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Watching Brief

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Contents

Curbing the Tobacco Epidemic in Indonesia

- **Cigarette consumption in Indonesia is rising more rapidly than anywhere else in the world.**
- **More and more Indonesians smoke, and they smoke more and more cigarettes.**
- **Smoking is stealing millions of years of healthy life from Indonesians. It causes 90 percent of all cancers of the mouth, throat, trachea, bronchia, and lungs; 75 percent of all chronic obstructive pulmonary disease; and 40 percent of cerebrovascular disease in Indonesia. The Ministry of Health estimates that smoking made 6.4 million Indonesians seriously ill in 1995.**
- **Rising incomes over the past decades are one reason that smoking has increased so dramatically in Indonesia. But the low price of cigarettes and limited tobacco policy efforts have also played a big part. Tobacco tax increases and a package of other policies to inform people of the health risks of tobacco could protect people, especially young people, from being enticed into putting their health and lives at risk. Creating smoke-free work and public spaces could save lives and improve health.**
- **The World Bank collaborates with the World Health Organization (WHO), the Centers for Disease Control and Prevention (CDC), and other partners to help reduce global deaths and disease from tobacco within the framework of sound economic and social policies. The World Bank welcomes the opportunity to work with Indonesians to better understand the economic and social issues they confront and to help identify effective policies for slowing the tobacco epidemic.**

Cigarette consumption in Indonesia is rising more rapidly than anywhere else in the world. Smoking causes fatal and disabling disease, and it is associated with a very high risk of premature death. Half of all long-term smokers will eventually be killed by tobacco, and half of them will die during productive middle age, losing 20–25 years of life.

In 1995, 6.4 million Indonesians suffered severe illness as a result of smoking. Deaths and disease from tobacco will soar in the future, unless action is taken. What can be done? Deaths and disease could be prevented if tobacco taxes were raised significantly; all tobacco advertising and promotion were banned; smoking were prohibited in public places, including workplaces, hospitals, and schools; people were well informed about the serious health risks from smoking; and smokers who want to quit could get help.

Many governments fear that interventions to reduce smoking could have harmful economic consequences. Some worry that reduced sales of cigarettes would mean the permanent loss of thousands of jobs, that higher tobacco taxes would result in lower government revenues, and that higher prices would encourage large-scale cigarette smuggling.

A recent World Bank report, "Curbing the Epidemic: Governments and the Economics of Tobacco Control," examines the economic questions policymakers face when contemplating tobacco control (World Bank 1999). The report assesses the expected consequences of tobacco control for health, economies, and individuals. It shows that the economic fears that have deterred policymakers from taking action are largely unfounded. Policies that reduce the demand for tobacco, such as higher tobacco taxes, would not cause long-term job losses

in the vast majority of countries. Nor would higher tobacco taxes reduce tax revenues. In fact, revenues would climb in the medium term. Increasing the tax on tobacco could bring unprecedented health benefits without harming the economy.

This *Watching Brief* looks at these issues in Indonesia. It summarizes tobacco use, assesses the burden of disease attributable to smoking, and reviews tobacco control efforts. After examining tobacco expenditures by income group and comparing trends in cigarette prices and consumption, it analyses the likely economic consequences of a tax increase on government revenues, consumption, employment, and smuggling.

Smoking in Indonesia

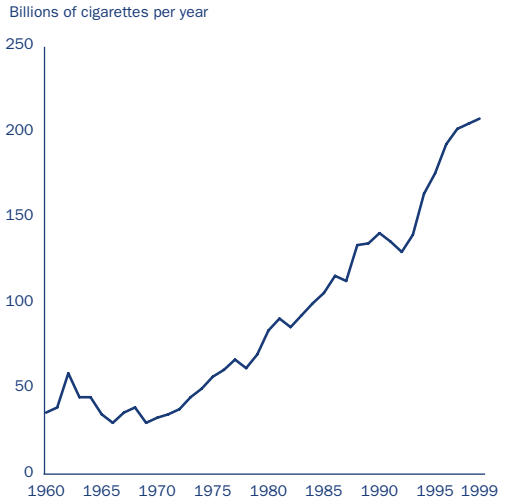
Smoking has been declining for decades in high-income countries (although it continues to rise among some groups). But cigarette consumption is increasing among people in low- and middle-income countries. These countries will account for the huge majority of the 1.6 billion people who are likely to smoke in 2025 and for 70 percent of the 10 million deaths a year that smoking will cause by 2030.

Cigarette consumption in Indonesia is increasing more rapidly than anywhere else in the world

Of the world's 1.1 billion smokers, 6.6 percent are Indonesians. Indonesia has been experiencing a tremendous increase in cigarette consumption. During the 1970s annual cigarette consumption rose 159 percent (from 33 billion to 84 billion cigarettes), during the 1980s it rose 67 percent (from 84 billion to 141 billion cigarettes), and during the 1990s it rose 47 percent (from 141 billion to 208 billion cigarettes) (Figure 1).

The increase in smoking in Indonesia during the 1990s was the largest in the world. In 1990 Indonesians accounted for 2.7 percent of world cigarette consumption; by 1999 this figure had risen to 4 percent (USDA 2000). Annual per capita cigarette consumption among people 15 and older more than doubled in 25 years, rising from about 500 cigarettes in 1970 to more than 1,000 in 1995. Per smoker 15 years and older, this amounts to 3,300 cigarettes a year—nearly half a pack a day (WHO 1997).

Figure 1 Cigarette consumption in Indonesia, 1960–98



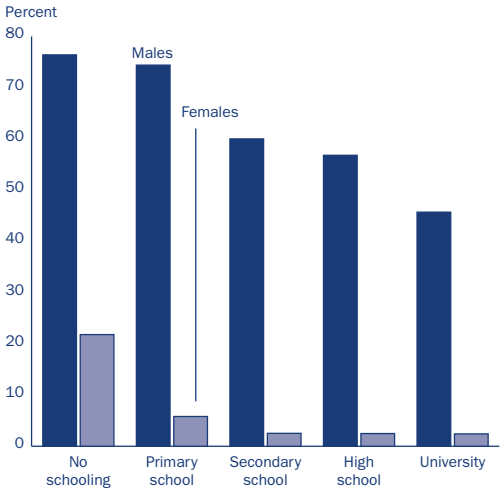
Source: USDA 2000.

Not only are Indonesians smoking more, more and more people are smoking (that is, smoking prevalence is rising). In 1986, 53 percent of Indonesian men smoked (WHO 1997). By 1995, 69 percent of men and 3 percent of women reported smoking.[1] The rate of smoking was particularly worrisome among women 50 and older, 23 percent of whom were smokers in 1993 (Indonesian Smoking Control Society 1998).

In most countries, poor people with little education are more likely to smoke than people with higher incomes and more education. Indonesia is no exception. Seventy-six percent of men with no education and 22 percent of women smoke. The prevalence of smoking declines progressively with the level of education, but it is high even among men with university degrees, 46 percent of whom smoke (Figure 2).

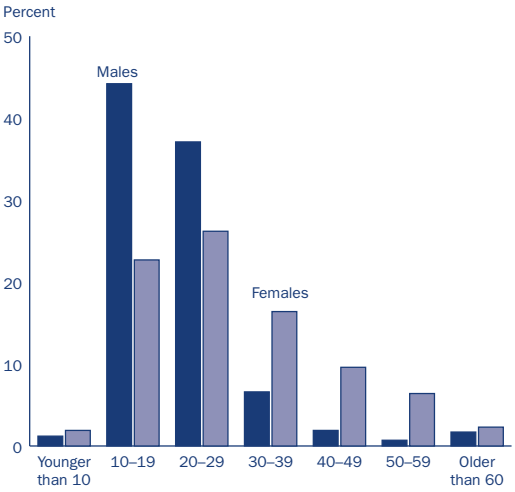
Most smokers start young. In high-income countries, about 8 out of 10 begin in their teens. In low- and middle-income countries, smokers start slightly later, in their early twenties, but the peak starting

Figure 2 Percentage of Indonesians who smoke, by level of education, 1993



Source: Central Bureau of Statistics 1993; Indonesian Smoking Control Society 1998.

Figure 3 Age at which Indonesian smokers began smoking, 1993



Source: Central Bureau of Statistics 1993; Indonesian Smoking Control Society 1998.

age is falling. In Indonesia 45 percent of all male smokers and 25 percent of all female smokers began smoking before they turned 20 (Figure 3).

Smoking imposes a massive burden of disease and death on Indonesians

Smoking causes 90 percent of all cancers of the mouth, throat, trachea, bronchia, and lungs; 75 percent of all chronic obstructive pulmonary disease; and 40 percent of cerebrovascular disease in Indonesia (Kosen and Masino 1998). In 1995 Indonesia's Health Ministry estimated the burden of disease and death caused by smoking using National Household Health Survey data on age-specific causes of death and incidence and prevalence data for specific diseases. It estimated that smoking caused 6,426,630 cases of disease in 1995 (cancer of the mouth, oropharynx, esophagus, pancreas, trachea, bronchus, and lungs; hypertensive diseases; ischemic heart disease; cerebrovascular disease; lower respiratory infections; chronic obstructive pulmonary disease; low birth weight; birth asphyxia; and burns). These problems cost the Indonesian people 8,914,930 Disability Adjusted Life Years (DALYs).[2]

The average cost of medical treatment for a lung cancer patient in Indonesia is $738 a year. And patients and their families lose income when they cannot work. In addition to the financial burden on families, serious illness and the premature death of a family member can cause terrible grief and suffering.

What has Indonesia done to reduce smoking?

Despite the efforts of consumer groups, Indonesia lags far behind Malaysia, Singapore, and Thailand in efforts to control tobacco use. There is a health warning on the side of cigarette packets, but it could be larger, stronger and much more prominent. Unrestricted cigarette advertising is allowed in printed media and on billboards. Television and radio advertising is also permitted, although it is subject to some restrictions. A tobacco advertisement in Indonesia recently received an award for being among the best in 1999. The award ceremony was televised by three commercial television channels and attended by many celebrities.

Smoking is restricted on domestic and international flights and in cinemas and theatres, and it was recently banned in government buildings. There are no other significant restrictions on smoking in public and work places, although the government is considering introducing nonsmoking areas in public

places. There are also no significant restrictions on the age at which tobacco products may be purchased.

A ban on smoking in workplaces and public spaces, a comprehensive ban on advertising and promotion of tobacco products, provision of better information to consumers, and more visible and strongly worded health warnings on packages could all help reduce smoking significantly. The single most effective policy would be an increase in taxes on tobacco products to raise their prices, a policy examined below.

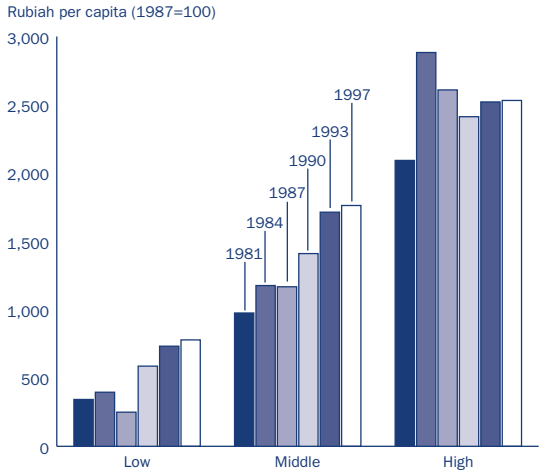
Spending on Cigarettes

Per capita tobacco expenditure has been increasing among all income groups in Indonesia. On average Indonesians spend about 4 percent of per capita income on cigarettes—spending that may have a high opportunity cost for poor families. Spending on tobacco has been rising fastest among the poor. Per capita spending on tobacco by the lowest income group rose 227 percent in real terms between 1981 and 1997, rising from Rp343 to Rp779 (Figure 4). Real spending by the middle income group increased 182 percent between 1981 and 1997. Only among the highest income group did real spending on cigarettes level off. And since the real price of cigarettes has fallen, even this group has been smoking more.

Two reasons that smoking has increased so dramatically in Indonesia are the low price of cigarettes and rising incomes. Between 1966 and 1996 Indonesia enjoyed a tremendous increase in real income. Over the same period, per capita cigarette consumption rose almost fourfold, from 280 to 1,055 cigarettes a year (Figure 5). The real price of *kreteks* (clove cigarettes) rose during the 1960s but fell during the 1970s and 1980s (after a one-time hike in 1980). Prices continued to fall in real terms during most of the 1990s, with nominal prices increases rising by less than inflation (Figures 5 and 6).

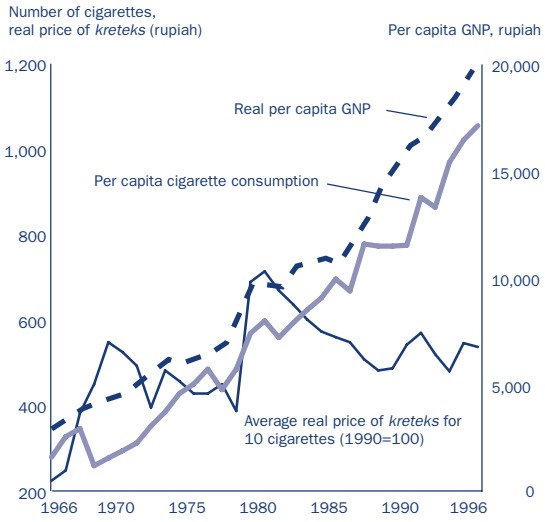
The wide divide between real and nominal prices is caused by inflation: the Consumer Price Index (CPI) rose from 100 in 1990 to 165.5 in 1996. (There was also considerable inflation during the 1980s; the CPI was only 44 in 1980.) Between 1990 and 1996 real per capita income increased 38 percent, the average real prices of *kreteks* fell more than 18 percent, *kretek* consumption rose 26 percent, and total cigarette consumption increased 38 percent (see Figures 5 and 6). The real price of kreteks rose between 1992 and 1993, and consumption fell.

Figure 4 Real per capita monthly tobacco expenditures, by income groups in Indonesia, 1981–97



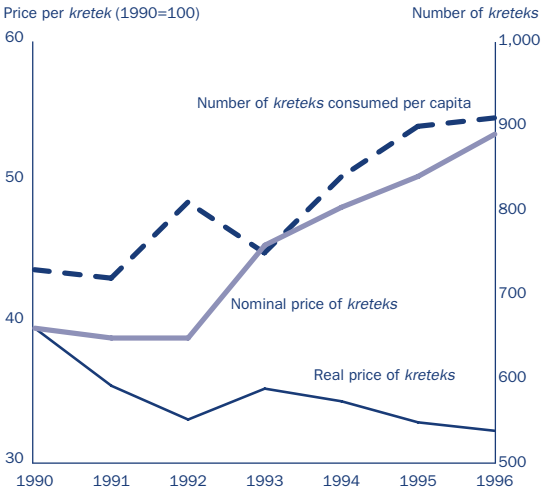
Source: Central Bureau of Statistics 1981–96.

Figure 5 Real per capita GNP, cigarette consumption, and price of *kreteks* in Indonesia, 1966–96



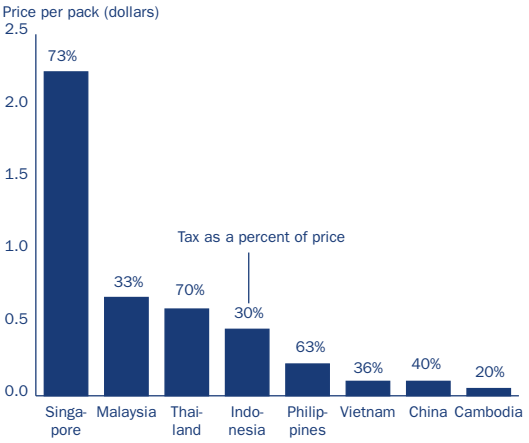
Note: Kretek prices are Jakarta market prices.
Source: USDA 1998 for consumption; Central Bureau of Statistics 1966–77 for *kretek* prices; IMF 1999 for GDP; World Bank 1998 for population.

Figure 6 Price and consumption of *kreteks* in Indonesia, 1990–96



Source: USDA 1998; MarketFile Databases 1996.

Figure 7 Average price per pack and percent of tax in price for selected countries in East Asia



Source: World Bank and IMF data.

After 1993, however, the real price fell, and consumption once again increased.

Indonesia began to experience the full impact of the economic crisis in 1998. The crisis and the subsequent depreciation of the exchange rate increased production costs, lowered disposable incomes, and led to a sharp rise in the price of food and of domestic and imported cigarettes. During 1997 real wages fell 29 percent while the CPI rose 66 percent. The price of many basic foods rose steeply: milk almost tripled in price.

Cigarette prices also increased, but the increase was modest and cigarette prices remain much lower than in neighboring countries. In 1998 the average cost of a pack of 20 "white stick" cigarettes or machine-made *kreteks* was Rp4,500 ($.45); 20 handmade *kreteks* cost Rp3,000 ($.30). These prices are considerably lower than prices in Malaysia ($.68), Singapore ($2.24), and Thailand ($.60) (Figure 7).

Raising the tax on tobacco products

Indonesia's macroeconomic performance in 1999 and early 2000 shows continued gradual recovery. Manufacturing and services are inching their way up. GDP rose slowly but surely in 1999. The government forecast for GDP growth for 1999/00 is about 2 percent. And inflation is less than 2 percent (World Bank 2000). This recovery creates an opportunity to consider adopting more determined tobacco control measures.

Higher tobacco taxes could raise revenues and reduce smoking

The developing countries that have increased tobacco taxes to reduce smoking have also increased their tax revenues. In 1998 Sri Lanka increased tobacco taxes 10 percent. Excise revenues from tobacco taxes rose from 16.3 billion rupes in 1998 to 17.0 billion rupees in 1999. (Data are not yet available on the impact on consumption.) Thailand usually increases tobacco taxes every five years, but it increased taxes twice between 1991 and 1996. Since 1996 cigarettes have been subject to an excise tax of 70 percent of the retail price plus the 10 percent VAT. There is a 30 percent duty on imported cigarettes. Between 1991/92 and 1996/97, tobacco excise tax revenues doubled in nominal terms, rising from B15 billion to B30 billion. Over the same period, cigarette consumption rose only modestly—from 52 packs to 57 packs a year per capita for people 15 and older—despite large increases in per capita incomes.

Although cigarette prices in Indonesia were higher than in some neighboring countries in 1998, the percentage of the total price accounted for by taxes (30 percent) was the second lowest in the region. Only Cambodia, which imposes a 20 percent tax on cigarettes, had lower cigarette taxes (Figure 7).

Much could be gained from raising tobacco taxes in Indonesia. A log linear model for Indonesia using data for 1980–95 suggests that the price elasticity of demand for *kreteks* is –0.51 and the income elasticity is +0.35.[3] This means that a 10 percent increase in the price of *kreteks* would reduce consumption by 5.1 percent. (The positive significant coefficient for income confirms that tobacco is a "normal good," consumption of which increases with income.) If the tax on *kreteks* were to increase, consumption would fall and revenues would rise significantly. Table 1 shows the likely changes if taxes increased by 10 percent, 50 percent, or 100 percent, assuming no change in smuggling levels or substitution to cheaper brands (from machine made to handmade *kreteks*) and holding all other variables constant.[4] We estimate that a doubling of the 1998 excise rate on tobacco would bring in additional revenues equivalent to about 0.4 percent of GDP. This calculation is consistent with calculations by the IMF.[5]

How might tobacco tax increases affect the broader economy?

Increases in tobacco taxes could bring about enormous improvements in public health, individual health and well-being, and government revenue. But government officials may be concerned that higher cigarette prices and lower consumption could cause losses of jobs or foreign exchange earnings. Analysis shows that these fears may be largely unfounded.

Less than 0.5 percent of all agricultural land and only about 1 percent of arable land in Indonesia is used for growing tobacco. In 1997 this amounted to 219,000 hectares under tobacco production, about 4 percent of global production. Roughly one quarter of the tobacco crop is exported (earning $91 million in real terms in 1997). A far greater and growing volume of tobacco leaf is imported ($137 million in real terms in 1997) and later re-exported after being made into cigarettes. In 1997 cigarette export earnings were $119 million in real terms, a 15 percent increase since 1995. Few cigarettes are imported (1997 imports were $560 thousand), and imports have been falling. Indonesia is thus a net exporter of tobacco, earning a net $72.7 million in real terms in 1997 (Figure 8).

Even so, foreign exchange earnings from tobacco accounted for only 0.45 percent of all export earnings in 1997. Moreover, since the global market for cigarettes would be little affected by measures that reduced consumption in Indonesia, export earnings would not be jeopardized by tobacco tax increases.

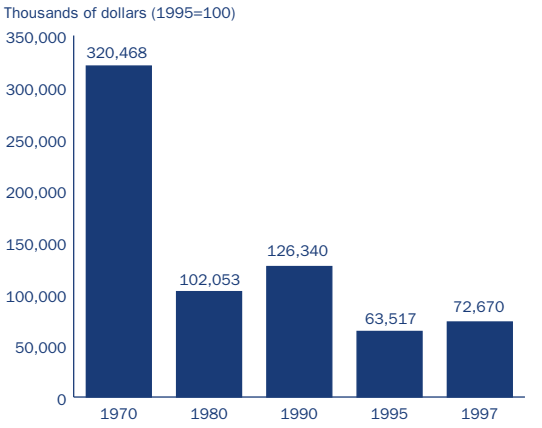
Tobacco manufacturing employment increased from 132,000 in 1970 to 230,676 in 1995 (Figure 9). However, tobacco's importance in manufacturing employment fell dramatically, declining from 38 percent of total manufacturing employment in 1970 to just 6 percent in 1995. Thus although some jobs could be at stake, the sector is declining in

Table 1. Projected change in cigarette prices, cigarette consumption, and tax revenues following increase in cigarette tax

Tax increase (percent)	Increase in cigarette price (percent)	Decline in cigarette consumption (percent)	Increase in tobacco tax revenues (percent)	Additional tax revenue as percentage of GDP
10	3	2	8	0.26
50	18	9	36	0.33
100	36	19	63	0.40

Note: **Estimates are based on 1998 data.**
Source: **Authors' calculations.**

Figure 8 Net real earnings from tobacco (cigarettes and tobacco leaves) trade (export–import), 1970–97



Source: FAO trade database; IMF 1998.

importance. About 120,000 people are estimated to have earned their living making handrolled *kreteks* in 1997. This may be a vulnerable group, whose situation would need careful attention as part of broad-based tobacco control efforts.

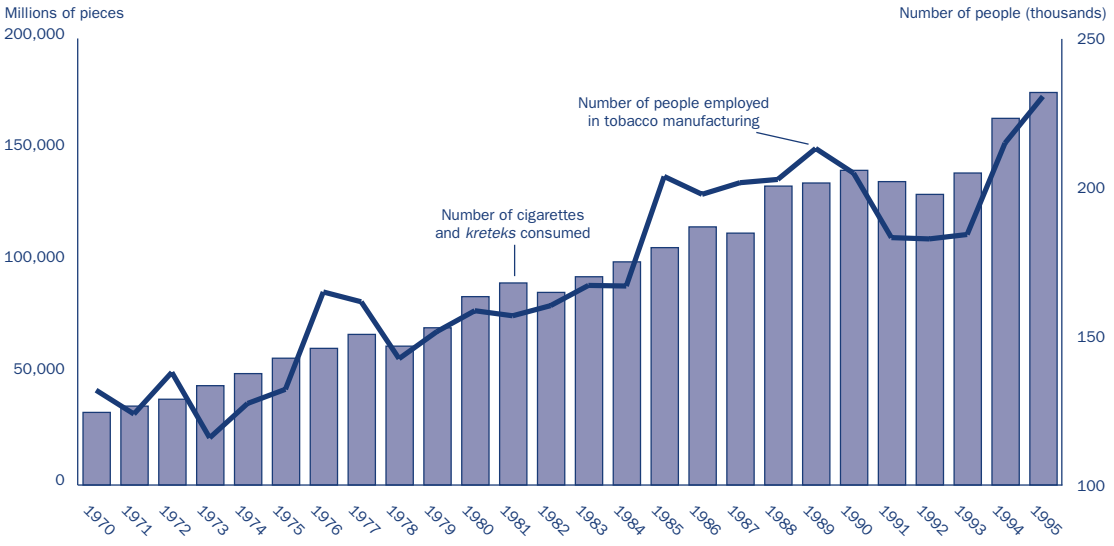
It is very important to note that if people smoke less, the money they would have spent on cigarettes is not lost to the economy but is spent on other goods and services. Depending on spending patterns, switching from tobacco to other items can generate more new jobs than are lost. This has been the experience in several other countries. In South Africa it was estimated that if the rate of decline in cigarette consumption doubled and the money was spent instead in a way that resembles ex-smoker's expenditure patterns, 3,500 new jobs would be created (van der Merwe and Abedian 1999).

Would tax increases result in more smuggling?

Politicians fear that higher cigarette and other tobacco taxes will contribute to increased smuggling and associated criminal activity. In Canada and Sweden cigarette taxes were significantly reduced in response to what was perceived to be significant cigarette smuggling. Both countries saw consumption rise, especially among young people, after the tax cut. Instead of tax revenues rising, as the industry had argued they would, revenues fell when taxes were reduced.

Studies show that tax and price differentials among countries are not the only determinants of large-scale smuggling—and may not be the most important (Merriman and others forthcoming). Organized criminal networks play a significant role

Figure 9 Cigarette and *kretek* consumption and employment in tobacco manufacturing, 1970–95



Source: UNIDO 1995.

in large-scale cigarette smuggling. The European Commission (1998), for example, notes that more than 50 criminal networks have been identified as involved in smuggling of various products, including cigarettes (Luk and others forthcoming). The corruption that often accompanies organized crime is a significant factor in explaining the extent of cigarette smuggling in many countries. Moreover, the millions of cigarettes that are smuggled over long distances are typically international brands produced by the large multinational tobacco companies, because these products can easily be sold nearly everywhere (Barford 1993).

It is not likely that higher tobacco taxes in Indonesia—even substantially higher taxes—would lead to large increases in smuggling. Only 2–8 percent of cigarettes sold in Indonesia are smuggled into the country (MarketFile estimate for 1995). Most smokers in Indonesia prefer *kreteks,* which are considerably cheaper than average cigarette prices in neighboring countries. Tax rates in Indonesia are also much lower than in most neighboring countries, making large increases possible without creating the sizeable differentials that provide the incentive to smuggle.

Experiences in other countries show that increases in smuggling do not necessarily occur. And even if smuggling does increase, revenues still tend to rise. Norway, for example, increased tobacco taxes by 94 percent between 1990 and 1998 and enjoyed an increase in revenue of 65 percent.[6] Finland increased taxes by 284 percent between 1980 and 1998 and saw revenues increase 159 percent. Revenues rose despite a significant decline in smoking prevalence, helped by strong campaigns and other policies to encourage people to stop smoking.

International experience in stemming the tobacco epidemic

Countries that have been most successful in reducing tobacco use have used a set of policy measures in addition to raising taxes. Countries that introduced comprehensive bans on advertising and promotion of tobacco have seen much faster falls in cigarette use. Restrictions on smoking in public and work places have reduced tobacco use by 4–10 percent (World Bank 1999). These restrictions have been most effective where levels of social support for the bans have been high.

Extensive evidence from high-income countries indicates that providing adults with information on the addictive nature of tobacco and the fatal and disabling diseases it causes help reduce smoking. Research in Australia, Canada, South Africa (Public Citizens Health Research Group 1998), Finland (Pekurinen 1989), Switzerland (Leu 1984), Turkey (Tansel 1993), Greece (Stavrinos 1987) and the United States all concludes that health messages disseminated to discourage smoking can be effective, especially if help is available for smokers who wish to quit.

Information, education, and communication programs need to be carefully targeted and planned to reach disadvantaged groups as well. Young people appear to be less responsive to information about the health effects of tobacco than adults, and more educated people respond more quickly to new information than people with little or no education. But young people and people with low incomes tend to be much more responsive to price increases. This underlines the need to adopt a package of mutually reinforcing measures. Information and persuasion are important elements in any health promotion strategy, but they are ineffective unless they are linked to changes in physical conditions, social constraints, economic incentives, and legal sanctions operating in the settings in which people live, work, and play. These are the settings in which behavior is shaped (Ghalbally 1999).

Warning labels on cigarette boxes seem to be effective in reducing smoking. A study in Turkey found that health warnings caused consumption to fall by about 8 percent over six years (Tansel 1993). And consumption fell significantly in South Africa after strong warning labels were introduced in 1994. More than half (58 percent) of South African smokers and former smokers questioned in a study

said that they were motivated to quit or reduce their smoking by warning labels (Public Citizens Health Research Group 1998). In Australia, Canada (Public Citizens Health Research Group 1998), and Poland (Zatonski, Przewozniak, and Proebski 1999), stronger, larger warning labels also motivated many smokers to quit or cut back.

The World Bank welcomes the opportunity to work with the government of Indonesia to curb the epidemic raging through the country. A local initiative to include information about smoking behavior on death certificates will make it much easier to track deaths from tobacco in the future. Seminars and meetings will be held in Indonesia so that the issues raised here can be carefully discussed with policymakers, the media, and interested citizens. Ongoing analytic work will help to better understand the concerns of policymakers and help them to formulate effective tobacco control policies within the framework of sound economic and social policy. Together, tax increases and a package of other measures could save millions of Indonesian families from the heartbreak and loss cause by tobacco-related disease and death.

Notes

1. Data are from the Indonesia National Household Health Survey and the National Socioeconomic Survey (1995), which covered almost a quarter million household in all districts in Indonesia.
2. DALYs include years of life lost as a result of premature death as well as a measure of the loss of health because of disabling disease. If, for example, disease limits a person's ability to perform most activities of recreation, education, procreation, and occupation, each year of diseased life is counted as 0.6 of a DALY. Ten years of such disabling disease would thus be counted as a loss of six healthy life years. A 3 percent discount rate was used.
3. The estimation model is log consumption = –0.63 + 0.35 log income –0.51 log price. The *t*-values are 0.47, 4.33, and 3.36. The values of 4.33 and 3.36 are statistically significant at the 5 percent level.
4. Currently, taxes represent 30 percent of the total price of *kreteks* and cigarettes inclusive of tax (tax/price + tax) and 42 percent of the price exclusive of tax (tax/price). Tax increases of 10 percent, 50 percent, and 100 percent would increase the tax share in price (inclusive of taxes) to 47 percent, 64 percent, and 86 percent.
5. Ad valorem cigarette excise rates in Indonesia range from 2 to 36 percent, depending on the type of product (handmade, machine made, and other). The VAT rate is 10 percent of the retail price. More than 95 percent of excise revenue comes from tobacco products. In 1996 cigarette excise tax revenue was 4.2 percent of total tax revenues and 91 percent of excise revenues.
6. These tax increases raised the price of a pack of cigarettes in Norway from 15.8NOK to 30.6NOK, of which taxes (excise + VAT) accounted for 73 percent.

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