Indonesia: Curbing the Tobacco Epidemic

?? Cigarette consumption in Indonesia is rising faster than anywhere else in the world.
?? More and more Indonesians smoke, and they smoke more and more cigarettes. In 1986, 53% of Indonesian men smoked. By 1995, 69% of men and 3% of women said they smoked. Older women in Indonesia show a worrying pattern: 23% of women aged 50 or older were smokers in 1993.
?? Most smokers start young. In high-income countries, eight out of ten begin in their teens. In Indonesia, 45% of all male smokers and 25% of all female smokers began smoking before they turned 20.
?? Smoking already causes 90% of all cancers of the mouth, throat, trachea, bronchia and lungs, 75% of all chronic obstructive pulmonary disease, and 40% of cerebrovascular disease in Indonesia. The Ministry of Health estimated that smoking made 6.4 million Indonesians seriously ill in 1995. Smoking is stealing millions of years of healthy life from Indonesians.
?? 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 play a big part. Tobacco tax increases and a package of other policies to properly inform people of the health risks, protect especially young people from being enticed into putting their health and lives at risk, and to create safe working and public spaces, could save lives and improve people’s health.
?? The World Bank collaborates with the World Health Organization (WHO), 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, and to identify effective policies for reducing the devastating tobacco epidemic.
Cigarette consumption in Indonesia is rising faster than anywhere else in the world. Smoking causes fatal and disabling disease, and, compared with other risky behaviors, the risk of premature death is extremely high. Half of all long-term smokers will eventually be killed by tobacco, and of these, half will die during productive middle age, losing 20 to 25 years of life. In 1995, 6.4 million Indonesians suffered severe illness as a result of smoking. The deaths and disease from tobacco will soar in future, unless determined action is taken. What can be done? Millions of deaths and disease could be prevented if tobacco taxes were raised significantly, all tobacco advertising and promotion banned, smoking banned in public places including workplaces, hospitals and schools, people were well informed about the serious health risks from smoking, and if smokers who want to quit could get help.

Many governments have been afraid to act to control smoking, fearing that their interventions could have harmful economic consequences. For example, 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 massive levels of cigarette smuggling.

A recent World Bank report “Curbing the Epidemic: Governments and the Economics of Tobacco Control” examines the economic questions that policymakers face when contemplating tobacco control. The report assesses the expected consequences of tobacco control for health, for economies, and for 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; rather, revenues would climb in the medium term. Such policies could, in sum, bring unprecedented health benefits without harming economies.

This brief looks at these issues in Indonesia. The first section summarizes tobacco use in Indonesia, and the burden of disease attributable to smoking. It reviews tobacco control efforts. The second section examines tobacco expenditures by income group, discusses tobacco tax rates, and compares cigarette prices with other food prices. It analyses the likely economic consequences of a tax increase on government revenues, consumption, employment and smuggling. Modest action by the government could save many lives and prevent much disease, without causing economic harm.

SECTION I

Smoking in Indonesia is growing faster than anywhere else in the world

There are 1.1 billion smokers in the world today, and 6.6% of them are Indonesians. Smoking has been declining for decades in high-income countries, although it continues to rise in some groups. But cigarette consumption is increasing among people in low and middle-income countries. They will account for the huge majority of
the 1.6 billion people who are likely to smoke in 2025, and for 70% of the 10 million deaths each year that smoking will cause by 2030.

Indonesia has been experiencing a tremendous increase in cigarette consumption. During 1970-80 cigarette consumption increased by 159%, (33 billion to 84 billion pieces), 1980-1990 by 67% (84 billion to 141 billion pieces) and 1990-1999 by 47% (141 billion to 208 billion pieces) (Figure 1).

Source: USDA International Cigarette Consumption Data

Indonesia’s increase during the 1990s was the highest in the world. In 1990 Indonesians smoked 2.7% of world cigarette consumption; this rose to 4% by 1999 (USDA). Per capita cigarette consumption among the population aged 15 years and over more than doubled from about 500 sticks in 1970 to over 1,000 sticks in 1995. Per smoker 15 years and over, this amounts to 3,300 sticks or 165 packs of 20 cigarettes in 1995 – nearly half a pack each day. (WHO: Tobacco or health: a global status report).

Not only are Indonesians smoking more, more and more people are smoking (prevalence). In 1986, 53% of Indonesian men smoked (WHO, Tobacco or Health; A global status report). By 1995, 69% of men and 3% of women said they smoked1 (Indonesia National Household Health Survey, and 1995 National Socioeconomic Survey

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which covered almost a quarter million household in all districts in Indonesia). Older women in Indonesia show a worrying pattern: 23% of women aged 50 or older were smokers in 1993.²

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. Smoking prevalence was 76% for men and 22% for women with no education, and progressively lower for groups with more education (Figure 2). But prevalence is high even among men with university degrees, at 46%.

![Figure 2: Indonesian Percentage of Current Smokers by Level of Education, 1993](image)

Most smokers start young. In high-income countries, about eight out of ten begin in their teens. In low-income and middle-income countries, smokers start slightly older, in their early twenties, but the peak age of uptake is falling. In Indonesia, 45% of all male smokers and 25% of all female smokers began smoking before they turned 20 (Figure 3).

² Meta Analysis: Smoking pattern in 14 provinces in Indonesia, Indonesian Smoking Control Society, May 1998
How much disease does smoking cause in Indonesia?

Smoking already causes 90% of all cancers of the mouth, throat, trachea, bronchia and lungs, 75% of all chronic obstructive pulmonary disease, and 40% of cerebrovascular disease in Indonesia\(^3\). In 1995, Indonesia’s Health Ministry estimated the burden of disease and death caused by smoking, using the National Household Health Survey, specially collected data on age-specific causes of death, and incidence and prevalence data for specific diseases. They estimated that smoking caused 6,426,630 cases\(^4\) of disease in 1995 that cost the Indonesian people 8,914,930 Disability Adjusted Life Years (DALYs).\(^5\) The average cost of medical treatment for a lung cancer patient in Indonesia is US$738/year. Patients and their families also lose income on the days that they cannot

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3. Soewarta Kosen” Analysis of current economic impact (Government and community perspective) of smoking in Indonesia” Health Services Research and Development Center, MOH, Indonesia, July 1998.
5. DALYs include years of life lost as a result of premature death from smoking, as well as a measure of the loss of health because of disabling disease. For example, if 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, and 10 years of such disabling disease would be counted as a loss of 6 healthy life years. A 3% discount rate was used.
work. The financial burden alone on families can be enormous, even before considering suffering and loss due to illness and premature death.

**Indonesia’s tobacco control efforts**

Despite the efforts of consumer groups in Indonesia, when compared to Thailand, Malaysia, and Singapore, Indonesia lags far behind on tobacco control efforts. There is a health warning on the side of cigarette packets but it could be much larger, stronger, and more prominent. Cigarette advertising is allowed in printed media and on outdoor billboards, and is allowed on TV and radio subject to only 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 TV channels, and attended by many celebrities.

Smoking is restricted on domestic and international flights, in cinemas and theatres, and 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 non-smoking areas in public places. There are also no significant restrictions on the age at which tobacco products may be purchased.

Bans on smoking in workplaces and public spaces, comprehensive bans on advertising and promotion of tobacco products, better information to consumers, and large and strong health warnings on packages could all help reduce smoking significantly. Tax increases to raise the price of all tobacco products would be the single most effective policy measure that the government could adopt. Taxes and prices are the subject of the next section.

**SECTION II**

*How much do people spend on cigarettes?*

Per capita tobacco expenditure has been increasing among all income groups. On average, about 4% of per capita income is spent on cigarettes; money 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% from Rp343 in 1981 to Rp779 in 1997 (Figure 4, data expressed in real terms, adjusted
for inflation, using 1987 as the base year). Real spending by the middle income group increased by 182% between 1981 and 1997. Only among the highest income group has real spending (that is, spending adjusted for inflation) on cigarettes leveled off. And since the real price of cigarettes has fallen, even this group has been smoking more.

![Figure 4: Per Capita Real Monthly Tobacco Expenditures by Income Groups in Indonesia, CPI, 1987=100, 1981-1996](image)


**Trends in Cigarette Prices**

Two reasons that smoking has increased so dramatically in Indonesia are the low price of cigarettes, and rising incomes. During 1966-1996, Indonesia enjoyed a tremendous increase in real income, but also an almost fourfold rise in per capita cigarette consumption, from 280 cigarettes (28 packs of 10 pieces) per year to 1055 (105.5 packs of 10 pieces) per year (Figure 5). The real price of kreteks (based on Jakarta market prices) rose during the 1960s, fell during the 1970s, fell again during the 1980s after a one-time hike in 1980, and has continued to fall in real terms during most of the 1990s, with nominal price increases lower than inflation. (Figures 5 and 6).
Figure 6 shows clearly the trends in nominal and real kretek prices from 1990 to 1996, and consumption. The wide divide between the real and the nominal price is caused by inflation: the Consumer Price Index rose from 100 in 1990 to 165.5 in 1996. (There was also considerable inflation during the 1980s; if the CPI is set to 100 in 1990, it was only 44 in 1980.) Between 1990 and 1996, real income per capita increased by 38%, the average real prices of kreteks decreased by over 18%, kretek consumption increased by 26%, and total cigarette consumption increased by 38% (Figures 5 and 6). Readers will see, however, one notable brief exception to the general trend: when the real price of kreteks rose between 1992 and 1993, consumption fell. But after 1993, the real price falls again, and consumption moves relentlessly up.
Indonesia began to experience the full impact of the economic crisis during 1998. The economic crisis and the subsequent depreciation of the exchange rate has 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 by 29 percent while the CPI rose by 66 percent. The price of many basic foods rose steeply: milk almost tripled in price. Cigarette prices also increased but quite modestly. Cigarette prices remain much lower than neighboring countries. In 1998, a pack of 20 “white stick” cigarettes and a pack of machine-made kreteks (clove cigarettes) both cost on average Rp4500, and 20 hand-made kreteks cost on average Rp3000. In US dollars, this was only 45 US cents and 30 US cents respectively, considerably lower than in Malaysia (68 US cents), Singapore (USD 2.24), and Thailand (60 US cents) (Figure 7)
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 the year 1999/00 is about 2 percent. This tentative recovery continues to be accompanied by very low inflation, below 2 percent (November 1999 CPI vs. November 1998). This recovery makes it opportune to consider more determined tobacco control measures.

**Higher tobacco taxes could help**

There are examples of developing countries -- notably Sri Lanka and Thailand, which increased tobacco taxes to reduce smoking, and also enjoyed increased revenues. In 1998 Sri Lanka increased tobacco taxes by 10 percent. This increased excise revenues from tobacco taxes from 16.3 billion rupees in 1998 to 17 billion rupees in 1999. (Data are not yet available on the impact on consumption.) Thailand usually increases tobacco taxes every five years, but increased taxes twice during 1991-1996. Since 1996,
cigarettes have been subject to an excise tax at 70 percent of the retail price plus the VAT at 10 percent. And there is a 30 percent import duty on cigarettes. Between 1991/92 and 1996/97, tobacco excise tax revenues doubled in nominal terms from Baht 15 billion to Baht 30 billion, and cigarette consumption increased only very modestly from 52 packs to 57 packs/capita for people aged 15 and older, despite large increases in per capita incomes in Thailand.

Although in 1998 cigarette prices in Indonesia were higher than in some neighboring countries, the percent of the total price accounted for by taxes (30%) was the lowest, except for Cambodia (20%) (Figure 7). There could be much to gain from raising tobacco taxes in Indonesia. A log linear model for Indonesia using data for 1980-1995, and setting the CPI for 1987=100, suggests that the price elasticity of demand for kreteks is –0.51 and the income elasticity is +0.35. This means that a 10% increase in the price of kreteks would reduce consumption by 5.1%. (The positive significant coefficient for income confirms that tobacco is a “normal good” whose consumption 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%, 50% or 100%, assuming no change in smuggling levels, no substitution to cheaper brands (from machine-made to hand made kreteks) and everything else constant. We estimated that if the 1998 excise rate on tobacco were doubled, the additional revenues would be equivalent to about 0.4 of a percentage point of GDP. This calculation is consistent with IMF calculations.

| Table 1: Change in tax rates, prices, consumption and revenues (1998 data) |

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7 **Estimation Model**: Log Consumption = -0.63 +0.35 log Income – 0.51 log price

<table>
<thead>
<tr>
<th>T value</th>
<th>(0.47)</th>
<th>(4.33)*</th>
<th>(3.36)*</th>
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* Statistically significant at 5% level.

8 Currently, taxes are 30% of the total kreteks and cigarettes prices inclusive of tax, (i.e. tax/price+tax) and 42% of the price exclusive of tax (i.e. tax/price). Tax increases of 10%, 50% and 100% would increase the tax share in price (inclusive of taxes) by 47%, 64% and 86% respectively.

9 Ad valorem cigarettes excise rates vary from 2 to 36 percent depending on product type (hand-made, machine-made, and others). The VAT rate is 10% of retail price. Over 95 percent of excise revenue comes from tobacco products. In 1996, cigarette excise tax revenue was 4.2% of total tax revenues in Indonesia and 91% of excise revenues. Source: IMF unpublished data for Indonesia.
<table>
<thead>
<tr>
<th>Tax Increase</th>
<th>Corresponding % change in price</th>
<th>% change in consumption</th>
<th>% change in tobacco tax revenues</th>
<th>Additional tax revenue as a % of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 %</td>
<td>3 % ?</td>
<td>2 % ?</td>
<td>8 % ?</td>
<td>0.26</td>
</tr>
<tr>
<td>50 %</td>
<td>18 % ?</td>
<td>9 % ?</td>
<td>36 % ?</td>
<td>0.33</td>
</tr>
<tr>
<td>100 %</td>
<td>36 % ?</td>
<td>19 % ?</td>
<td>63 % ?</td>
<td>0.40</td>
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**How might tobacco tax increases impact the broader economy?**

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

**Tobacco Employment and Trade.** Less than 0.5% of all agricultural land, and only about 1% of arable land in Indonesia is used for growing tobacco. In 1997, this amounted to 219 thousand hectares under tobacco production, about 4% of global production. Roughly one quarter of the tobacco crop is exported (earning US$105 million in 1997), but a far greater and growing volume of tobacco leaf is imported (US$158 million in 1997), and later re-exported after being made into cigarettes. In 1997, cigarette export earnings were US$137 million, a 15% increase since 1995. Few cigarettes are imported – a total value of US$0.6 million in 1997, and this has been falling. So overall, Indonesia is a net earner from tobacco trade (US$84 million in 1997) (Figure 8). Even so, this accounted for only 0.45% of all export earnings in 1997. Moreover, since the global market for cigarettes would not be much affected by measures that reduced consumption in Indonesia, and excise taxes are paid in the country of consumption, 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 has fallen dramatically: it was 38% of total manufacturing employment in 1970, and only 6% in 1995. So although some jobs could be at stake, this is a declining sub-sector. There are also an estimated 119,687 people (1997 data) who earn a living making hand-rolled kreteks, which sell for much less than machine-made kreteks and “white stick” cigarettes. 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.\textsuperscript{10}

\textit{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 (1994) and Sweden (1998), cigarette taxes were significantly reduced in response to what was perceived to be significant cigarette smuggling. But both countries saw consumption rise especially among youth after the tax cut, and instead of tax revenues rising as the industry had argued they would, revenues fell when taxes were reduced.

\textsuperscript{10} Rowena van der Merwe and Iraj Abedian “ A reduction in consumer expenditure on cigarettes and its effects on employment: A case study of South Africa” Contemporary economic policy, 1999, Vol 17(3), 412-422.
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. Organized
criminal networks play a significant role in large-scale cigarette smuggling. The
European Commission (EC) (1998), for example, notes that over 50 criminal networks
have been identified by investigations of large-scale smuggling of various products,
including cigarettes. The corruption that often accompanies organized crime is a
significant factor in explaining the extent of cigarette smuggling in many countries. And
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 that would reduce government tobacco
tax revenues. Only 2 to 8% of cigarettes sold in Indonesia are smuggled into the country
(MarketFile estimate for 1995). Most smokers in Indonesia prefer domestic clove
cigarettes (kreteks), whose prices are considerably cheaper than average cigarette prices
in neighboring countries. And tax rates in Indonesia are much lower than most
neighboring countries, so large increases are possible without creating the sizeable
differentials that provide the incentive to smuggle.

Experiences in other countries show that feared increases in smuggling do not
necessarily occur. And even if there is an increase in smuggling, revenues still tend to
rise. For example, Norway increased tobacco taxes per pack by 94% between 1990 and
1998, and enjoyed a revenue increase of 65%. And Finland increased the tax per pack
by 284% from FIN 3.23 in 1980 to FIN 12.39 in 1998, and saw revenues increase by
159%, even though smoking prevalence fell considerably during this period, helped by
strong campaigns and other policies to encourage people to stop smoking, and to increase
public awareness of the serious health risks of smoking.

**What other policies could Indonesia use to reduce the tobacco epidemic?**

The countries that have succeeded best in reducing tobacco use have used a set of effective 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 workplaces have reduced tobacco use by between 4 and 10 percent, are more effective where there are high levels of social support for the bans.

There is extensive evidence from high-income countries that providing information to adults about the addictive nature of tobacco and its burden of fatal and disabling diseases can help to reduce smoking. Researchers in Finland, Turkey, Switzerland, Canada, the US, Australia, Europe and Israel all concluded that health messages to discourage smoking disseminated by governments health promotion programs do help to reduce consumption. 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. On the other hand, young people and others with low incomes tend to be much more responsive to price increases. This undermines the need to adopt a package of mutually reinforcing measures. Information and persuasion are important elements in any health promotion strategy, but are ineffective unless linked to changes in physical conditions, social constraints, economic reinforcements, and legal sanctions, operating in the settings where people live, work and play. There are the settings in which behavior is shaped\(^\text{14}\).

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 6 years. And consumption fell significantly in South Africa after serious warning labels were introduced in 1994. More than half (58%) of South African smokers and former smokers questioned in a study said that they were motivated to quit or smoke less

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\(^{13}\) These tax increases raised the price of a pack of cigarettes in Norway from 15.8NOK to 30.6 NOK, of which taxes (excise+VAT) accounted for 73%.

by the warning labels. In Poland, Australia and Canada, stronger, larger warning labels also motivated many smokers to quit or cut back.

The World Bank would welcome the opportunity to work with the Government of Indonesia to curb this 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 future. Seminars and meetings will be held in Indonesia so that the issues raised in this note can be carefully discussed with policy-makers, the media and interested citizens. Ongoing analytic work will help to understand better the issues and concerns of policy makers, and to be able 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-attributable disease and death.

**Data sources**
Cigarette consumption: USDA and MarketFile.
Youth prevalence and age of initiation: 1993 Indonesian Family Life Survey (IFLS).
Cigarette prices: MarketFile, and IMF, citing Statistik Indonesia (Government statistics).
Cigarette sales value: MarketFile
Monthly tobacco expenditures by income group: Statistik Indonesia
Tobacco leaf and cigarette trade data: FAO.
Employment data: UNIDO Industrial Statistics database.