places and workplaces, weakly enforced ban on sales to minors, limited efforts to raise awareness about the consequences of tobacco use and insufficient resources dedicated to tobacco control. This is of

particular concern, since smoking prevalence and per capita cigarette consumption have been generally rising over time even as policies have become somewhat more comprehensive. Stronger and more comprehensive policies would be effective in slowing and reversing the upward trends in tobacco use in Egypt.

### Tobacco Taxes and Prices

Egypt imposes a variety of taxes on tobacco and tobacco products, including modest import duties on imported tobacco leaf and tobacco products, and general sales taxes on tobacco products, including specific and *ad valorem* excise taxes. Cigarette taxes currently generate an estimated £E 10.34 billion (US\$ 1.9 billion) in revenues for the Egyptian government.

Until recently, specific taxes were applied to cigarettes based on the net-of-tax (manufacturers' or ex-factory) price. These taxes ranged from £E 1.08 (US\$ 0.20) per pack on the lowest priced cigarettes to £E 3.25 (US\$ 0.59) per pack on the highest priced cigarettes, with a tax of £E 1.25–1.75 (US\$ 0.24–0.32) per pack on the most popular brands. For these brands, taxes accounted for between 46% and 61% of retail prices.

In July 2010, the multi-tiered specific tax structure was replaced by a simpler, uniform tax structure comprised of a specific tax of £E 1.25 (US\$ 0.23) per pack and an *ad valorem* tax of 40% of retail price. On average, these taxes account for approximately 65% of retail prices.

In addition to the excise tax described above, “manufacturing and printing” tax of 4 piasters (US\$ 0.007) per pack is applied on locally produced foreign brand cigarettes. Further, an earmarked tax of 10 piasters (US\$ 0.018) per pack has been applied to all cigarettes since 1992; revenues from this tax are used to provide medical insurance for students. For

other tobacco products, *ad valorem* taxes are applied based on the value of the product, with minimum taxes for low priced products.

Given the infrequent changes in taxes on cigarettes over time, and the stability of the manufacturing and printing and earmarked medical insurance taxes, the real value of the taxes applied to cigarettes have been falling over time. The July 2010 tax increase is a step that can potentially reverse the trend.

Compared to other countries in the World Health Organization's EMR (Eastern Mediterranean Region) grouping, cigarette prices in Egypt have historically been kept relatively low given the government's treatment of cigarettes as a "strategic public commodity" and ETC's resulting low prices for the most popular cigarette brands. While prices have risen as a result of the recent tax increase, there is still room for raising tobacco product prices in Egypt, including through additional tax increases.

### Impact of Cigarette Taxes on Demand and Health Outcomes

Few studies have examined the demand for tobacco products in Egypt. One recent study estimated an overall price elasticity of  $-0.397$ , implying that a 10% increase in prices will lead to about a 4% reduction in tobacco use. This study also found that price sensitivity appeared to be increasing over time. In analyses done for this report, the price elasticity of demand is estimated to be in the range from  $-0.40$  to  $-0.47$ , and income elasticity is estimated to be 1.60.

Based on these estimates, a simulation of the recent tax increase that increased taxes to a 65% share of retail price showed a reduction of almost 19% in cigarette consumption while increasing cigarette tax revenues by nearly £E 3.5 billion (US\$ 630 million). In addition, this tax increase will prevent nearly 790,000 Egyptian youth from taking up smoking and lead

approximately another 810,000 adult smokers to quit smoking. From a health standpoint, this increase is predicted to reduce the expected number of premature deaths by over 450,000, nearly 190,000 of which are preventable deaths among current adult smokers.

Increasing the cigarette tax so that it would account for a 70% share of the retail price would bring the total increase in revenues to almost £E 5.2 billion (US\$ 939 million). In addition, the combined tax increases would prevent over one million Egyptian youth from taking up smoking and lead nearly 1.1 million adult smokers to quit smoking. From a health standpoint, the total impact of the recent tax increase and an additional tax increase to a 70% share of retail price would reduce the number of premature deaths caused by smoking by approximately 600,000, including over a quarter of a million preventable deaths among current adult smokers.

### Recommendations

1. Increase cigarette taxes to the level at which they account for at least 70% of the average retail price of cigarettes for brands at the top end of each price tier.
2. Move towards a long term goal of increasing the specific component of the cigarette excise tax so that it accounts for a greater share of the total excise tax.
3. Implement annual adjustments to the specific tax rates so that they retain their real value over time.
4. Increase taxes on water pipe tobacco and other smokeless tobacco products to reduce their use.
5. Implement annual adjustments to tobacco tax rates so that they result in increases in tobacco product prices that are at least as large as increases in incomes.

6. Earmark a portion of the new revenues resulting from the higher cigarette and other tobacco product taxes for poverty alleviation programs, tobacco cessation and prevention programs, and other efforts to promote health targeted at the economically disadvantaged.

**Endnotes**

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## I. Introduction

Cigarette smoking and other forms of tobacco use impose a large and growing public health burden globally and in Egypt. Globally, tobacco use currently causes 5.4 million premature deaths each year, and current trends predict that one billion people will die from tobacco use in the 21st century.<sup>4</sup> Tobacco use also results in considerable economic costs, both for health care expenses incurred to treat the diseases caused by smoking and from lost productivity resulting from tobacco-related illnesses and premature death. The Arab Republic of Egypt has the largest population of tobacco users in the Arab region, suggesting that it also faces the greatest health and economic consequences from tobacco in the region.<sup>1</sup> In Egypt, cigarette smoking and water pipe use account for most tobacco use, with nearly 40% of male adults and almost 0.5% of female adults currently smoking some form of tobacco.<sup>2</sup> In addition, significant numbers of Egyptian youth are taking up tobacco use.<sup>5</sup>

Given the growing recognition of the health and economic consequences that result from tobacco, the Egyptian government has taken steps to reduce tobacco use by adopting various policies, including some limits on tobacco advertising and promotion, restrictions on smoking in public places, and, most recently, the adoption of graphic warning labels.

However, until recently, increases in tobacco taxes have not been used to curb Egyptian tobacco use; instead, a combination of policies has, in effect, kept cigarettes affordable. For many years, cigarette production and distribution in Egypt was monopolized by the government-owned Eastern Tobacco Company (ETC). In recent years, as Egypt has moved from a centralized to a market-oriented economy, the government has sold off part of its stake in ETC; however, it still retains a majority ownership share.

In this report, we briefly describe the tobacco environment in Egypt, starting with a discussion of tobacco use and its health and economic consequences, followed by a brief review of the supply of tobacco and tobacco products. We then provide a short description of tobacco control policies in Egypt, followed by a more detailed discussion of cigarette taxes and prices. Existing evidence on the effects of prices on cigarette demand are presented, along with new estimates based on cigarette demand in the 1990s and 2000s. These estimates are then used to project the impact of the recent cigarette tax increases on cigarette consumption, cigarette excise tax revenues, smoking prevalence and future deaths from smoking among those in the current population cohort, as well as the impact of a further tax increase on these outcomes. The report closes with recommendations for future tobacco tax policy in Egypt.

### Endnotes to Chapter I

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<sup>5</sup> Centers for Disease Control and Prevention. Global Youth Tobacco Survey (GYTS), Egypt - Fact Sheet. Atlanta GA: Centers for Disease Control and Prevention. 2007. Available at: [http://www.cdc.gov/tobacco/global/gyts/factsheets/emr/2005/Egypt\\_factsheet.htm](http://www.cdc.gov/tobacco/global/gyts/factsheets/emr/2005/Egypt_factsheet.htm). Accessed March 31, 2010.

## II. Tobacco Use and its Consequences in Egypt

Egypt has the largest population of tobacco users in the Arab world.<sup>1</sup> Tobacco use prevalence and per capita cigarette consumption have been rising steadily for many years, and significant numbers of Egyptian adolescents consume tobacco products. This chapter describes the levels of and trends in tobacco use in Egypt and the resulting health and economic consequences.

### Country Profile

Egypt's total population, estimated to be almost 79 million in 2009, inhabits less than 4% of the country's total area. Population growth has been relatively stable at about 2% per year. Approximately 43% of the population lives in urban areas and 57% in rural areas, with a trend towards increasing urbanization. Egypt's population is relatively young, with about one-third of all Egyptians under the age of 15 years and only 3% 65 years or older. Based on the nationally defined poverty line, about one in six Egyptians lives in poverty. Roughly one-quarter live on US\$ 2 or less per day.<sup>6</sup>

Since 1991, Egypt has been going through a transition from a centralized to a market-oriented economy, with structural and economic reforms. 2005 witnessed significant reforms in the tax system, management of public finance, privatization, monetary

policy, and the financial sector. These trends have contributed to significant economic expansion and rising incomes over much of the past two decades. Unemployment has declined in recent years, from 11.2% in 2006 to 8.9% in 2007, but remains persistently high. As with much of the world, Egypt's economy has been adversely affected by the ongoing global economic downturn.

### Adult Tobacco Use

Tobacco use in Egypt is largely concentrated among males, with nearly 40% of men using tobacco products in 2009.<sup>2</sup> Given cultural norms against female smoking, estimates for tobacco use prevalence among women vary widely, ranging from less than 1% to almost 30%.<sup>2,4,7</sup> However, these norms appear to be weakening, with female smoking prevalence rising more rapidly than male prevalence in recent years.<sup>3</sup>

### ... nearly 32% of adult Egyptian males (ages 15 and older) smoke cigarettes

Based on estimates from the 2009 Global Adult Tobacco Survey, nearly 32% of adult Egyptian males (ages 15 and older) smoke cigarettes, compared to only 0.2% of adult females (Table 2.1). Given recent population estimates, this suggests that the total number of adult cigarette smokers in Egypt is about 8.8 million.

**Table 2.1: Adult prevalence of tobacco use, 2009**

	Cigarette Smoking	Shisha Smoking	Smokeless tobacco use	Any tobacco use
Males	31.8%	6.2%	4.8%	38.1%
Females	0.2%	0.3%	0.3%	0.6%
Overall	16.3%	3.3%	2.6%	19.7%

Source: Global Adult Tobacco Survey - Egypt, 2009 (CDC 2010).

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## Smoking prevalence has been rising in Egypt, with the number of smokers increasing at about twice the rate of population growth

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Smoking prevalence has been rising in Egypt, with the number of smokers increasing at about twice the rate of population growth over the past few decades.<sup>3</sup> As in high-income countries, tobacco use prevalence is lowest among the more educated, with male prevalence rates of nearly 27% among university graduates, as compared to about 52% and 50% among those with no formal education or those with some primary school education.<sup>2</sup> Similar patterns apply among women, with tobacco use prevalence of 0.6% among university graduates compared to 1.1% for those with no formal education or with some primary school education.<sup>2</sup>

Egyptian adults are regularly exposed to tobacco smoke in public places, at work, and at home. More than half (around 51%) of Egyptian adults report exposure to tobacco smoke on a weekly basis, with over 60% of indoor workers exposed at work.<sup>2</sup> About 80% of adults using public transportation, about 49% of those who visit health care facilities, and more than 70% of those visiting restaurants, shopping malls, and various governmental and nongovernmental buildings are exposed.<sup>2</sup> Over 70% allow smoking in their homes, with almost three-fourths of women living in homes where smoking is allowed.<sup>2</sup>

### Youth Tobacco Use

Youth smoking is a growing problem in Egypt, with the 2005 Global Youth Tobacco Survey showing tobacco use prevalence of 16% and 7.6% among male and female students, ages 13 to 15 years, respectively.<sup>5</sup> Prevalence of cigarette smoking among youth is

relatively low, with 5.9% of boys and 1.4% of girls reporting currently smoking cigarettes; prevalence of use of water pipe and other tobacco products is higher, at 12.3% for boys and 6.7% for girls.<sup>5</sup> The relatively higher prevalence ratio for girls to boys compared to the ratio for women to men suggests that female tobacco use prevalence among future adult cohorts will rise rapidly in coming years.

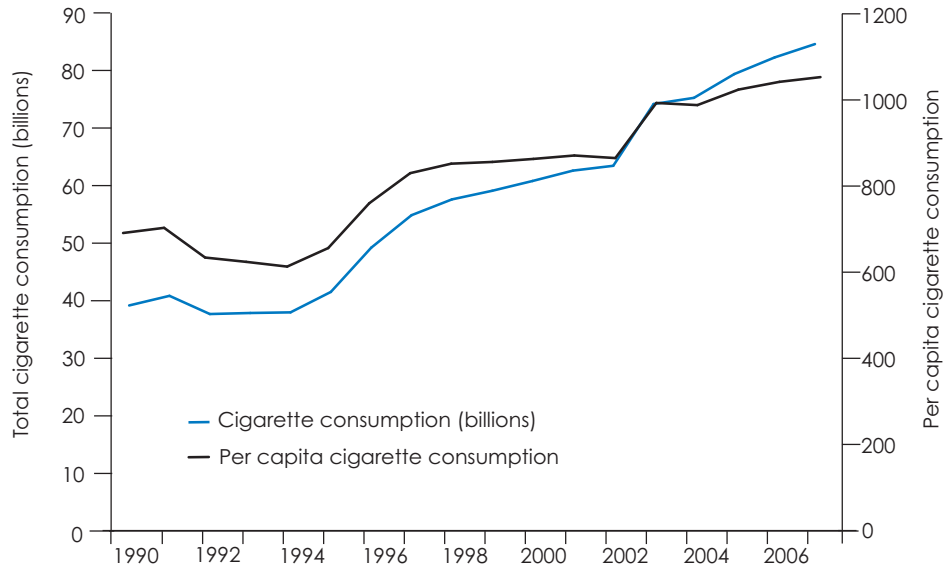
Some data suggest that a significant number of youth tobacco users start before the age of 10 years. Most youth smokers report that they want to stop smoking (78.7%) and more than two-thirds (68.1%) report trying to quit during the previous year.<sup>5</sup> Many Egyptian youth are regularly exposed to tobacco smoke at home (38.7%) or in public places (43.7%), and the vast majority (87.5%) favor banning smoking in all public places unless suitable interventions are implemented.<sup>5</sup>

### Tobacco Product Consumption

Cigarettes are the most widely consumed tobacco product in Egypt, and cigarette consumption has been rising more or less steadily since the 1970s. Overall cigarette consumption more than doubled between 1990 and 2007, rising from 39.2 billion cigarettes in 1990 to 84.6 billion cigarettes in 2007 (Graph 2.1).<sup>7</sup> Per capita cigarette consumption rose by over 50% during this period, to over 1,050 cigarettes annually (Graph 2.1).<sup>7</sup> Male cigarette smokers consume an average of one pack of cigarettes per day, while females smokers average about half a pack per day.<sup>2</sup>

Virtually all cigarettes sold in Egypt are filter-tipped, with about 90% of these high in tar and nicotine.<sup>3</sup> The sale of very high tar and nicotine cigarettes — those with over 12 milligrams of tar and 0.8 milligrams of nicotine — was banned in 1989. This has not, however, led to the emergence of several low tar brands — these brands account for a very small share of the market.<sup>8,1</sup>

**Graph 2.1: Annual cigarette consumption, total and per capita in Egypt, 1990-2007**



Source: ERC Group, 2008

Water pipe use accounts for over half of non-cigarette use of tobacco in Egypt. There are three distinct types of water pipes: the gouza, the bouri, and the shisha, with use of each type largely corresponding to social class and location. The gouza is the least expensive, usually handmade, and most widely used among the poor in rural areas. The bouri (also known as the elmasry) is a low-cost, manufactured water pipe, largely used by the urban poor. The shisha (also known as narghile or hookah) is a larger, more ornate water pipe, typically available in upscale restaurants and cafes, and is used mostly by middle and upper class smokers. All water pipes use a form of tobacco called ‘Ma’assel’ — tobacco mixed with molasses and generally sold in the quantity needed for a single water

pipe smoking session. Ma’assel comes in a variety of flavors, such as honey, apple, banana, and other fruit flavors. Water pipe smoking typically occurs in social settings.

As with cigarette smoking, most water pipe use is concentrated among males, with estimated prevalence of adult male shisha use in 2009 at about 6%, compared to 0.3% among women. Anecdotal evidence suggests that shisha use is becoming more popular among higher income young adults, including women.<sup>9</sup>

### Health and Economic Consequences of Tobacco Use

Currently, tobacco use causes more than 5 million deaths per year worldwide — about one in ten adult deaths.<sup>4</sup> About 70% of current tobacco-attributable deaths occur in low- and middle-income countries.<sup>10</sup> Given current trends, tobacco-attributable deaths are

**Water pipe use accounts for over half of non-cigarette use of tobacco in Egypt.**

expected to rise to 8.3 million by 2030.<sup>11</sup> While deaths caused by tobacco are expected to fall in high-income countries, they are expected to double to 6.8 million in low- and middle-income countries by 2030.<sup>11</sup> About half of all tobacco deaths occur between the ages of 35 and 69, resulting in a loss of 20 to 25 years of life for smokers versus nonsmokers.<sup>10</sup> Smoking cessation, however, is effective in reducing the health consequences of smoking, with those who quit before middle age avoiding almost all of the excess health risks associated with continued smoking.<sup>10</sup>

Strong evidence shows that nearly one-half of regular smokers will die prematurely as a result of their addiction.<sup>12</sup> About one-third of these deaths result from cancers caused by tobacco, with tobacco-attributable cardiovascular and respiratory diseases accounting for about 30% each.<sup>11</sup> In Egypt, tobacco-attributable deaths were estimated to be nearly 170,000 in 2004.<sup>3</sup> Reflecting the gender-specific patterns of tobacco use, over 90% of these are among men.<sup>3</sup>

As in other countries, the majority of these deaths result from lung and other cancers, strokes, ischemic

### Tobacco-attributable deaths in Egypt were estimated to be nearly 170,000 in 2004.

heart and other cardiovascular diseases, and respiratory diseases. While it is commonly believed that water pipe use is less harmful than cigarette smoking, water pipe smoke contains many of the same toxins as contained in cigarette smoke, including those that cause lung cancer, heart disease, and other diseases.<sup>13</sup> Given the numerous diseases caused by tobacco use, the health care cost of treating these diseases is substantial. Estimates indicate that about £E 3.4 billion (US\$ 616 million) are spent annually in Egypt to treat the diseases caused by tobacco use.<sup>1</sup>

In addition to the sizable health care costs resulting from tobacco use, the premature deaths and disability caused by smoking result in significant lost productivity. In high-income countries, these costs are about the same as or exceed the health care costs caused by smoking.<sup>14</sup> To date, no estimates exist for the lost productivity costs in Egypt that result from tobacco use.

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### III. Supply of Tobacco and Tobacco Products in Egypt

Tobacco farming has long been banned in Egypt. All tobacco leaf used in the production of tobacco products is imported. For many years, the cigarette market has been virtually monopolized by the government-owned Eastern Tobacco Company (ETC)\*. Beginning in 1995, ETC has been slowly making the transition from a state monopoly to a private company, but the Egyptian government continues to hold a majority stake in the company and ETC continues to retain its monopoly position with a market share around four-fifths in recent years. In addition to producing its own cigarette brands, ETC produces various multinational brands under license.

There are about 30 other tobacco companies in Egypt, mostly producing Ma'assel for use in water pipes. ETC also dominates the Ma'assel market, with a market share of over two-thirds, followed by Nakhla Tobacco with a market share of nearly 31%; the remaining companies are very small. Imports of cigarettes and other tobacco products are limited, given historical controls on imports. This section briefly describes the supply side of tobacco product markets in Egypt and recent changes in these markets.

#### Tobacco Farming

For more than 200 years, tobacco farming has been virtually nonexistent in Egypt because of a ban on tobacco cultivation.<sup>3</sup> Some illegal tobacco growing occurs in the Upper Nile region, but this is largely for personal use.<sup>15</sup> Given this, there is no tobacco-related employment in the agricultural sector. All tobacco leaf used in producing tobacco is imported, with Egypt being the ninth largest raw tobacco importer in the world.<sup>3</sup> In 2007, Malawi, China, Brazil and India were the primary sources of tobacco leaf, while Italy, the Syrian Arab Republic, and the United States have also been important sources in previous years.<sup>16</sup>

#### Tobacco Employment

Given the absence of tobacco farming in Egypt, tobacco-dependent employment is limited to employment in tobacco product manufacturing, with nearly all of this employment in cigarette production for ETC; in 2006, ETC employed 12,120 people.<sup>3</sup> In 2006, the total labor force in Egypt was 20.1 million, implying that employment in ETC cigarette production accounted for just over 0.06% of overall employment.

#### Cigarette Manufacturing

ETC has long been the dominant firm in the Egyptian cigarette market and the largest cigarette manufacturer in the Middle East. ETC was established in 1920 and nationalized in 1956.<sup>1</sup> Until 1995, ETC was wholly owned by the Egyptian government. Since 1995, the company has been slowly undergoing a transition to the private market as Egypt has moved towards a more market-oriented economy. An initial stake of 20% was sold in 1995, with half of this going to employees and most of the remainder to private investors. Additional shares were sold off in 1997 and 1999. Multinational tobacco companies, including Philip Morris International (PMI), British American Tobacco (BAT), Altadis, and Imperial Tobacco have expressed interest in obtaining a stake in ETC should the government sell its remaining share.<sup>7</sup> However, given the revenues the government generates from its stake in ETC, it is not expected to reduce its share in coming years.<sup>3</sup>

As of 2008, the Egyptian government (represented by the Chemical Industries Holding Company) retained a 52.8% ownership stake in ETC; 37.2% of the company is privately held, and 10% is owned by employees.<sup>7</sup> Profits are divided among shareholders according to their ownership share, and the Egyptian government receives the majority of ETC profits. However, the government holding company plays a minimal role in the management of ETC.

\* ETC is currently known as Eastern Company SAE; it continues to be abbreviated as ETC in the literature

Historically, ETC's monopoly position was protected by a ban on cigarette imports. This import ban was lifted in 1991, but imported cigarettes failed to capture even 1% of the market until recently. Imports rose sharply in 2003, from 0.7% of consumption in 2002 to 5% in 2003, but have remained relatively stable since, accounting for 6.1% of consumption in 2007.<sup>7</sup> In recent years, imports from Greece, Poland, Cyprus and France account for over 90% of total cigarette imports.<sup>7</sup> The low share of imports in the overall market is in large part due to the high prices of imported cigarettes which are subject to an 85% import duty and a higher sales tax than that applied to domestically produced cigarettes. Imported cigarettes from other countries in the region may, however, be subject to a lower duty.<sup>8</sup>

International tobacco brands available in Egypt are largely produced by ETC under license from multinational tobacco companies. Of these, license agreements with Philip Morris International and British American Tobacco are the most important, accounting for 12 and 3.2% of total cigarette production in 2007 (Table 3.1). Over the past few years, the growth of PMI and BAT and entry of other multinational tobacco companies has eroded ETC's share of the market. From 2002 to 2007, ETC's share declined from 93.5% to 81.8%, while PMI's share more than doubled to 12% and BAT's rose more than six-fold to 3.2% (Table 3.1).

ETC's dominance of the Egyptian cigarette market is further reflected in brand shares. Its Cleopatra brand family is by far the most popular in Egypt, accounting for more than 80% of total cigarette consumption in most recent years. However, Cleopatra's share has fallen recently to 77.4% in 2007.<sup>3</sup> The Cleopatra brand family includes several varieties, including full flavor and light cigarettes, king size and 100s; and box and soft pack options. Multinational brands account for a small share of the Egyptian cigarette market, with PMI's Marlboro and L&M and BAT's Viceroy brand families the most significant international brands (Table 3.2).

The popularity of the Cleopatra brand family and the relatively low consumption of multinational brands largely results from the significant differences in prices. For example, prices for Cleopatra brands are about one-third to one-half of Marlboro brand prices. PMI has repositioned L&M as a lower priced option, but its price still exceeds that of Cleopatra brands. The move led to L&M capturing 3.4% of the market by 2007, while Marlboro's share fell to 4.3%, down from over 10% as recently as 2000.<sup>7,3</sup> In 2007, low-priced cigarette brands accounted for 83.6% of all cigarette sales, while mid-priced and premium brands accounted for 11.9% and 4.5%, respectively.<sup>3</sup>

All cigarettes produced and sold in Egypt are filter-tipped, with the majority of these king size

**Table 3.1: Cigarette company market shares, selected years, 1996-2007**

	1996	1998	2000	2002	2004	2006	2007
Eastern Tobacco Company*	92.6%	87.8%	85.3%	93.5%	87.3%	83.0%	81.8%
Philip Morris International	6.5%	11.4%	13.8%	5.3%	6.7%	10.1%	12.0%
British American Tobacco	--	0.1%	0.2%	0.5%	1.2%	3.0%	3.2%
Others**	0.9%	0.7%	0.7%	0.7%	4.8%	2.7%	3.0%

\* Excludes brands produced under license from multinational tobacco companies.

\*\* Includes brands produced under license from Japan Tobacco International, Gallaher, and International Tobacco and Cigarette Company.

Source: ERC Group, 2005, 2008.

**Table 3.2: Cigarette brand shares in Egypt, 2004 and 2007**

Brand Family	Market Share 2004	Market Share 2007
Cleopatra (ETC)	80.6%	77.4%
Marlboro (PMI)	5.0%	4.3%
Belmont (ETC)	3.4%	3.6%
Viceroy (BAT)	1.0%	3.5%
L&M (PMI)	2.7%	3.4%
Next (PMI)	0.4%	2.1%
Others	6.9%	5.7%

Source: Euromonitor International, 2008.

(85 mm) length; the market share of long cigarettes (100 mm) has been falling in recent years.<sup>3</sup> Similarly, high-tar cigarettes have historically accounted for nearly all consumption, although low-tar and ultra low-tar cigarettes have gained limited market share in recent years.<sup>3</sup>

A very small share of ETC cigarette production is exported to other countries in the region, with Saudi Arabia and Malta the primary importers of Egyptian

cigarettes. Since 2003, exports have accounted for less than 0.5% of total cigarette production.<sup>7</sup>

Cigarettes are available in a variety of outlets in Egypt, with most sold in small shops; in more urbanized areas, supermarkets, gas stations, kiosks, and street vendors are also key retail sources for cigarettes.<sup>8</sup> Most cigarettes are sold in packs of 20, although 10 packs have gained some market share since ETC introduced a 10 pack for Cleopatra in the late 1990s (ERC Group, 2008).<sup>7</sup>

#### Endnotes for Chapter III

<sup>15</sup> Nassar H. The Economics of Tobacco in Egypt, A New Analysis of Demand. The International Bank for Reconstruction and Development, the World Bank. 2003.

<sup>16</sup> COMTRADE. International Trade Database. 2008. Available at: <http://comtrade.un.org/>. Accessed March 31, 2010.

## IV. Tobacco Control in Egypt

In addition to the substantial public health burden caused by tobacco, a strong economic rationale exists for government intervention to reduce tobacco use.<sup>10</sup> This section reviews the market failures that provide the economic rationale for government intervention to reduce tobacco use and describes the tobacco control environment in Egypt.

### Rationale for Government Intervention

The notion of consumer sovereignty — the principle that an individual makes the best choices for himself or herself — depends on two key assumptions: that individuals fully understand the costs and benefits of their decisions and that they bear all of the costs and receives all of the benefits of their decisions. Tobacco use clearly violates both of these assumptions, resulting in market failures that justify government intervention.<sup>17,10</sup>

In general, consumers have imperfect information about the health and other consequences of tobacco use. Many users do not fully understand the health hazards associated with tobacco use, and those with a general understanding of the risks do not adequately internalize these risks.<sup>18,17</sup> This is particularly true in Egypt where many individuals are largely unaware of the health consequences of smoking.<sup>3</sup> In addition, many Egyptian water pipe users perceive this type of tobacco use to be less harmful than cigarette smoking, despite emerging evidence on the health consequences of water pipe use.<sup>6</sup>

This imperfect information is complicated by the fact that most tobacco users initiate use as youths. As

noted above, hundreds of thousands of Egyptian youth begin using tobacco by age 15, with many starting before the age of 10. Children and adolescents' ability to make fully informed, appropriately forward-looking decisions is limited at best, leading governments to intervene with respect to youth in many areas such as driving, drinking alcohol, and voting.

The problems of imperfect information are further complicated by the addictive nature of tobacco use, which is poorly understood and underappreciated, particularly among those initiating tobacco use. Addiction makes quitting smoking very difficult, even among young users, as illustrated by the nearly 80% of Egyptian youth tobacco users who want to quit and the nearly 70% who tried unsuccessfully to quit in the past year.<sup>5</sup>

Finally, there are externalities associated with tobacco use. Non-users' exposure to the smoke generated by tobacco users results in various cancers, respiratory and cardiovascular diseases, and other diseases.<sup>19</sup> Additionally, there are financial externalities that result from publicly financed health care to treat diseases caused by tobacco use, given that the Egyptian government covers a significant share of health care costs for workers, students, and pensioners.

### Tobacco Control Policy in Egypt

A variety of tobacco control policies and programs can be used to address the failures inherent in the markets for tobacco products. The WHO's Framework Convention on Tobacco Control (FCTC), the world's first public health treaty, calls for governments to adopt comprehensive policies to curb tobacco use. Egypt signed the FCTC on 17 June, 2003, and ratified the treaty less than two years later, on 25 February, 2005.

As with many low- and middle-income countries that have signed and ratified the treaty, Egypt's

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**...hundreds of thousands of Egyptian youth begin using tobacco by age 15, with many starting before the age of 10.**

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tobacco control policies fall short of those called for by the FCTC.<sup>4</sup> However, Egypt's tobacco control policies have become increasingly comprehensive since the early 1980s and the country's ratification of the FCTC suggests that this trend will continue in coming years. This section reviews Egypt's policies, with the exception of tobacco taxation which is covered in the next chapter.

Egypt partially restricts tobacco company marketing efforts, banning advertising on national and international television and radio, in national and international magazines and newspapers, and on billboards and other outdoor channels. Enforcement of these restrictions is generally strong.<sup>4,3</sup> However, while tobacco company sponsored events and distribution of free samples are limited by law, companies appear to continue to engage in these types of marketing activities and to circumvent other constraints on advertising and promotion.<sup>3</sup> Finally, some other forms of tobacco marketing are generally allowed, including point-of-sale and internet advertising, promotional discounts, and product placement in movies and television programs.

Smoking is prohibited in domestic and international flights, in airports, cinemas and theatres. Law 154/2007 and its bylaw 2010 prohibit smoking indoors in government facilities, educational institutions and sports and social clubs. In addition, local decrees exist, like regulations prohibiting smoking on the Metro public transport system. Egypt has launched its national initiative to establish smoke free cities, beginning with the city of Alexandria. While there is no current national restriction to smoking in hotels, restaurants, cafes and similar locations, the Smoke free Alexandria initiative does include this as a measure in its second phase of implementation.<sup>4,3</sup>

Since August 2008, Egypt has required graphic warning labels on cigarette packs, with the warning

covering at least 50% of the primary display area on the pack. Four pictorial warnings are currently used in rotation in Egypt, an improvement on the previous text warning (with the message "Smoking is destroying health and causes death"). Four newer pictorial warnings have been approved by the Ministry of Health to be used after the current rotation. Further, effective mass media anti-smoking campaigns are needed to raise awareness of the health consequences of smoking.<sup>3</sup>

Selling cigarettes to persons less than 18 years of age has been illegal in Egypt since 2002. However, data from the 2005 Egyptian GYTS suggest that this law is not well enforced and complied with, given that 88.2% of underage smokers were not refused purchase when buying cigarettes at retail stores.<sup>5</sup>

Egypt has a national tobacco control strategy and a national tobacco control unit, but, with an amount of about £E 70,000 allocated to tobacco control as of 2008, there is a case for strengthening the existing program.<sup>4</sup> Cessation counseling is provided in some health clinics and hospitals, but cessation services and products are not widely available.

Evidence from high-income countries and a growing number of low- and middle-income countries demonstrates that strong tobacco control policies will lead to significant reductions in tobacco use, while relatively weak policies will have a limited impact at best.<sup>20,10,4</sup> To date, Egypt's partial and uneven restrictions on tobacco company marketing, incomplete restrictions on smoking in public places and workplaces, weakly enforced ban on sales to minors, limited efforts to raise awareness about the consequences of tobacco use and minimal resources dedicated to tobacco control appear to have had little effect on tobacco use, with smoking prevalence and per capita cigarette consumption generally rising over time, even as policies have become somewhat more

comprehensive. Stronger and more comprehensive policies would be effective in slowing or reversing the upward trends in tobacco use in Egypt.

There have been supplements to governmental tobacco control efforts — a notable instance of this was in 1999, when Nasr Farid Wasel, the then Grand Mufti of Egypt issued a fatwa (a religious ruling) against tobacco smoking\*.<sup>8</sup>

#### Endnotes for Chapter IV

- <sup>17</sup> Jha P, Musgrove P, Chaloupka FJ, Yurekli A. The economic rationale for intervention in the tobacco market. In: Jha, P, Chaloupka FJ, eds. Tobacco Control in Developing Countries. Oxford: Oxford University Press. 2000.
- <sup>18</sup> Gruber J, Kőszegi B. A Modern Economic View of Tobacco Taxation. Paris: International Union Against Tuberculosis and Lung Disease. 2008.
- <sup>19</sup> U.S. Department of Health and Human Services. The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General. Atlanta, Georgia: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. 2006.
- <sup>20</sup> Jha P, Chaloupka FJ, eds. Tobacco Control in Developing Countries. Oxford: Oxford University Press. 2000.

\* The text of the fatwa reads as follows.

#### Smoking is a Sin

Smoking is a sin legally, legitimately, and definitely as affirmed by the Egyptian Fatwa Center. This fatwa was issued on 25th of Gomada Al Awal 1420 (September 5th, 1999).

This Fatwa proclaims that science has recently shown that the tobacco harms physically the body of the smoker and those who are around him. Also there is over spending and wasting of money and the health (exceeding the proper limits), which God has prohibited. God Almighty said, "do not kill yourselves and God is Merciful to all of you". Also, God the Great Almighty said "do no put yourselves in death because God likes almsgivers". Thus, smoking is prohibited by all legitimate measures.

## V. Cigarette Taxes and Prices in Egypt

### Structure of Tobacco Taxes and Trends

Tobacco taxes are widely considered the single most effective policy option for reducing tobacco use.<sup>10,4</sup> Significant increases in taxes that raise the prices of tobacco products will reduce their consumption, while at the same time generating substantial increases in revenues.

**Significant increases in taxes that raise the prices of tobacco products will reduce their consumption, while at the same time generating substantial increases in revenues.**

Egypt imposes a variety of taxes on tobacco and tobacco products, including import duties on imported tobacco leaf and tobacco products, and general sales taxes on tobacco products.

As Table 5.1 shows, modest customs duties are imposed on imported tobacco leaf and other unmanufactured tobacco; given that one kilogram of raw tobacco can be used to produce about 1,200 cigarettes, the customs duty adds approximately 10 piasters (US\$ 0.018) to the price per pack of cigarettes.

As described earlier, domestic tobacco cultivation is banned; in effect, all tobacco used in producing tobacco products is subject to the import duty. Similarly modest customs duties are imposed on smoking tobacco (including for use in water pipes and roll-your-own cigarettes) and smokeless tobacco products. More significant taxes are imposed on other imported tobacco products, including cigarettes and cigars.

**Table 5.1: Imported tobacco and tobacco products – customs duties**

Description	Rate
<b>1st Group: Raw and unmanufactured tobacco, tobacco refuse</b>	
1-Tobacco, not stemmed/ stripped	£E 6.1/kg (US\$ 1.10)
2-Tobacco, partly or wholly stemmed/stripped	£E 6.1/kg (US\$ 1.10)
3-Tobacco refuse	£E 6.1/kg (US\$ 1.10)
<b>2nd Group: Cigars, cheroots, cigarillos and cigarettes, of tobacco or of tobacco substitutes</b>	
1-Cigars, cheroots and cigarillos, containing tobacco	£E 150/kg (US\$ 27.16)
2-Cigarettes containing tobacco	£E 100/kg (US\$ 18.10)
3-Cigarettes with or without filter	£E 100/kg (US\$ 18.10)
<b>3rd Group: Other manufactured tobacco and manufactured tobacco substituted, "homogenized" or "reconstituted" tobacco, tobacco extracts and essences</b>	
1-Smoking tobacco, whether or not containing tobacco substitutes in any proportion	£E 9/kg (US\$ 1.63)
2-Homogenized "or reconstituted" tobacco	£E 8/kg (US\$ 1.45)
3-Cut tobacco; pressed tobacco, and chewable tobacco	£E 9/kg (US\$ 1.63)
4-Tobacco extracts and essences	20% of import value
5-Other, including snuff	£E 8/kg (US\$ 1.45)

Source: Egyptian Ministry of Finance; <http://www.mof.gov.eg/Arabic/Customs/bdf/CH04.pdf>  
Rates in US dollars based on the exchange rate as of September 9, 2009.

### Tobacco Taxes, 2002–2009

A *general sales tax* (GST) is applied to most consumer products sold at retail, including tobacco products. Most food products, subsidized clothing, newspapers and magazines, and a few other products are exempted from the GST. For most other commodities, the sales tax rate is 10%. However, several products are subject to different rates. For example, coffee, detergents, disinfectants, and a few other products are taxed at 3%, while various electronics, perfumes, and a few others are taxed at 25%. Still others, including tobacco products, are subject to tax rates that vary based on price or other characteristics. For example, the GST on motor vehicles varies from 10% to 45% based on engine capacity and vehicle type.

For tobacco products, the GST works much like an excise tax. Taxes are specifically levied on tobacco products, and within the larger category, vary considerably by type of tobacco products (cigars, cigarettes, chewing tobacco). Specific taxes are applied on a per-pack basis to cigarettes, based on the net-of-tax (manufacturers' or ex-factory) price. Until July 2010, the tax levied varied considerably by price tiers. The GST on other tobacco products is levied on an *ad valorem* basis on the value of the product; the tax again varies by type of product, and is subject to a minimum amount levied per net kilogram.

From 2002 through early May 2008, the amount of the specific tax ranged from 83 piasters (US\$ 0.15) per pack for low priced cigarettes to £E 1.75 (US\$ 0.32) per pack for high priced cigarettes (those with net-of-tax price higher than 425 piasters per pack of 20); for the most popular brands, the tax was £E 1–1.45 (US\$ 0.18–0.26) per pack (Table 5.2).

On May 5, 2008, the specific taxes on cigarettes were increased. The GST on most brands rose by 20 to 30%, while taxes on higher priced brands rose by 86 to 91%. Taxes ranged from £E 1.08 (US\$ 0.20) per pack

on the lowest priced cigarettes to £E 3.25 (US\$ 0.59) per pack on the highest priced cigarettes, with a tax of £E 1.25–1.75 (US\$ 0.23–0.32) per pack on the most popular brands.

Following the 2008 tax increase, the equivalent cigarette tax rate was in the mid-160% range of the net-of-tax price for cigarettes at the low end of the price range and in the mid-140% range for those at the high end of the price range. For example, for cigarettes whose net-of-tax prices varied from 95 to 106 piasters (US\$ 0.17–0.19) per pack, the tax at the low end amounted to 161% of price while the tax at the high end amounted to 144% of price. The tax can be thought of as having two components: a 10% GST that also applies to products other than cigarettes; plus an additional excise in the range from about 135 to 155% of manufacturers' price for brands in most price categories.

A "manufacturing and printing" tax is applied on locally produced foreign brand cigarettes in Egypt. This tax amounts to 4 piasters (US\$ 0.007). Since 1992, an earmarked tax of 10 piasters (US\$ 0.018) per pack has also been applied to all cigarettes; revenues from this tax are used to provide medical insurance for students. Inclusive of these, taxes on cigarettes account for between 38 and 55% of retail cigarette prices.

For other tobacco products, *ad valorem* taxes are applied based on the value of the product, with minimum taxes for low priced products (Table 5.2). The tax on tobacco for water pipes, for example, was 100% of the net-of-tax price, with a minimum tax of £E 40 per kilogram. This is well below the effective rate that had been applied to cigarettes, as described above.

Given the infrequent changes in the GST on cigarettes over time and the stability of the manufacturing and printing and earmarked medical insurance taxes, the real value of the taxes applied to cigarettes fell over time. Given inflation since 2002, the 2008 increases in the GST on cigarettes were not

**Table 5.2: General sales taxes on tobacco products in Egypt, 2002–2009 and changes effective July 1, 2010**

	Tax base	2002–2008		2009		1 July 2010
		Tax, in piasters	Tax, in US\$	Tax, in piasters	Tax, in US\$	
<b>Cigarettes*, for net-of-tax price per pack of 20</b>						
- less than 65 piasters (<US\$ 0.12)	Net-of-tax price per pack of cigarettes	83	0.15	108	0.2	Tiers eliminated. Specific tax of £E 1.25 plus ad valorem tax of 40% of retail price
- more than 65 to 73 piasters (US\$ 0.12–0.14)		87	0.16	112	0.2	
- more than 73 to 84 piasters (US\$ 0.14–0.15)		100	0.18	125	0.23	
- more than 84 to 95 piasters (US\$ 0.15–0.17)		115	0.21	140	0.25	
- more than 95 to 106 piasters (US\$ 0.17–0.19)		128	0.23	153	0.28	
- more than 106 to 300 piasters (US\$ 0.19–0.54)		145	0.26	175	0.32	
- more than 300 to 425 piasters (US\$ 0.54–0.77)		165	0.3	315	0.57	
- more than 425 piasters (>US\$ 0.77)	175	0.32	325	0.59		
<b>Raw or unmanufactured tobacco and refuse</b>						
Persian tobacco for narghiles	Net-of-tax price of product	100% with a minimum of £E 40 per net kilogram				Unchanged
Others	Value	75% with a minimum of £E 16 per net kilogram				Unchanged
Cigar, pipe tobacco, compressed	Value	200% with a minimum of £E 50 per net kilogram (manufactured)				Unchanged
Toskani cigar (made of black tobacco)	Value	200% with a minimum of £E 35 per net kilogram (manufactured)				Unchanged
Molassed tobacco, snuff, chewing tobacco, shaggy mixed and unmixed	Value	50% with a minimum of £E 16 per net kilogram of raw tobacco				Molassed tobacco: 100% with no minimum
Essence, tobacco spirits	Value	50%				Unchanged
Others	Value	50% with a minimum of £E 16 per net kilogram of raw tobacco				Unchanged

Source: Ministry of Finance, [www.mof.gov.eg](http://www.mof.gov.eg)

Notes: The sales tax law indicates that tobacco product taxes are collected from the manufacturer, implying that the net-of-tax price is the manufacturers' or ex-factory price.

Prices/taxes in US dollars based on exchange rate as of September 9, 2009.

\* Italicized figures in parentheses for cigarettes reflect rate in effect 2002 through May 2008; rates for other tobacco products were not changed in 2008.

Prices/taxes in US dollars based on exchange rate as of September 9, 2009.

sufficient to offset the decline in the real value of the tax, with the exception of the large increases on the highest priced brands.

### Tobacco Tax Policy Developments, July 2010

In July 2010, taxes on cigarettes were changed significantly. As the last column of Table 5.2 indicates,

the multi-tiered specific tax structure described above was replaced by a simpler, uniform tax on cigarettes comprised of a specific tax of £E 1.25 (US\$ 0.23) per pack and an ad valorem tax assessed at the rate of 40 percent of retail price. As a result, the share of tax in retail cigarette price rose significantly, with taxes now accounting for approximately 65% of average retail

prices. In addition, the “manufacturing and printing” tax applied to foreign brands was increased to 10 piasters (US\$ 0.018) per pack, while the earmarked “health” tax applied to all brands remained at 10 piasters (US\$ 0.018) per pack. Finally, as part of the July 2010 increases, the *ad valorem* tax applied to molassed tobacco used for water pipes rose to 100% with no minimum.

### Cigarette Tax Revenues

The GST on cigarettes generates significant tax revenues for the Egyptian government – in recent years, over £E 4 billion (US\$ 750 million) annually. However, given the relative stability of cigarette tax rates and the growth in other revenues as the Egyptian economy has grown in recent years, cigarette taxes as a share of overall government revenues have fallen from just under 4% in fiscal year 2003 to about 2.5% in fiscal year 2007 (Table 5.3). The 2008 increase in the GST on cigarettes likely raised the revenues generated by the tax and reversed the downward trend in these revenues as a share of overall revenues. Annual revenues are estimated to rise to over 10 billion (US\$ 1.8 billion) as a result of the July 2010 tax increase.

### Cigarette Prices

The graduated tax system in place prior to July 2010 was progressive in that higher taxes were levied on more expensive brands. This resulted in a greater

differential between lower and higher priced cigarettes than if a uniform specific tax were applied. At the same time, since the tax does not rise proportionately with price, the share of price accounted for by the tax is lower for higher priced brands than for lower priced brands (Graph 5.1). While the 2008 increases in the GST on cigarettes were greater for higher priced brands, the share of price accounted for by tax remained lower for these brands than for lower priced brands. As of early 2009, for example, the price for Cleopatra Golden King brand cigarettes was £E 2.75 per pack (US\$ 0.50), with 54.5% of price accounted for by tax, while a pack of Marlboro brand cigarettes cost £E 8.50 (US\$ 1.54), with taxes accounting for 39.9% of price.

Over the past 15 years, inflation adjusted cigarette prices in Egypt have gone through various ups and downs, accounting for some of the observed changes in cigarette consumption during this period (Graph 5.2). After a series of price increases in the early 1990s, the Egyptian government declared that cigarettes were a “strategic public commodity” leading to an initial drop in real prices, followed by several years of slowly increasing prices. As prices fell and then leveled off, cigarette consumption rose sharply, then more gradually.

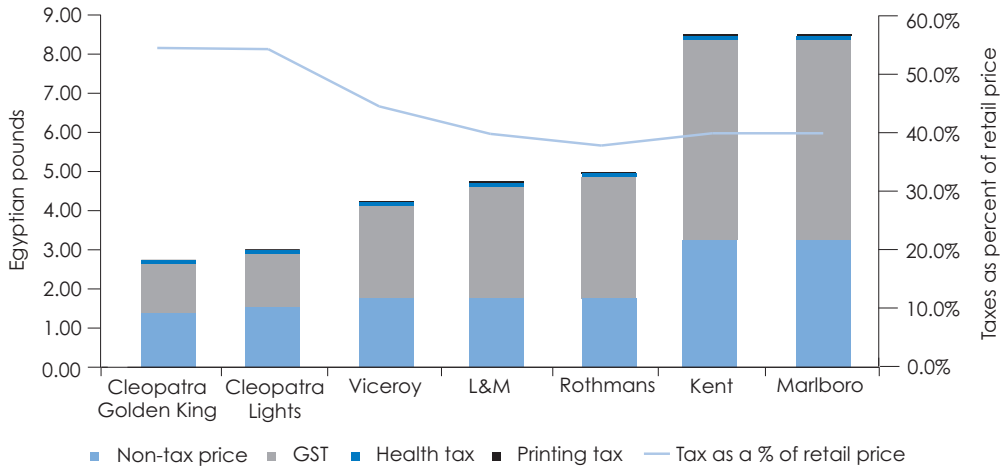
Cigarette tax increases in 2002 and the devaluation of the Egyptian pound in 2003 led to a sharp increase in prices, particularly for international

**Table 5.3: Tobacco tax revenues over the period 2002-2008, Egypt** (millions of Egyptian pounds)

Years	Tobacco specific excise tax (GST)		% of sales taxes	% of total taxes	% of total revenue
	Million £E	Million US\$			
2002–2003	3543.0	641.4	15.34	6.36	3.97
2003–2004	3241.4	586.0	12.20	4.83	3.18
2004–2005	3985.5	721.6	18.64	5.26	3.59
2005–2006	4250.0	769.4	12.34	4.34	2.84
2006–2007	4147.2	750.8	11.24	3.93	2.53
2007–2008	4750.1	860.0	11.86	3.63	2.15

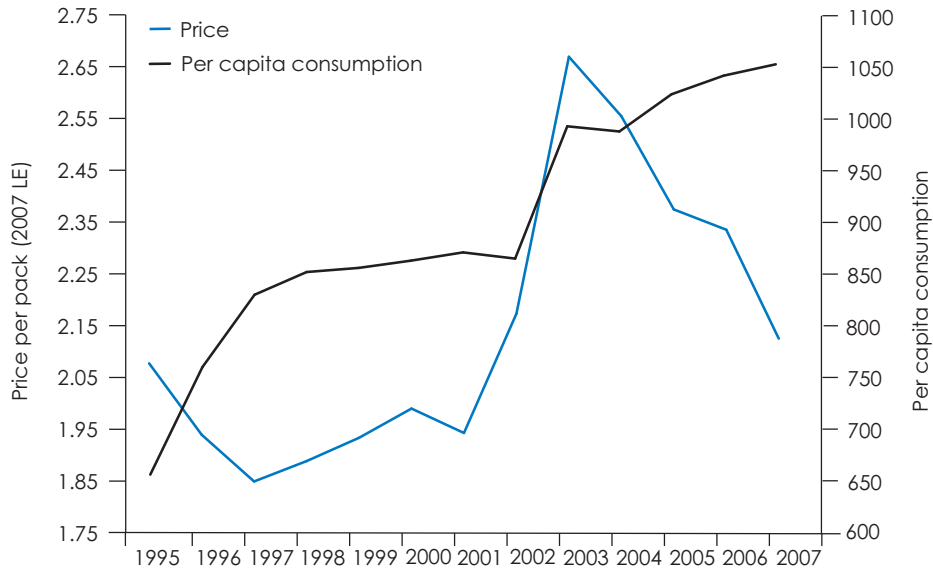
Source: Ministry of Finance-State budget for fiscal year 2002-2008. Revenues converted to US dollars based on exchange rate as of September 9, 2009.

**Graph 5.1: Cigarette taxes and prices, various brands, January 2009**



Source: Euromonitor International 2009 and authors' calculations.  
 Note: 'Non-Tax Price' includes manufacturer's price and distributor margins.

**Graph 5.2: Real cigarette prices and per capita cigarette consumption Egypt, 1995-2007**



Source: ERC Group, 2008 and authors' calculations.

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**Between 2003 and 2007, rising inflation and stable taxes resulted in a more than 20% decline in real cigarette prices and, as a result, rising consumption.**

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brands. However, the price increases appear to have had little impact on overall cigarette consumption as smokers of higher priced brands whose prices increased sharply switched to less expensive brands.<sup>3</sup> Between 2003 and 2007, rising inflation and stable taxes resulted in a more than 20% decline in real cigarette prices and, as a result, rising consumption.

The relationship between price and consumption is clearer when taking into account the affordability of cigarettes as measured by the ratio of average cigarette pack price to per capita income (Graph 5.3). Given increases in per capita income for much of this period, cigarettes were becoming increasingly affordable through 2001, likely accounting for much of the observed increase in consumption during this period. The sharp rise in prices in 2002 and 2003 led to a reduction in affordability and switching down by smokers to cheaper brands during this period, with per capita consumption staying nearly level in 2003 and 2004. In the years that followed, however, cigarettes became much more affordable and consumption, both total and per capita once again rose.

The 2008 tax increases resulted in a significant increase in cigarette prices. Cleopatra brand prices, for example, rose 25 to 50 piasters (US\$ 0.045 to US\$ 0.09) per pack, while foreign brand prices were increased by as much as 150 piasters (US\$ 0.27).

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**The July 2010 tax increases ... will help slow or reverse the recent growth in cigarette consumption in Egypt.**

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**Compared to other countries in the Eastern Mediterranean region, Egyptian cigarette prices are among the lowest, even though tax as a percentage of price may seem relatively high.**

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The July 2010 tax increases led to larger increases in prices – over 40% on average. The simplified, restructured tax resulted in larger price increases on lower priced brands. These sharp price increases will help slow or reverse the recent growth in cigarette consumption in Egypt in the future.

### Regional Cigarette Taxes and Prices

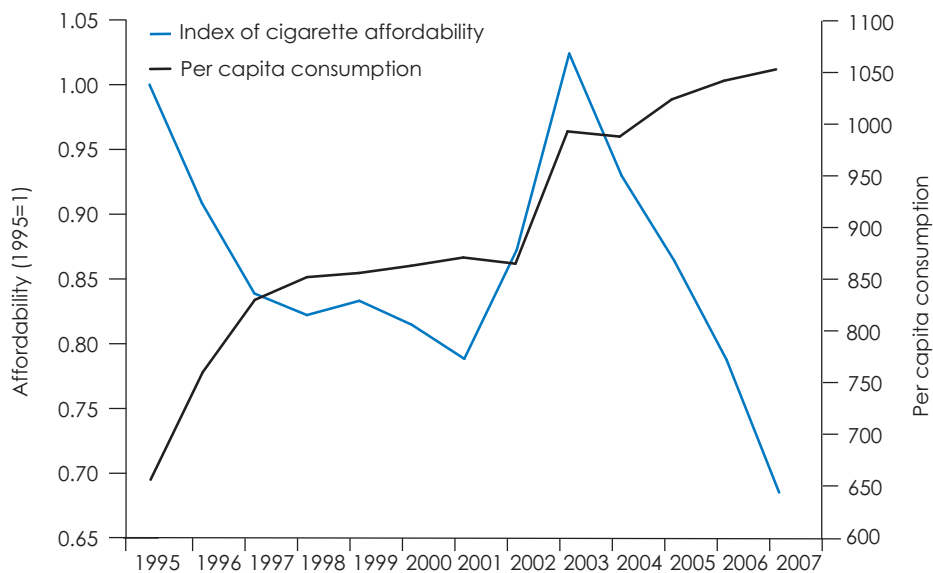
Compared to other countries in the Eastern Mediterranean region, Egyptian cigarette prices are among the lowest, even though tax as a percentage of price may seem relatively high (Graph 5.4). The relatively low price likely results from the treatment of cigarettes as a “strategic public commodity” and Eastern Tobacco Company’s resulting low prices for the most popular cigarette brands. This suggests that there is considerable room for raising cigarette prices, including through cigarette tax increases.

### Tax Structure: Specific vs. *ad valorem* Taxes

There are two basic types of tobacco excise taxes – specific excises (taxes that are fixed amounts based on quantity or weight and that are independent of price) and *ad valorem* excises (taxes assessed as a percentage of price). Each type of tax has its strengths and weaknesses in terms of tax administration and its impact on public health and on revenues.

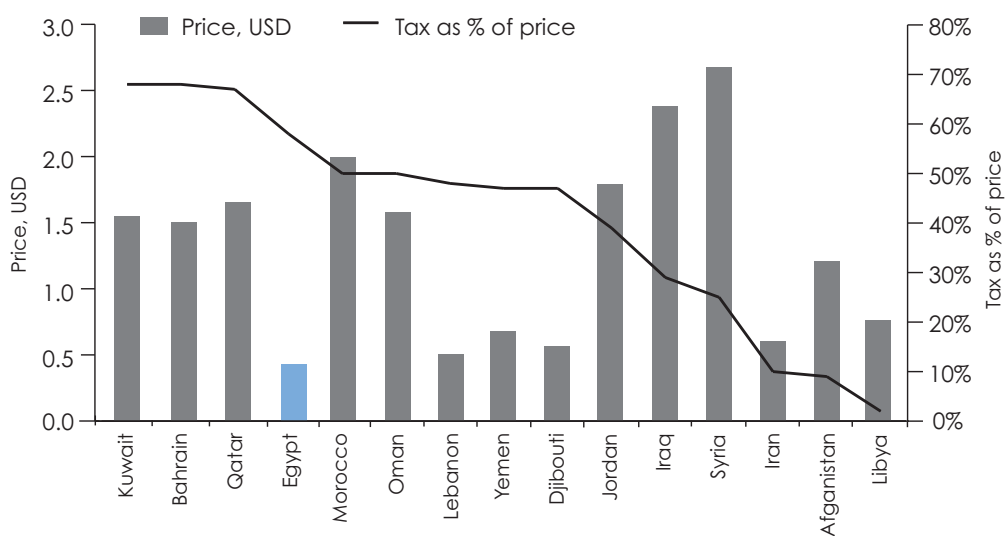
Historically, tobacco taxes in Egypt have been a combination of the two types, with *ad valorem* GSTs applied to products other than cigarettes (with very low priced products subject to minimum specific taxes)

**Graph 5.3: Cigarette affordability and per capita cigarette consumption Egypt, 1995-2007**



Note: The index of cigarette affordability is obtained by dividing average cigarette pack price by per capita income. The baseline for this ratio is set to 1.00 in 1995. Values less than 1.00 imply that cigarettes are more affordable than in 1995; values greater than 1.00 imply that cigarettes are less affordable than in 1995.

**Graph 5.4: Cigarette prices, and tax as a percentage of price, Eastern Mediterranean Region, 2006**



Source: WHO 2008.

and specific taxes applied to cigarettes. However, because the amount of the specific tax on cigarettes was based on manufacturers' price, with the tax rising as price rises, it shares some of the features of an *ad valorem* tax. The July 2010 restructuring of the cigarette tax replaced the multi-tiered specific tax structure with a uniform tax comprised of a specific and an *ad valorem* component.

With *ad valorem* excises, the tax per unit rises with prices so that the tax and the revenues it generates are more likely to keep pace with inflation. This contrasts with specific taxes where the real value of the tax and resulting revenues will fall with inflation unless regularly adjusted upward. The graduated specific taxes applied to cigarettes in Egypt before July 2010, and the specific component of the tax in effect since then, do not have this advantage, requiring regular increases to keep pace with inflation. As noted above, the 2008 increases in these tax rates were not sufficient to offset the erosion in their value since their last increase in 2002, with the exception of the rates applied to the highest priced brands. Some countries have addressed the problem of inflation eroding the value of a specific tobacco tax by creating mechanisms for annual or other administrative adjustments to specific tax rates that maintain the real value of the tax over time.

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**...*ad valorem* taxes result in greater differentials in prices between high and low priced tobacco products ...This creates more opportunities for users to switch down to cheaper brands.**

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With respect to their impact on tobacco product prices, *ad valorem* taxes result in greater differentials in prices between high and low priced products than is the case for a single specific tax. This creates more opportunities for users to switch down to cheaper

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**Egypt's previous system of tiered specific taxes ... increased incentives for smokers to substitute to cheaper brands rather than quit.**

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brands in response to tax induced and other price increases, reducing the impact of tax and price increases on tobacco use. Because of the potential for substitution to lower priced brands, manufacturers of premium brands (often multinational tobacco companies) generally prefer specific taxes to *ad valorem* taxes that tend to favor low priced brands (that are often produced by locally based manufacturers). In this respect, Egypt's past system of tiered specific taxes that generally increased with prices had the disadvantage usually associated with an *ad valorem* tax — it resulted in a larger price differential between high and low priced brands than would have existed with a uniform specific rate and increased incentives for smokers to substitute to cheaper brands rather than quit. In addition, this type of tiered tax structure also tends to result in manufacturers' prices for various brands clustering at or near the top of the range of prices in each tier to which taxes are applied.

In terms of revenues, tobacco tax revenues will be more stable and predictable with a specific tax than with an *ad valorem* tax. With an *ad valorem* tax, the amount of the tax varies with industry prices, implying that the industry can reduce the revenue and public

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**... a single high specific excise tax that is regularly adjusted to keep pace with inflation ... (will) maximize the impact of tobacco excises in promoting public health and generating a stable stream of revenues.**

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health impact of a tax increase by lowering its prices in response. In addition, any industry price cut will result in a reduction tax per unit unlike in the case of specific taxes, where producers lack the incentive to reduce prices. *Ad valorem* taxes tend to lead to a larger retail price reduction than accounted for by the industry price cut alone.

With respect to tax administration, specific excise taxes tend to be easier to administer than *ad valorem* excises given that they are based on quantity rather than value. With *ad valorem* excises, firms have a greater opportunity to game the system when the taxes are based on ex-factory prices, as in Egypt. For example, firms can reduce their tax liability by setting an artificially low price at which they sell to their own distributors who then raise prices significantly before selling to wholesalers and/or retailers. The potential for this problem could be avoided by the application of a uniform specific tax.

A mixed specific and *ad valorem* tax structure, such as that adopted by Egypt in July 2010, combines the strengths of both types of taxes while limiting their

weaknesses. The overall tax will be less eroded by inflation given the significant *ad valorem* component; however, the specific component will need to be regularly increased to keep pace with inflation for the overall tax to retain its real value. Similarly, given the significant uniform specific component, the price gap between premium and lower-priced brands will be smaller than it would be under a uniform *ad valorem* tax.

Theoretical and empirical evidence generally favor a single high specific excise tax that is regularly adjusted to keep pace with inflation over other excise tax structures to maximize the impact of tobacco excises in promoting public health and generating a stable stream of revenues.<sup>21</sup>

Finally, there is considerable potential for substitution between tobacco products in response to changes in the relative taxes on and prices for these products. Maximizing the public health impact of tobacco taxes therefore requires taxes to be set and monitored so as to be comparable across tobacco products.

#### Endnotes for Chapter V

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## VI. The Demand for Cigarettes in Egypt

Considerable empirical evidence from high-income countries and growing evidence from low- and middle-income countries demonstrates that higher tobacco product taxes and prices lead to reductions in tobacco use. These result from increased cessation, fewer former users restarting, less initiation, and reductions in consumption among continuing users. This chapter briefly reviews existing global evidence, with an emphasis on research from low- and middle-income countries, as well as the limited existing evidence for Egypt. This is followed by new estimates of the impact of price, income, and other factors on cigarette demand in Egypt.

### Global Evidence

Many studies have employed aggregate data to examine the impact of cigarette and other tobacco product taxes and prices on overall tobacco use.<sup>22,23</sup> Until recently, nearly all of these studies came from high-income countries including the United States, Canada, the United Kingdom, Australia, and several others. These studies consistently find that increases in taxes and prices on tobacco products lead to reductions in tobacco use. Most studies have focused on cigarette smoking, given that cigarettes account for nearly all the tobacco use in high-income countries. While these studies have produced a wide range of estimates of the magnitude of the effects of price on overall cigarette consumption, most of them estimate price elasticities in the range from  $-0.25$  to  $-0.5$ , with most of these clustered around  $-0.4$ , suggesting that a 10% increase in cigarette prices will, on average, bring about a 4% reduction in consumption. As expected, models that account for the addictive nature of tobacco use find that demand is more responsive to price in the long run than it is in the short run.

Over the past decade, a growing number of studies have examined the impact of taxes and prices on tobacco use in low- and middle-income countries. These studies have estimated a wide range of price elasticities, with most, but not all, indicating that demand for tobacco products is more responsive to price in low- and middle-income countries than it is in high income countries. For example, Hu and Mao (2002) estimate that the price elasticity of cigarette demand in China ranges from  $-0.50$  to  $-0.64$ , while John (2008) estimates price elasticities in the range from  $-0.86$  to  $-0.92$  for bidis and  $-0.18$  to  $-0.34$  for cigarettes in India.<sup>24,25</sup> As in studies for high-income countries, studies from low- and middle-income countries that account for the addictive nature of tobacco use find that demand responds more to price in the long run. For example, Aloui (2003) estimates short run price elasticities for tobacco use in Morocco in the range from  $-0.51$  to  $-0.73$ , and estimates long run elasticities that range from  $-1.36$  to  $-1.54$ .<sup>26</sup>

Findings from studies based on individual-level survey data on adult tobacco use indicate that taxes and prices influence both tobacco use decisions (*prevalence*) and the *frequency* and *amount* of tobacco consumption. In general, the estimates from high-income countries suggest that about half of the impact of price on tobacco use results from its effect on prevalence. Given that relatively little initiation occurs during adulthood, these changes largely result from cessation among adult users. This is confirmed by a small number of studies which find that increases in prices lead a number of current users to try to quit, with some successful in doing so in the long run.

Studies using survey data from low- and middle-income countries similarly find that price affects prevalence, although the relative impact on prevalence and consumption varies considerably across studies and countries. For example, Adioetomo and colleagues (2005) find no impact of price on the prevalence of

smoking (the decision to smoke) in Indonesia, while at the same time estimating an elasticity for conditional cigarette demand (the number of cigarettes smoked by current smokers) of  $-0.62$ .<sup>27</sup> In contrast, Kyaing (2003) estimates a prevalence price elasticity of  $-1.28$  and a conditional demand elasticity of  $-0.34$  in Myanmar.<sup>28</sup>

Several studies based on survey data have examined the differential responses of various population subgroups to changes in the prices for tobacco products, including those based on age, gender, income, education, race/ethnicity, and location (urban vs. rural). Findings for gender, race/ethnicity and location vary across countries, while consistent patterns are more evident with respect to age and socioeconomic status (as measured by income and/or education). In general, most research on differences among age groups finds that tobacco use among younger persons is more responsive to price than is tobacco use among older persons.<sup>29</sup> Similarly, as predicted by economic theory, sub-populations registering a lower socioeconomic status are more responsive to price than are sub-populations with a higher socioeconomic status. For example, Sayginsoy and colleagues (2002) estimate cigarette demand elasticities of  $-1.33$ ,  $-1$  and  $-0.52$  for low, middle and high income populations in Bulgaria.<sup>30</sup> Similarly, van Walbeek (2002) estimates elasticities by income quartile ranging from  $-1.39$  for the lowest quartile to  $-0.81$  for the highest quartile in South Africa.<sup>31</sup>

Finally, several studies examine the potential for substitution among tobacco products in response to changes in the relative prices of these products. In general, these studies find that part of the reduction in the use of one tobacco product in response to an increase in its price will be offset by increased use of other products if the prices of these products are not also increased. For example, Laxminarayan and Deolalikar (2004) find that changes in relative prices

for cigarettes and rustic tobacco in Vietnam will lead to substitution between the two, particularly for substitution from cigarettes to rustic tobacco in response to an increase in the relative price of cigarettes.<sup>32</sup> This potential for substitution highlights the importance of increasing taxes and prices for all tobacco products if the public health benefits of higher prices are one of the motives for tobacco tax increases.

### **Tobacco Demand in Egypt — Existing Evidence**

Few studies have examined the demand for tobacco products in Egypt. As described by Nassar (2003), a few early time series studies used data from the early and mid-20th century to estimate cigarette demand, producing widely varying estimates of price elasticity depending on the period examined.<sup>15</sup> Nassar (2003) conducted the most comprehensive analysis to date, using data from the 1995/96 and 1999/2000 waves of the CAPMAS\* household expenditure survey to estimate expenditure and price elasticities for all households, as well as for subgroups based on location of residence (urban versus rural), income, education, and employment status.<sup>15</sup> Price elasticity estimates based on the 1999/2000 survey obtained in her study are summarized in Table 6.1.

Nassar's estimated overall price elasticity of  $-0.397$  is consistent with estimates from high income countries, implying that a 10% increase in prices will lead to about a 4% reduction in tobacco use. Tobacco use in rural households is generally found to be somewhat less responsive to price than is tobacco use in urban households.

Surprisingly, and in contrast to findings from other countries, lower income households (based on expenditures) are found to be somewhat less price sensitive than high income households. However, the opposite is found for households defined by education, where demand in more educated households is generally

\* Central Agency for Public Mobilization and Statistics

**Table 6.1: Estimated cigarette price elasticities, Egypt, 1999-2000**

1999/2000	National Level	Urban areas	Rural areas
Price elasticity of demand for tobacco	-0.397	-0.412	-0.385
<b>Price elasticity of tobacco by expenditure quartiles</b>			
< £E 5,754	-0.364	-0.392	-0.347
£E 5,754-8,122	-0.390	-0.421	-0.366
£E 8,123-11,668	-0.408	-0.423	-0.380
> £E 11,668	-0.490	-0.467	-0.467
<b>Price elasticity of tobacco by educational level</b>			
Illiterate and education limited to reading and writing	-0.442	-0.468	-0.413
Primary and preparatory education	-0.443	-0.450	-0.382
Secondary and above secondary	-0.410	-0.419	-0.373
University and postgraduate	-0.441	-0.409	-0.356
<b>Price elasticity of tobacco by work status</b>			
Wage earners	-0.439	-0.465	-0.389
Employers	-0.473	-0.506	-0.421
Self-employed	-0.437	-0.427	-0.434
Non-wage earners	-0.273	-0.509	-0.183

Source: Nassar, 2003.

found to be less elastic than is demand in less educated households. No clear pattern is observed with respect to price sensitivity by work status. Taken together, these estimates suggest that price elasticity is fairly similar across different socio-economic groups in Egypt.

Finally, comparing Nassar's estimates for the 1999-2000 sample to those for the 1995-1996 sample (not shown) suggests that demand was becoming increasingly responsive to price during this period.<sup>15</sup>

### Cigarette Demand in Egypt – Additional Findings

Using annual data for the period from 1990 through 2006, we estimate a simple time-series model for per capita cigarette demand in Egypt using the

following double log model\*:

$$\ln Q_t = \beta_0 + \beta_1 \ln P_t + \beta_2 \ln Y_t + \beta_3 \text{Fatwa}_t + \varepsilon_t$$

where:  $Q_t$  is the per capita consumption of cigarettes in year  $t$ ,  $P_t$  is the average real price of the most popular local brand of cigarettes in year  $t$ ,  $Y_t$  is per capita real income in year  $t$ ,  $\text{Fatwa}_t$  is an indicator for the years during which the Fatwa prohibiting smoking was in effect, and  $\varepsilon_t$  is an error variable. Estimates from this model are presented in Table 6.2.

Cigarette price is found to have a negative and statistically significant (at the 10% level) impact on per capita cigarette consumption, with an estimated price elasticity of demand of  $-0.47$ . This suggests that time series data replicates the general direction and the

\* A double log regression specification provides a simple estimate of the effect of a percentage change in price on a percentage change in quantity demanded of cigarettes holding the effect of other variables like income constant. The coefficient  $\beta_1$  in the regression is simply interpreted as the price elasticity: economic theory suggests that the coefficient would be negative, just as the coefficient  $\beta_2$  would be expected to be positive, since higher income is usually associated with a higher demand in most countries. The variable Fatwa is also introduced to account for the fact that even though the relationship between a percentage change in price and the corresponding percentage changes in quantity might be stable over time, the overall levels of consumption might have been affected due to the religious ruling. The Fatwa prohibiting smoking is found to have a negative, but statistically insignificant impact on cigarette demand.

**Table 6.2: Cigarette demand estimates, Egypt, 1990-2006**

Variable <sup>a</sup>	Coefficient	Std. Error
Constant	-7.043*	1.892
Real Income	1.597*	0.224
Real Price	-0.470**	0.250
Fatwa Indicator	-0.078	0.057
R-squared <sup>b</sup>	0.913	
Adjusted R-squared	0.888	

**Notes**

a. Real income and real price are expressed in log terms, as is the dependent variable, cigarette demand. The coefficients on real price is therefore read as an estimate of the elasticity of demand, with a 1% change in real price being associated with a -0.47 change in cigarette demand holding the effect of other variables constant.

b. The R-squared and adjusted R-squared are measures of the fit of the statistical model used; an R-squared closer to one denotes a better fit.

\* denotes statistical significance at the 1% level, \*\* denotes significance at the 10% level.

**... the increasing affordability of cigarettes in Egypt explains much of the observed increase in cigarette consumption over the past decade.**

magnitude of Nassar's (2003) estimates of elasticity.<sup>15</sup> Demand is found to be quite elastic with respect to income, with an estimated income elasticity of 1.60. Taken together, these estimates imply that the increasing affordability of cigarettes in Egypt explains much of the observed increase in cigarette consumption over the past decade.

**Endnotes for Chapter VI**

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- <sup>31</sup> Van Walbeek CP. The distributional impact of changes in tobacco prices. *The South African Journal of Economics*. 2002; 70(3):258-267.
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## VII. Impact of Cigarette Tax Increases in Egypt

Using the estimates described above, we simulate the effects of cigarette tax increases on several outcomes related to cigarette smoking in Egypt, including overall cigarette consumption, government tax revenues, the number of current and future smokers, and deaths caused by smoking. In these analyses, all other factors, most notably per capita income, are held constant. To the extent that income rises, the tax increases will generate smaller reductions in tobacco use, but larger increases in revenues than predicted, given that increases in income result in greater cigarette consumption.

Finally, we discuss other impacts of tax increases, including their effects on the poor, illicit trade, and employment in Egypt.

### Impact of Tax Increases on Cigarette Consumption, Mortality and Tax Revenues

For the baseline (prior to the July 2010 tax increase), we assume that the average price of cigarettes was £E 3.50 (US\$ 0.63) per pack; that, on average, cigarette taxes were 50% of total retail price (£E 1.75 or US\$ 0.32 per pack): and that total cigarette consumption was just under 3.9 billion packs per year. At these values, total cigarette excise tax revenues were estimated to be just over £E 6.1 billion (US\$ 1.1 billion). Our first analysis simulates the impact of the July 2010 changes in cigarette taxes that raised the percentage of average retail cigarette prices accounted for by tax to 65%. We estimate that this tax increase will raise average retail prices to £E 5.00 (US\$ 0.91) per pack — an almost 43% increase in price — and that the average tax would rise to £E 3.25 (US\$ 0.59) per pack.

Analysis by the World Bank (1999) indicates that taxes on cigarettes are between two-thirds and four-fifths of retail prices in countries that have adopted

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**... raising the average cigarette tax to £E 4.08 (70% of retail price) would reduce overall cigarette consumption by nearly 25%... cigarette tax revenues would increase by almost £E 5.2 billion.**

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comprehensive efforts to reduce tobacco use. Given this, our second analysis simulates the impact of an increase in the cigarette tax that further raises the share of tax in retail price to 70%.

To reach 70%, the average cigarette tax would need to rise to £E 4.08 per pack (US\$ 0.74). At this tax level, the average retail price, inclusive of taxes, would rise to £E 5.83 (US\$ 0.98), a 66.6% increase in price over the baseline.

At the average elasticity obtained from the estimates described above (-0.435), we estimate that the July 2010 tax increase will reduce overall cigarette consumption by almost 19%, while at the same time generating substantial new revenues. At the new, lower level of consumption, we estimate that cigarette tax revenues would increase by almost £E 3.5 billion (US\$ 0.6 billion). We estimate that further increasing the tax to account for 70% of retail cigarette prices would reduce consumption by nearly 25% compared to the baseline while increasing revenues by a total of almost £E 5.2 billion (US\$0.9 billion) above the baseline.\* These estimates, as well as estimates based on the range of elasticities found in the models estimated for this report are presented in Table 7.1.

### Impact of Tax Increases on Public Health

In addition to estimating the impact on smoking and tax revenues, we simulate the impact of the July 2010 tax increase and the additional increase to 70% described above on the number of smokers and on future deaths caused by smoking among the current

\* The consumption effects of the 70% tax share are calculated with reference to the prices implied by the July 2010 tax increase; the 25% reduction is over the 2009 baseline.

**Table 7.1: The impact of increasing cigarette taxes on smoking-attributable mortality and government revenue**

Model parameters, baseline						
Current cigarette smokers (millions)	8.8					
Premature deaths in current smokers (millions)	2.9					
Expected future smokers (millions)	4.2					
Premature deaths in future smokers (millions)	1.4					
Average cigarette tax	£E 1.75					
Average cigarette price	£E 3.50					
Tax as a percentage of price	50.0%					
Model projections						
<b>Increased average cigarette tax</b>	£E 3.25 (July 2010 tax changes)			£E 4.08		
<b>Increased average cigarette pack price</b>	£E 5.00			£E 5.83		
<b>Cigarette tax as a percentage of price</b>	65%			70%		
<b>Alternative elasticity assumptions</b>	<b>-0.4</b>	<b>-0.435</b>	<b>-0.47</b>	<b>-0.4</b>	<b>-0.435</b>	<b>-0.47</b>
Reduction in number of current smokers (millions)	0.74	<b>0.81</b>	0.87	1.01	<b>1.09</b>	1.18
Reduction in premature deaths caused by smoking among current smokers (millions)	0.17	<b>0.19</b>	0.2	0.23	<b>0.25</b>	0.27
Percentage of premature deaths in current smokers averted by higher taxes	6.0%	<b>6.5%</b>	7.1%	8.1%	<b>8.8%</b>	9.5%
Reduction in number of future smokers (millions)	0.72	<b>0.79</b>	0.85	0.96	<b>1.04</b>	1.11
Reduction in premature deaths caused by smoking among future smokers (millions)	0.24	<b>0.26</b>	0.27	0.32	<b>0.35</b>	0.37
Percentage of premature deaths in future smokers averted by higher taxes	17.1%	<b>18.6%</b>	20.1%	22.7%	<b>24.5%</b>	26.4%
Total reduction in number of current and future smokers (millions)	1.47	<b>1.59</b>	1.72	1.96	<b>2.13</b>	2.29
Total reduction in premature deaths in current and future smokers caused by smoking (millions)	0.41	<b>0.45</b>	0.49	0.55	<b>0.6</b>	0.65
Percentage of premature deaths in current and future smokers averted by higher taxes	9.6%	<b>10.5%</b>	11.3%	12.9%	<b>14.0%</b>	15.1%
Additional tax revenues (£E billions)	3.67	<b>3.48</b>	3.29	5.48	<b>5.18</b>	4.89
Additional tax revenues (US\$ billions)	0.66	<b>0.63</b>	0.6	0.99	<b>0.94</b>	0.89

Egyptian population cohort. Calculations based on the range of elasticities estimated for this report are presented in Table 8.1. Given 2010 population and smoking prevalence estimates, almost 8.8 million persons ages 15 and older in Egypt are cigarette smokers. Estimates suggest that as many as one in two smokers will die prematurely from diseases caused by cigarette smoking.<sup>12</sup> To provide a conservative estimate, we assume that one-third of long-term smokers will die prematurely as a result of their addiction. Given this assumption, we estimate that nearly 2.9 million adults in the current population cohort will die prematurely from a disease caused by cigarette smoking. Assuming that the current cohort of youth in Egypt will take up smoking at the same rates as in the current adult cohort, we estimate that over 4.2 million youth ages 0 through 14 will become smokers as adults and that over 1.4 million of them will die prematurely from diseases caused by smoking.

Global evidence suggests that about half of the impact of price on overall smoking among adults results from a reduction in smoking prevalence.<sup>22</sup> Given this, we estimate that the average prevalence elasticity implied by the estimates obtained for this report is  $-0.22$ . Based on this estimate, the price increase resulting from the July 2010 tax increase which raised the cigarette excise tax to 65% of retail price will reduce adult smoking prevalence by about 9.3%, amounting to a reduction of over 800,000 adult smokers. A further increase in the tax to 70% of retail price would bring the total reduction in smoking prevalence to 12.6%, or almost 1.1 million adult smokers.

Given the evidence on the health benefits of smoking cessation, we estimate that 70% of those who would have otherwise died prematurely from diseases caused by smoking avoid premature death by quitting. Based on the conservative assumption that one-third of long term smokers will die prematurely, we estimate

that the price increase that resulted from the July 2010 tax increase will reduce the number of premature deaths expected among current adult smokers by almost 190,000. A further increase that raises the tax to 70% of retail price would bring the total reduction in premature deaths among current adult smokers to over 250,000.

Considerable research shows that youth smoking is more responsive to price than adult smoking, with estimates from high-income countries, as well as emerging evidence from low- and middle-income countries, suggesting that price elasticity of cigarette demand among youth is two or more times higher than it is among adults.<sup>29</sup> Assuming that youth smoking in Egypt is twice as sensitive to price as is adult smoking, we estimate that the July 2010 tax increase will reduce youth smoking prevalence by almost 19%, preventing nearly 790,000 Egyptian youth from taking up smoking. All smoking attributable premature deaths will be avoided among youth prevented from starting. Based on the conservative assumption that one-third of long-term smokers will die prematurely because of their smoking, this implies a reduction of over 260,000 deaths among youth who would otherwise initiate smoking in the absence of smoking as a result of the recent tax increase.

Further increasing the tax, to 70% of price, would raise the total reduction in youth smoking prevalence to almost 25% and prevent over one million youth from taking up smoking. The health impact would be significant, with almost 350,000 deaths prevented among youth who do not initiate smoking as a result of the combined recent tax increase and further increase to 70% of price.

### Impact on the Poor

Concerns about the impact of tobacco tax increases on the poor are often raised in opposition to higher cigarette taxes. As described above, Nassar (2003)

generally finds little difference in price elasticity of demand across different socio-economic groups, as defined by education, household expenditures, or work status.<sup>15</sup> Her estimates imply that the reductions in smoking among the rich and poor that result from higher tobacco taxes will be roughly similar and that the relative burden of the tax on richer and poorer households will be unchanged.

To the extent that concerns remain about the impact of tobacco tax increases on the poor, these can be at least partly addressed by spending the new tax revenues generated by the tax increase in a progressive manner. Using the new revenues to increase government spending on education, health care, and social assistance programs that benefit the poor can offset any negative impact of higher taxes on low income smokers who continue to smoke, as well as provide new benefits to low income, non-smoking households.

### **Illicit Trade**

The tobacco industry and others argue that increased tobacco taxes result in extensive illicit trade. Existing evidence indicates that a variety of other factors are important determinants of large scale, organized smuggling, individual tax avoidance, counterfeiting, and other illicit cigarette trade.<sup>32</sup> For example, while differences in cigarette taxes can contribute to the smuggling of cigarettes from low tax to high tax jurisdictions, pre-tax price differences are often substantial and create a financial incentive to smuggle. Other researchers have found that the level of corruption in a county explains at least as much of the extent of smuggling as is explained by tax and price levels.<sup>34,35</sup> Other important determinants include the presence of an informal distribution network for cigarettes within a country, poor technology and communications at customs, weak or non-existent

enforcement, and minimal penalties for those caught trading illegally in cigarettes.<sup>36</sup>

While several factors such as high import duties and the absence of a tax stamp might contribute to illicit trade in tobacco products in Egypt, the relatively low price of popular brands, increasing affordability of cigarettes, and the relative concentration of the population away from borders have kept the percentage of consumption accounted for by contraband cigarettes and other products relatively low.<sup>3</sup> This suggests that in the unlikely event that illicit trade were to increase, tobacco tax increases would still generate significant new tax revenues, reductions in tobacco use, and improved public health.

Strengthened tax administration would likely keep problems with illicit trade in tobacco products to a minimum. This could include the adoption of a tax stamp, particularly the new, more sophisticated stamp that is being used in an increasing number of jurisdictions, that is more difficult to counterfeit, and allows better tracking and tracing of tobacco products from the manufacturer to the retailer. In addition, strong penalties for those caught engaging in illicit cigarette trade, and consistent enforcement efforts would be effective in keeping illicit trade to a minimum.

### **Employment**

As described above, relatively few jobs in Egypt are dependent on tobacco, given the absence of tobacco farming and the very small number of persons employed in tobacco product manufacturing. Given this, reductions in tobacco use that result from tax increases or other tobacco control activities will have little impact on Egyptian employment as the funds once spent on tobacco products are spent on other goods and services, creating new jobs that offset any loss of tobacco-dependent jobs. Nassar and Metwally (2001) have demonstrated this empirically for Egypt.<sup>37</sup>

#### Endnotes for Chapter VII

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## VIII. Summary and Recommendations

### Summary

Egypt is the largest tobacco consuming country in the Arab region, with nearly 40% of adult males and a little less than 1% of adult females currently using tobacco. Cigarette smoking is the most common form of tobacco use, followed by water pipe smoking and smokeless tobacco use. Overall tobacco consumption has been increasing steadily, women are increasingly taking up smoking, and youth tobacco use is a growing problem. Given the high and rising levels of tobacco use, Egypt faces considerable health and economic consequences from tobacco.

The growing recognition of these problems has led to changes in the tobacco control environment in Egypt, including the adoption of limits on tobacco advertising and promotion, some restrictions on tobacco use in public places, and, most recently, the implementation of graphic warning labels. However, these policies are not comprehensive, and enforcement is often less than adequate.

At the same time, cigarette prices in Egypt are among the lowest in the region and real cigarette taxes and prices have been falling in recent years. Further, increases in real incomes have accompanied Egypt's transition to a market economy, making cigarettes increasingly affordable.

Extensive research from a growing number of countries has documented the inverse relationship between tobacco product prices and consumption. Egypt is no exception. Existing evidence as well as new estimates produced for this report clearly shows that falling cigarette prices lead to increases in cigarette consumption, while rising cigarette prices will reduce

consumption, all else constant. These estimates indicate that a 10% increase in Egyptian cigarette prices will lead to between a 4% and 5% reduction in cigarette consumption. In addition, both existing and new evidence show that rising incomes will lead to significantly more smoking in Egypt.

Given the most recent tax increases, cigarette taxes in Egypt account for about 65% of retail cigarette prices, up from about half of price before July 2010. This is below the level in countries that have taken a comprehensive approach to reducing tobacco use, where taxes account for 70% or more of price. Based on existing and new estimates, we estimated the impact of the recent increase in Egyptian cigarette taxes to the level at which they account for 65% of retail prices. The tax increase raised average prices by over 40%, which we estimate will reduce overall cigarette consumption by nearly 19%.

In addition, the recent tax and price increase will lead over 800,000 current Egyptian smokers to quit smoking, while preventing nearly 790,000 youth from taking up smoking. Together, these reductions in smoking will prevent over 450,000 premature deaths caused by tobacco use in the current population cohort, including both current smokers and several youth who would otherwise initiate smoking. At the same time, because of the inelasticity of cigarette demand, the tax increase would generate almost £E 3.5 billion (US\$ 0.6 billion) in new cigarette tax revenues.

Further increasing the tax to 70% of price would increase tax revenues by £E 5.2 billion, while also leading over 1 million current smokers to quit and preventing a similar number of youth from initiating smoking. The health impact would be significant, with some 250,000 deaths averted among current smokers and 350,000 deaths prevented among youth who do not initiate smoking as a result of the further increase to 70% of price.

## Recommendations

Given this evidence, we make the following recommendations:

**(1) Increase cigarette taxes to the level at which they account for at least 70% of the average retail price of cigarettes.**

Raising taxes to 70% of retail prices implies increasing the average tax to £E 4.08 (US\$ 0.74) per pack. Given the inelasticity of cigarette demand, a tax increase of this magnitude will generate significant new government revenues from taxes on cigarettes while having a large public health impact. As described above, a tax increase to this level would raise revenues by nearly £E 5.2 billion (US\$ 0.9 billion) above their level prior to the July 2010 tax increase. Similarly, when combined with the recent tax increase, it would, encourage almost 1.1 million adult smokers to quit, keep over one million youth from taking up smoking, and prevent almost 600,000 premature deaths caused by smoking in the current population cohort, while at the same time reducing the economic burden caused by smoking in Egypt.

**(2) Move towards a long-term goal of applying a uniform high specific tax across all cigarettes.**

The new tax structure that applies a specific tax of £E 1.25 per pack and an *ad valorem* rate of 40% on the retail price of cigarettes reduced the large price differences between high priced and low priced brands that existed under the previous structure. However, these price differences remain larger than those that would exist with a tax structure under which the specific tax accounted for a greater share of the total tax. One consequence of this is that increases in cigarette tax rates will have less of a public health impact than they would if a single specific tax was applied to all cigarettes, since the larger price difference

creates an incentive to switch down to cheaper cigarettes in response to a tax increase. A single, high specific tax on all cigarettes would reduce the opportunities for substitution to less expensive cigarettes in response to a cigarette tax increase, increasing its public health impact. As a further step towards this long run goal, Egypt could further raise the specific tax so that the share of the specific tax in overall tax increases.

**(3) Implement annual adjustments to the specific tax rates so that they retain their real value over time.**

One caveat associated with specific taxes is that the real value of these taxes is eroded over time by inflation unless they are regularly adjusted. In Egypt, where inflation has been rising and has averaged more than 10% in recent years, this is particularly important. In past years, failing to regularly increase specific cigarette tax rates to keep pace with inflation contributed to falling real cigarette prices and increases in cigarette consumption, together with its health and economic consequences.

**(4) Further increase taxes on water pipe tobacco and other smokeless tobacco products to reduce their use.**

Recent trends and the experience of other countries underscore the fact that smokeless tobacco products are often considerably cheaper than smoked tobacco. Price increases for these products implemented through substantial tax increases can counter their use, especially among the youth.

To maximize the public health and revenue impact of cigarette tax increases, taxes on other tobacco products should be increased to similarly account for 70% of their average retail prices. This would reduce the potential for substitution to other products in response to higher cigarette

prices, while at the same time generating additional tax revenues for the Egyptian government. The tax on water pipe tobacco since July 1, 2010 is 100% of net-of-tax price. Increasing this to 233% of the net-of-tax price would result in the water pipe tax amounting to 70% of retail price.

- (5) **Implement annual adjustments to tobacco tax rates so that they result in increases in tobacco product prices that are at least as large as increases in incomes.**

Previous research and new evidence provided in this study clearly shows that cigarette demand in Egypt rises with incomes. In recent years, the combination of falling real cigarette prices and rising incomes has led to cigarettes becoming much more affordable in Egypt. This increasing affordability was the major factor behind the rise in smoking. In addition to raising taxes to offset the effects of inflation, further increases in tobacco taxes that reduce the affordability of tobacco

products are needed in order to improve public health by reducing tobacco use.

- (6) **Earmark a portion of the new revenues resulting from the higher cigarette and other tobacco product taxes for poverty alleviation programs, tobacco cessation and prevention programs, and other efforts to promote health targeting the economically disadvantaged.**

Higher tobacco taxes will generate significant new revenues. Using these revenues to support programs that help existing tobacco users quit, particularly among the poor, and that support other programs targeting the poor will reduce any potentially regressive impact of the higher taxes on the large segment of Egypt's population that lives in poverty. Analysis using the model in this report suggests, for example, that an increase in the tax currently earmarked to finance medical insurance for students from 10 piasters per pack to 50 piasters per pack would raise over £E 860,000 in new revenues.

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Corresponding author: Frank Chaloupka (fjc@uic.edu).

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