

## A Public Health Priority: Curbing the Epidemic

Presented

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### Introduction:

Currently about 1.1 billion people smoke worldwide. By 2025, the number is expected to rise to more than 1.6 billion. In the high-income countries, smoking has been in overall decline for decades. In low- and middle-income countries, by contrast, cigarette consumption has been increasing. Based on 1995 estimates 72% of - 800 million- worlds' 1.1 billion smokers live in developing countries.

### Why is tobacco control a priority

- **1.1 billion smokers worldwide, 800 million in developing countries**
- **By 2030: 10 million deaths/year, and tobacco is likely to be the biggest cause of death worldwide**
- **Burden is shifting to developing world**
- **Globally, 80,000 to 100,000 youths start smoking every day**
- **Smokers do not know the health risks**
- **Tobacco is very addictive, its hard to quit**

Source: Curbing the Epidemic 1999

Until recently this epidemic of chronic disease and premature death mainly affected the rich countries. For example, since 1950, tobacco has killed more than 60 million people in developed countries. But , it is now rapidly shifting to the developing world. Tobacco was responsible for four million deaths in 2000. Both developed and developing countries shared the burden equally –2million deaths each-. But by 2030 tobacco will be responsible for ten million deaths per year- more than the total deaths from malaria, tuberculosis, maternal and major childhood conditions combined-, and 70% of these deaths will happen in the developing

world. Moreover, half a billion people now alive will be killed by tobacco products, and half of the deaths will happen prematurely.

Most smokers start young. In the high-income countries, about eight out of 10 begin in their teens. While most smokers in low- and middle-income countries start in the early twenties, the peak age of uptake in these countries is falling. Globally it is estimated that everyday 80,000 to 100,000 youth start smoking.

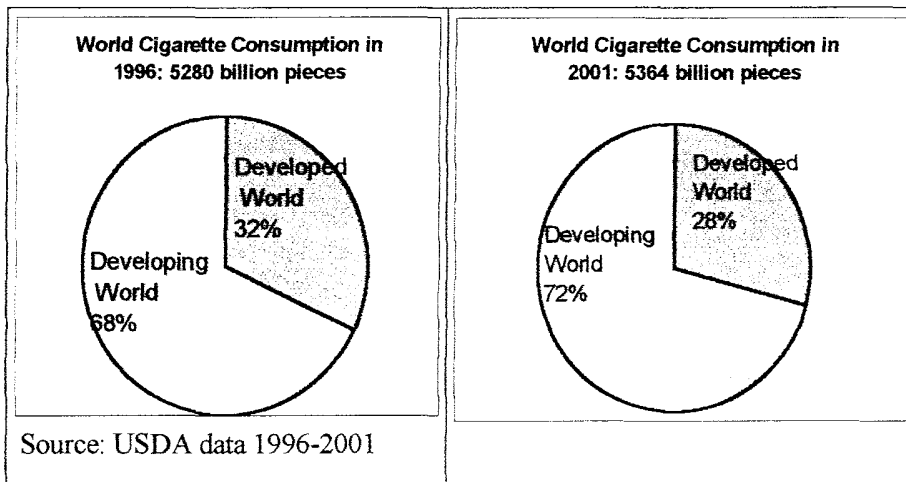
Smokers clearly perceive benefits from smoking, such as pleasure and the avoidance of withdrawal, and weigh these against the private costs of their choice. But there is evidence that many smokers are *not* fully aware of the high risks of disease and premature death from tobacco use. Tobacco is addictive and it is difficult to quit without help.

What can be done? Today we know what works and what does not. Increasing excises on tobacco products, banning tobacco advertising and promotion, restricting smoking in public and work places, informing smokers about the adverse health affects of tobacco use and second-hand smoking, and helping smokers who wish to quit smoking are the effective measures to reduce the deadly epidemic worldwide. These measures will be more effective when implemented simultaneously, in other words, comprehensive tobacco control measures work on reducing cigarette consumption and the epidemic.

#### **Consumption, disease burden and cost:**

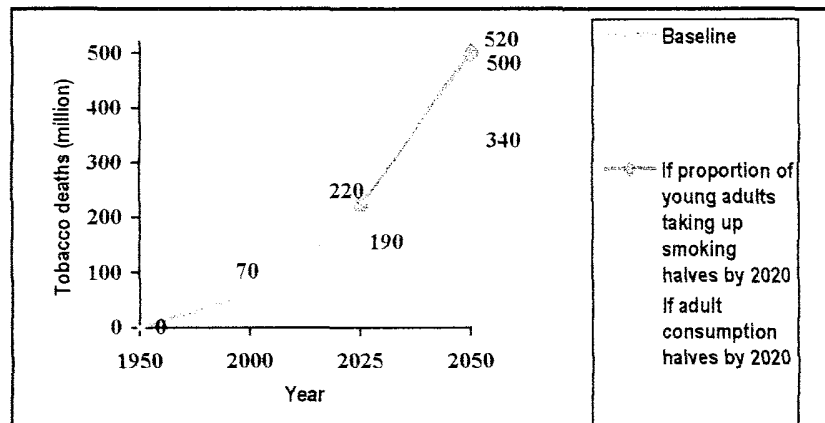
Cigarette consumption has increased slightly from 5280 billion pieces in 1996 to 5364 billion in 2001. In 1996, developing and developed world smoked 68% and 32% of global consumption respectively. In 2001, 72% of world consumption of cigarettes smoked in developing world while developed world smoked 28% of the world consumption (Graph 1).

**Graph 1: Cigarette Consumption**



Given higher cigarette consumption per smoker in developing countries, and the positive strong dose-response effect between the risk and the number of cigarettes smoked (Zheng-Ming Chen, Zhong Xu, et al. 1997)<sup>1</sup>, if the current smoking pattern persist and the current smokers won't quit smoking tobacco attributable deaths and diseases will raise dramatically over the next 50 years (Curbing 1999).

**Graph 2: Expected Smoking Related Deaths**



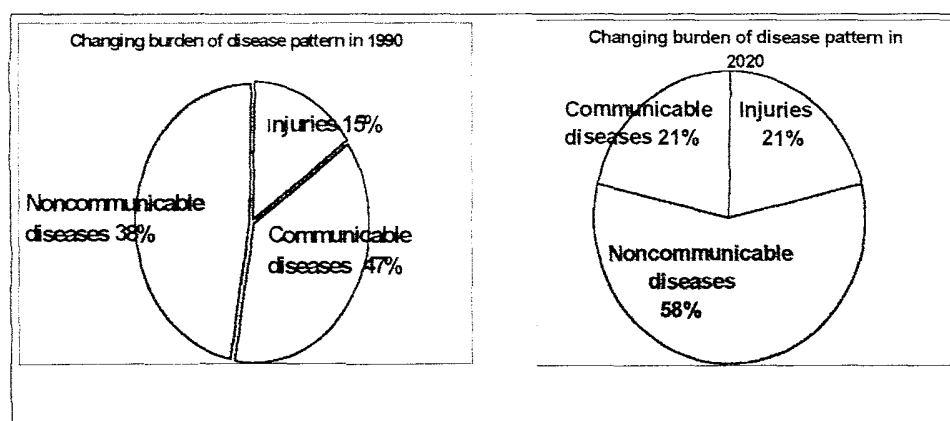
<sup>1</sup> Study also found a strong positive dose-response effect between the risk and the number of cigarettes smoked. For example, the study shows that in 1993, total cancer mortality rates per 100,000 persons were 231 for non-smokers, compared with 364 for those smoking 1-19 cigarettes daily and 478 for those smoking 20 or more cigarettes a day.

Source: Peto and others, 1994; Peto, *Curbing the Epidemic* 1999

For example, a 16 year prospective study by Zheng-Ming Chen, Zhong Xu, et al. 1997 of smoking and mortality in Shanghai compared the overall risk ratio among smokers and non-smokers, and found that risk ratio among smokers was 1.8 suggesting that about one third of all male cancer deaths were due to tobacco.

The burden of diseases will shift towards developing world. The World Bank document (1997) estimated that during the 1990-2020, developing countries will undergo major demographic and epidemiological transition, which significant increases developing countries share in the global burden of diseases. In 1990, global disease burden was estimated to be 1.4 billion DALYs lost. Of this burden, developing countries were accounted for 93% of the lost. The share of noncommunicable diseases (NCD) in the global burden of diseases will change dramatically and the increasing cigarette consumption will aggravate NCD especially in developing countries. For example, in 1990, disease burden for developed nations was 99 million DALYs, and the noncommunicable diseases were attributed to 81% of this burden. For developing nations, the disease burden was 1,280 million DALYs and noncommunicable diseases were responsible for only 38% of this burden. In 2020, this picture is expected to change dramatically. It is estimated that by 2020, the noncommunicable diseases, including cancer, hearth and lung diseases will be responsible for 38% of developed nations and 58% for the developing nations disease burden.

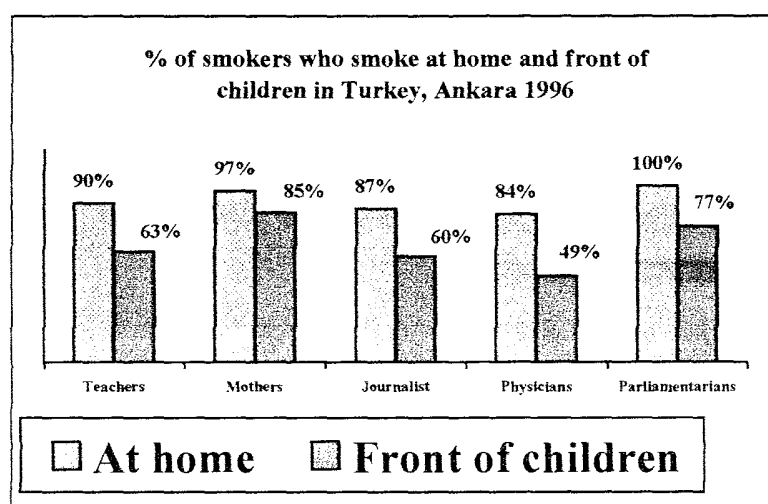
**Graph 3: Changing burden of disease pattern**



Source: *Innovations in Health Care Financing: Proceedings of a World Bank Conference, March 10-11, 1997. Edited By George J. Schieber*

Today, developing countries are also facing challenges of increasing prevalence rate among women and youth where the peak age of uptake on smoking is falling.

Although the women in developing countries are targeted heavily through alluring tobacco advertisements, they did not pick up smoking yet. But the women in developing countries still face the risks through second-hand smoke. Because male prevalence rate in most developing countries are high and surveys show that majority of smokers smoke at home front of their children and spouses. For example in Indonesia 95% of smokers (36 million out of 38 million smokers) said they smoke at home (National Health Survey 1995). Similarly majority of smokers said they smoke at home front of children in Turkey in 1996.

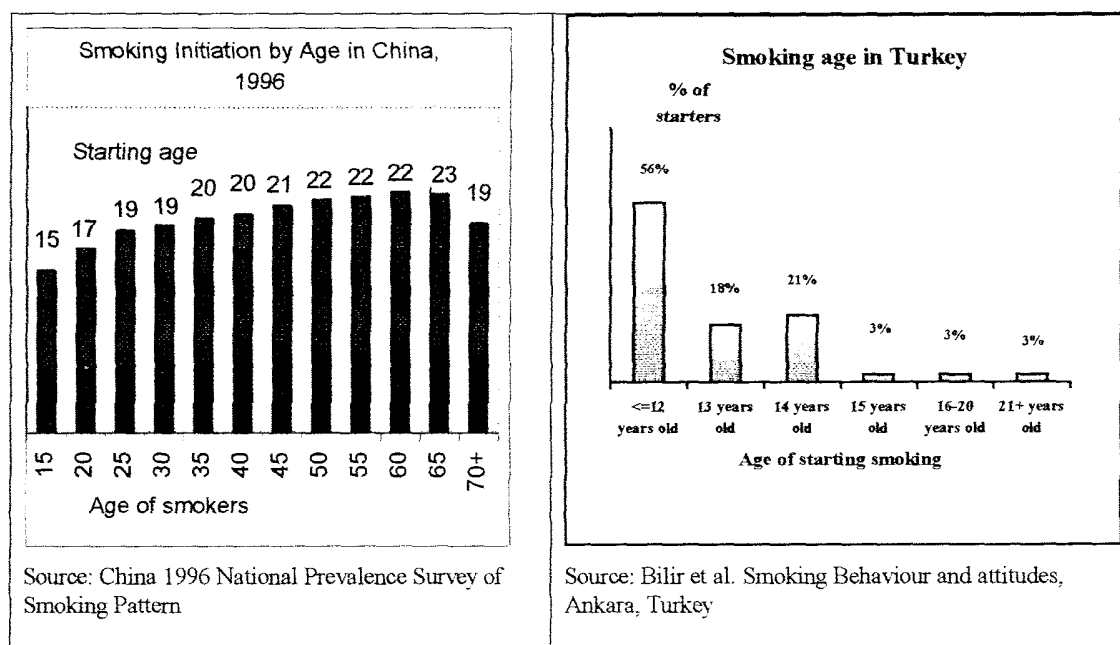


Source: Bilir et.al, 1997 Smoking behavior and attitudes, Ankara-Turkey

Evidence show that most smokers start young. In high-income countries, about eight out of ten begin smoking 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. Again when the Chinese smokers' initiation age is examined, today's young generation takes up smoking early ages when compared to older generation's initiation age of smoking. For example, in 1996, average starting age for smokers aged 15-20 was 17 but 40-45 years old smokers' initiation age was

21 and 60 to 65 years old smokers was 23 (World Bank 2001). Similarly, based on Bilir 1997 study in Turkey, smokers take up smoking less than 12 years of age.

**Graph 4: Smoking age in China and Turkey.**



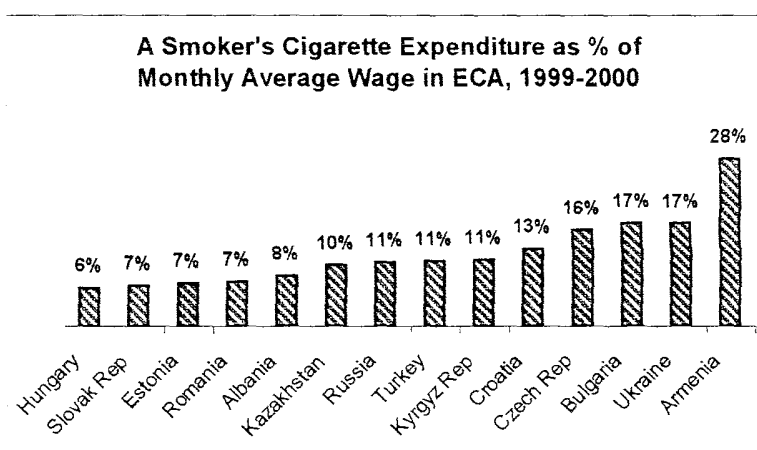
The consequences of early smoking age are the intensity of smoking, risks of getting cancer and addiction level. The Chinese study show that early starters tend to smoke more cigarettes and compared to non-smokers the risks of lung cancer were particularly large among men who had started before the age of 25 years and for those who smoked more than 20 cigarettes daily (Zheng-Ming Chen, Zhong Xu, et. al., 1997). The evidence from other countries show that smokers who start smoking early stages of life find it difficult to stop smoking when they wish to quit.

Evidence show that large numbers of smokers want to quit smoking and have tried at least once to quit. As the information spreads and more smokers became aware of adverse health impacts of smoking, evidence from developing countries such as in Indonesia and Turkey, show that the number of smokers want to quit or tried at least once to quit smoking (Toening et.al 2001, Onder 2002). But evidence show that the success of unaided smoking cessation is low in relative

terms, although it is the most common method used, especially in many developing countries. Nicotine replacement therapy (NRT) and other cessation interventions markedly increase the effectiveness of cessation efforts and also reduce individuals' withdrawal costs. Yet in many developing countries, smoking cessation help and NRT are difficult to obtain. Although, evidence shows that advice from health professionals to patients to quit can make a substantial difference, there is a clear need in many countries to reduce the number of smokers among health professionals themselves.

Smokers often do not realize that they pay twice for cigarettes. First with cash out of pocket, then later with their health or lives. Due to low cigarette prices, smokers often do not realize how much they pay for cigarettes out of their monthly or yearly income. Evidence show that on average, smokers spend significant amount of their monthly income on tobacco products. In Armenia a smoker spends on average 28% of his monthly income on cigarettes. In Ukraine a smoker spends 17% of his annual income on cigarettes. These are very high opportunity costs for smokers. Given the low income status of countries, it is a huge financial burden on families where 6% to 28% of smokers' monthly salaries are spent on tobacco. Most smokers do not realize the volume of these expenses. When smokers quit, they have more money in their wallets to spend on other family needs: healthy food, health care, education, etc.

**Graph: 5: Opportunity cost of tobacco use**



### **What could be done and what role the governments would play?**

Today we know what works and what does not. Millions of deaths and disease could be prevented with comprehensive tobacco control policies. Comprehensive policies would mean that if tobacco taxes were raised significantly, all tobacco advertising and promotions were banned, smoking was banned in public places including workplaces, hospitals and schools, people were well informed about the serious health risks from smoking, and when smokers who want to quit could get help.

Today, there is no doubt that government's intervention to tobacco market to reduce smoking is essential and justified. There are two clear economic rational for government's intervention. They are: (1) information failure: smokers are not fully informed about the adverse health consequences of and the addictive nature of the product- information failure; (2) market failure: tobacco use clearly creates negative externalities to non-smokers through second-hand smoke, and also through financial burden on non-smokers. In other words, when smokers consume tobacco with full information about its health consequences and addictive potential, and bear all costs and benefits of their choice themselves, there is no justification, on the grounds of inefficiency, for governments to interfere (Pekurinen 1991).

### **Governments' Action:**

Many governments have been afraid to interfere the market and 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.

#### Consequences of increasing taxes?

a. Public health

While success in reducing smoking depends on a range of inter-related factors, increasing the tax (price) of cigarettes is one of the most effective ways of reducing consumption. Higher taxes will reduce the cigarette consumption and will improve the public health. Economic studies show that higher cigarette prices lead cause many smokers to quit, reduce consumption or switch to cheaper brands. Based on evidence, a 10% increase in price would reduce the cigarette consumption by 4% in developed and 8% in developing countries (Curbing 1999).

People with low incomes – including young people are more sensitive to higher prices. Most smokers take up the habit before they are 20. This means any strategy to reduce smoking must include measures to deter young people. Higher prices do not only reduce the cigarette consumption among young people but also deter them from starting to smoke. This results in lower addiction now and easier quitting, lower prevalence later, better health outcomes later and lower health care costs in the future. Higher tax rates raise prices, so tax policy is an important part of any effective strategy to reduce smoking.

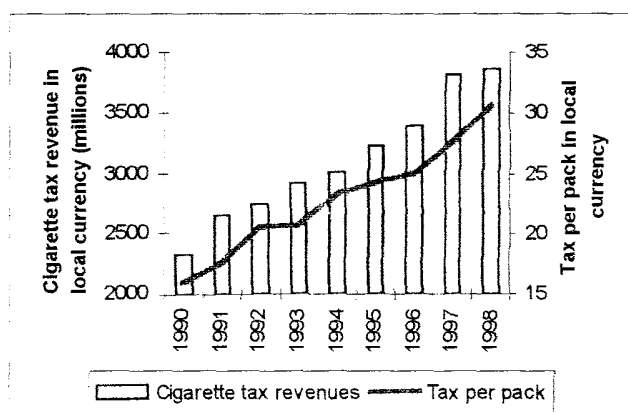
The consequences of higher taxes do not only effect the public health but also other stakeholders especially the government officials. Ministry of Finance (MOF) worries that higher taxes mean lower revenues. Ministry of Labor (MOL) and Ministry of Agriculture (MOA) worry that higher takes may lead to lower employment in agriculture and industry. And the most common argument is that higher taxes will motivate smuggling activities.

#### b. Government revenues

The biggest concern, especially raised by the Ministry of Finance (MOF) in many countries is the impact of higher taxes on government revenues. The MOF worries that due to negative relationship between taxes and the consumption, as the taxes increases, consumption will decrease and the government will receive lower revenues. Moreover, Tax and Customs Administration worries that higher taxes may generate more smuggling activities and as a result, the government will lose revenues. Historically, higher tobacco taxes always generated good revenues for governments. This is still the case even if smuggling increases. Currently in many developing countries, average price of a pack of cigarette prices and the tax share in

the price are lower when compared to most developed countries level of price and tax share. Therefore, given the inelastic price elasticity in many countries, there exist no country that increased tobacco excises and raised less revenues as a result of smuggling or lower consumption. Norway and Indonesia are the two countries from developed and developing countries where the government enjoys higher revenues by increasing tobacco taxes.

**Graph: 6: As Cigarette Tax Rises, Revenue Increases:  
Tax per pack and cigarette tax revenues in Norway, 1990-1998** Source:



World Bank 1999

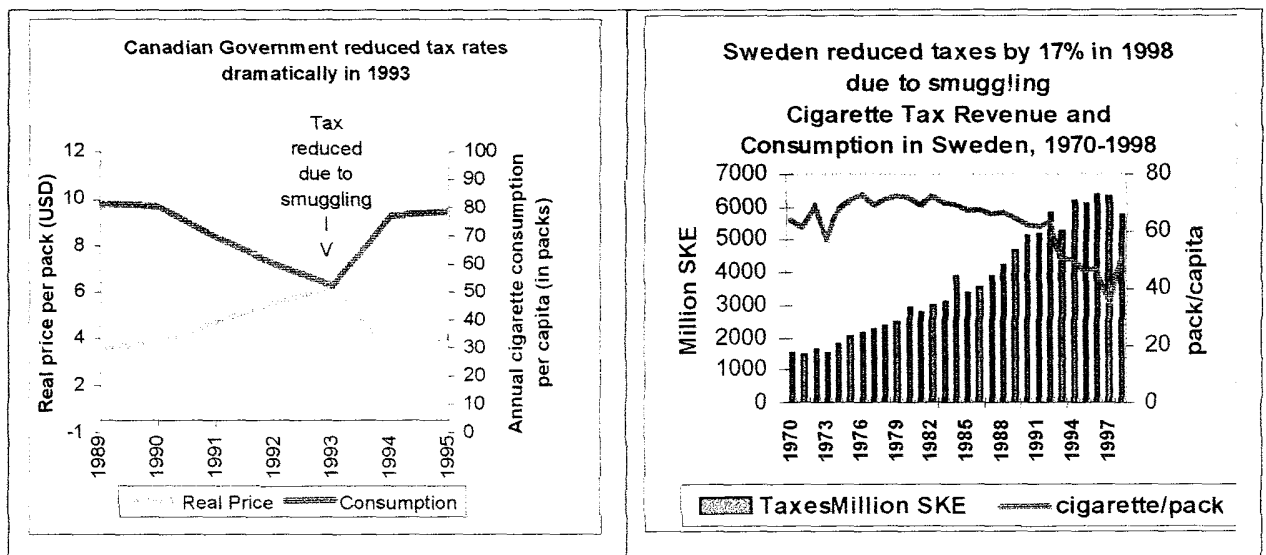
### c. Smuggling

Smuggling is the most common argument against raising tobacco taxes. Although higher taxes provide an incentive but taxes are by no means the whole story, or even the most important factor in smuggling. In other words, it is not JUST high taxes or high tax differentials that lead to smuggling. The overall level of corruption is at least as important a factor in predicting how much smuggling of cigarettes there is in a country. On one hand, countries with the lowest tax rate in the globe such as Moldova face huge smuggling problem. On the other hand, countries in Northern Europe such as Finland, Norway where the tax rates are among the highest in the globe have insignificant smuggling problem.

One often hears that taxes are to blame for smuggling, and some governments have been persuaded that if only taxes were not so high, smuggling would fall. In Canada, smuggling became a major issue. So in 1993, the Canadian

government reduced the rate of tobacco tax. [ smuggling did decline, but there are many other factors, and we might just mention that the Canadian Government has taken some tobacco companies to court, arguing that they have had a major role in smuggling] But there were 2 very negative results of the REDUCTION in tobacco taxes – total revenues fell and total consumption rose dramatically – especially among young people.

In 1998 Sweden also reduced its (very high) tax rates, hoping that smuggling would fall and revenues would rise. But in 1998 which was one of the few years in which revenues fell, despite the big jump in consumption – also a result of the price fall that year. We don't know what happened to smuggling, because for obvious reasons there are no hard data on smuggling, but given the fall in revenues, we can deduce that it did not fall.



Source: Curbing the Epidemic 1999, World Bank estimations 1999.

And these are not the only countries. Almost every time tobacco tax increases begin to be discussed, someone argues that higher taxes will cause an increase in smuggling. And coincidentally, smuggling often increases even before a decision is taken. Is this a coincidence – or is someone with a strong vested interest trying to make a very strong point? It is worth mentioning that there are quite a number of court cases, most recent one is in EU, in which tobacco companies are accused of involvement in smuggling.

#### d. Poor smokers

Evidence show that in many countries, the prevalence rate among poor is higher, but the intensity of smoking is lower, such as in Turkey and Indonesia (Onder 2002, Toening 2001). In Indonesia, household with low-income group consumed 3.91 packs per month, the middle income group consumed 6.2 packs and the highest income group consumed 7.83 packs in 1999. Due to limited income, poor is more sensitive to higher taxes. Indonesian study shows that a 10 percent increase in tax would increase the price of cigarette by 4.7 percent for the low-income group, by 5.8 percent for middle-income group and by 5.5 percent for the highest income group.

Overall price elasticity in developing countries is much higher –varying  $-0.5$  to  $-1$ - than the price elasticity in developed countries. When the price elasticity is examined by income groups, poor smokers have higher price elasticity than the rich smokers. For example in Indonesia, the price elasticity for the low income group was  $-0.66$ , for middle income group was  $-0.37$  and for the high income group was  $-0.41$  in 1999. Based on these results, a 10 percent increase in price will reduce the cigarette consumption by 7 percent among poor households.

Many argue that increasing taxes will put higher burden on poor since they will spend higher percentage of their income on cigarettes by spending less on food and other necessary goods. Evidence show that poor already spent higher percentage of their income on cigarettes. For example, in Indonesia (Toening et.al., 2001), low-income group spent 7.2 percent of their average monthly income- Rp. 621,850-, middle-income spent 5.53 percent of their Rp.1,303,384 average monthly income and high-level spent 3 percent of their Rp. 2,917,578 average income for cigarettes in 1999. Given the substantial health and financial benefits of quitting or reducing smoking, millions of premature tobacco related deaths could be averted and significant amount of household income could be spent on other goods and services by large increases in cigarette and other tobacco taxes.

#### Recommendations

Governments can control the tobacco epidemic with sound economic and health policies by adopting a comprehensive set of proven measures, tailored to each country. Implementing and enforcing are as important as the adopting these policies. In recent years, more countries adopting tobacco control measures, but due to lack of implementation or poor enforcing, these policies are easily abused and not being effective. Evidence show that children and poor responds to higher taxes. Increasing taxes, not only reduce consumption among youth but also deter them taking up smoking. Women today is as vulnerable as the youth in developing countries. Increasing female work force changes the traditional position of women in developing countries and we observe increasing cigarette consumption among them. Moreover, women and children are exposed to second hand smoke especially in their homes because most smokers smoke at home.

Besides preventive measures, governments also have responsibility to help current smokers who wish to quit smoking. Due to addictive nature of smoking, it is difficult to quit without getting help. Health professionals' advice on smokers to quit smoking supported by nicotine replacement therapies increase the quitting rates and help smokers to remain smoke-free. The challenge in developing countries is that many health professionals are also smokers. Given the low access to physicians and other health care workers, poor availability and affordability conditions of nicotine replacement therapies including NRTs, and low community support on quitters, many developing countries face strong challenges to find ways to increase smoking cessation by helping smokers to quit and encouraging them to remain smoke-free.

#### **References:**

1. Curbing the Epidemic: Governements and the Economics of Tobacco Control, WB report edited by Prabhat Jha and Frank Chaloupka. 1999.
2. Onder Zeynep: Demand for tobacco in Turkey. An empirical analysis, 2002
3. Sri Toening et.al : Demand for tobacco in Indonesia. An empirical analysis 2001.

4. Bilir et al. Smoking Behaviour and attitudes, Ankara, Turkey, 1997.
5. Zheng-Ming Chen, Zhong Xu, Rory Collings, Wan-Xian Li, Richard Peto. Early Health Effects of the Emerging Tobacco Epidemic in China: a 16 year prospective study, JAMA, November 12, 1997, Vol. 278, No. 18.
6. Chinese Academy of Preventive medicine, et al. Smoking and Health in China: 1996 National Prevalence Survey of Smoking Patterns. Beijing: China Science and Technology Press, 1997.
7. Pekurinen, M. 1991. *Economic Aspects of Smoking: Is There a Case for Government Intervention in Finland?* Helsinki: Vapok-Publishing.