Public Disclosure Authorized

33984

H N P D I S C U S S I O N P A P E R

Economics of Tobacco Control Paper No. 31

Study on Poverty Alleviation and Tobacco Control in Myanmar

Nyo Nyo Kyaing, Anne-Marie Perucic and Khalilur Rahman

Co-Researchers: San Shway Wynn, Ko Ko Naing, Kyaw Zeya, Kyaw Khaing, Nyi Nyi Latt and Maung Maung Than Hteik

September 2005

Tobacco Free Initiative
World Health Organization

HNP
HEALTH, NUTRITION, AND POPULATION
THE WORLD BANK

STUDY ON POVERTY ALLEVIATION AND TOBACCO CONTROL IN MYANMAR

Nyo Nyo Kyaing
Anne-Marie Perucic
Khalilur Rahman

Co-researchers

San Shway Wynn
Ko Ko Naing
Kyaw Zeya
Kyaw Khaing
Nyi Nyi Latt
Maung Maung Than Hteik

August 2005

Health, Nutrition and Population (HNP) Discussion Paper

This series is produced by the Health, Nutrition, and Population Family (HNP) of the World Bank's Human Development Network (HNP Discussion Paper). The papers in this series aim to provide a vehicle for publishing preliminary and unpolished results on HNP topics to encourage discussion and debate. The findings, interpretations, and conclusions expressed in this paper are entirely those of the author(s) and should not be attributed in any manner to the World Bank, to its affiliated organizations or to members of its Board of Executive Directors or the countries they represent. Citation and the use of material presented in this series should take into account this provisional character. For free copies of papers in this series please contact the individual authors whose name appears on the paper.

Enquiries about the series and submissions should be made directly to the Editor. Submissions should have been previously reviewed and cleared by the sponsoring department, which will bear the cost of publication. No additional reviews will be undertaken after submission. The sponsoring department and authors bear full responsibility for the quality of the technical contents and presentation of material in the series.

Since the material will be published as presented, authors should submit an electronic copy in a predefined format (available at www.worldbank.org/hnppublications on the Guide for Authors page). Rough drafts that do not meet minimum presentational standards may be returned to authors for more work before being accepted.

The Editor of this series is Rama Lakshminarayanan (rlakshminarayanan@worldbank.org). For information regarding this and other World Bank publications, please contact the HNP Advisory Services (healthpop@worldbank.org) at: Tel (202) 473-2256; and Fax (202) 522-3234.

The **Economics of Tobacco Control** sub-series is produced jointly with the Tobacco Free Initiative of the World Health Organization. The findings, interpretations, and conclusions expressed in this paper are entirely those of the author/s and should not be attributed in any manner to the World Health Organization or to the World Bank, their affiliated organizations or to members of their Executive Boards or the countries they represent.

The editors for the Economics of Tobacco Control papers are: Joy de Beyer (jdebeyer@worldbank.org) Anne-Marie Perucic (perucica@who.int) and Ayda Yurekli (ayda.yurekli@gmail.com).

For free copies of papers in this series please contact the individual author whose name appears on the paper, or one of the editors. Papers are posted on the publications pages of these websites: www.worldbank.org/hnp and www.worldbank.org/tobacco

© 2005 The International Bank for Reconstruction and Development / The World Bank
1818 H Street, NW
Washington, DC 20433

All rights reserved.

Health, Nutrition and Population (HNP) Discussion Paper

ECONOMICS OF TOBACCO CONTROL PAPER NO. 31

STUDY ON POVERTY ALLEVIATION AND TOBACCO CONTROL IN MYANMAR

Nyo Nyo Kyaing [a], Anne-Marie Perucic [b], Khalilur Rahman [c]

Co-researchers: San Shway Wynn[d], Ko Ko Naing [e], Kyaw Zeya [f], Kyaw Khaing [f], Nyi Nyi Latt [f], Maung Maung Than Hteik [f]

[a] Deputy Director (Primary Health Care), Department of Health, Ministry of Health, Myanmar
[b] Economist, TFI, WHO HQ.
[c] Regional TFI Coordinator, WHO SEARO.
[d] Director (Public Health), Department of Health, Ministry of Health, Myanmar
[e] Assistant Director (International Health Division), Ministry of Health, Myanmar.
[f] Medical Officers, Department of Health, Ministry of Health, Myanmar.

Abstract: The paper looks at tobacco consumption among low-income groups and assesses the level of tobacco-related expenditure among households using tobacco and the opportunity cost of their tobacco expenditure. A survey among tobacco users from low-income groups was conducted to collect data for the analysis. The survey found that households consuming tobacco were spending many times more on tobacco than on health, education and necessities such as clothing and shelter. Tobacco expenditure as a percentage of income was highest among the lowest income groups. The price elasticity estimation results showed a clear negative relationship between prices of tobacco products and their consumption confirming that an increase in prices would efficiently reduce tobacco use.

Keywords: Myanmar, tobacco, poverty, cheroots, price elasticity.

Disclaimer: The findings, interpretations and conclusions expressed in the paper are entirely those of the author, and do not represent the views of the World Bank or the World Health Organization, their Executive Directors, or the countries they represent.

Correspondence Details: Dr. Nyo Nyo Kyaing, Deputy Director (Primary Health Care), Department of Health, 36-Theinbyu Road, Yangon, Telephone: 095-245659, Fax:095-1-379016, email-nyonyok@myanmar.com.mm

Table of Contents

PREFACE vii
ACKNOWLEDGMENTS ix
Background information 1
Introduction 1
General information about Myanmar 2
Background information on the tobacco industry and prevalence of tobacco use in Myanmar 3
Objectives and design of the study 4
SURVEY FINDINGS 7
Socio-demographic characteristics of sample population 7
General characteristics of the sample population 7
Education status of the sample population 7
Occupation of the sample population 8
Income of the sample population 9
Tobacco use of sample population 10
(A) Use of smoked tobacco products 10
(B) Use of smokeless tobacco products 15
Expenditures on tobacco by the sample population 19
Expenditures on tobacco as a percentage of income 19
Expenditure on tobacco within income groups 20
Tobacco versus food 21
Knowledge and attitude of sample population towards hazards of tobacco 22
Conclusion 23
ESTIMATION OF PRICE ELASTICITIES 24
Results 25
Smoked products 26
Smokeless products 28
Conclusion 28
INSIGHTS FROM IN-DEPTH INTERVIEWS OF CURRENT TOBACCO USERS 30
Findings 30
Profile of respondents 30
Initiation of tobacco use 30
Pattern of tobacco use 32
Awareness, knowledge and perception of health effects of tobacco 33
Conclusion 39
RECOMMENDATIONS 40
REFERENCES 43
Annex 1 45
Survey questionnaire 45
Annex 2 48
Outline of In-depth Interviews 48
Annex 3 49
The Durbin-Wu Hausman endogeneity test 49

List of Tables

Table 1: Distribution by region and sex 7
Table 2: Percent distribution by region and education 7
Table 3: Percent distribution by region and occupation 8
Table 4: Percent distribution by region and current smoker 10
Table 5: Factors motivating to start smoking among current smokers 11
Table 6: Percent distribution of brands of smoking tobacco products 12
Table 7: Percent distribution of smokers per family 15
Table 8: Percent distribution by region and smokeless tobacco user 16
Table 9: Factors motivating to start using smokeless tobacco 16
Table 10: Percent distribution of types of smokeless tobacco used among users 17
Table 11: Tobacco expenditure as percentage of income of respondents 19
Table 12: Percent distribution of smokeless tobacco users per family 20
Table 13: Family Expenditure 21
Table 14: Percentage of respondents with knowledge on diseases attributable to smoking 22
Table 15: Percentage of respondents with knowledge on diseases attributable to smokeless tobacco use 22
Table 16: Percentage of respondents who thought that smoking should be banned in pubic places 22
Table 17: Conditional price elasticity of demand for cheroots 27
Table 18: Conditional price elasticity of demand of cigarettes 27
Table 19: Conditional price elasticity of demand of cigarettes and cheroots 28
Table 20: Conditional price elasticity of demand of smokeless tobacco products 28

List of Figures

Figure 1: Percent distribution of respondents by education groups 8
Figure 2: Percent distribution of respondents by occupation group 9
Figure 3 : Percent distribution of income groups (daily income) 9
Figure 4: Distribution of types of smoked tobacco products among current smokers 12
Figure 5: Percent distribution of types of smoked tobacco products and level of education among current smokers 13
Figure 6: Percent distribution of types of smoked tobacco products within occupation groups 14
Figure 7: Percent distribution of types of smoking tobacco products within income groups 15
Figure 8: Percent distribution of types of smokeless tobacco products within education groups 18
Figure 9: Percent distribution of types of smokeless tobacco products within occupation groups 18
Figure 10: Percent distribution of types of smokeless tobacco products within income groups 19
Figure 11: Daily expenditure on tobacco as % of daily income within income groups 20

PREFACE

In 1999, the World Bank published "Curbing the Epidemic: governments and the economics of tobacco control", which summarizes trends in global tobacco use and the resulting immense and growing burden of disease and premature death. In 2000, there were nearly 5 million deaths from tobacco each year, and this huge number is projected to grow to 10 million per year by 2030, given present consumption trends. Already about half of these deaths are in high-income countries, but recent and continued increases in tobacco use in the developing world is causing the tobacco-related burden to shift increasingly to low- and middle-income countries. By 2030, seven of every ten tobacco-attributable deaths will be in developing countries.

"Curbing the Epidemic" also summarizes the evidence on the set of policies and interventions that have proved to be effective and cost-effective in reducing tobacco use, in countries around the world. Tax increases that raise the price of tobacco products are the most powerful policy tool to reduce tobacco use, and the single most cost-effective intervention. They are also the most effective intervention to persuade young people to quit or not to start smoking. This is because young people, like others with low incomes, tend to be highly sensitive to price increases.

Why are these proven cost effective tobacco control measures –especially tax increases– not adopted or implemented more strongly by governments? Many governments hesitate to act decisively to reduce tobacco use, because they fear that tax increases and other tobacco control measures might harm the economy, by reducing the economic benefits their country gains from growing, processing, manufacturing, exporting and taxing tobacco. The argument that "tobacco contributes revenues, jobs and incomes" is a formidable barrier to tobacco control in many countries. Are these fears supported by the facts?

In fact, these fears turn out to be largely unfounded, when the data and evidence on the economics of tobacco and tobacco control are examined. The team of about 30 internationally recognized experts in economics, epidemiology and other relevant disciplines who contributed to the analysis presented in "Curbing the Epidemic" reviewed a large body of existing evidence, and concluded strongly that in most countries, tobacco control would not lead to a net loss of jobs and could, in many circumstances actually generate new jobs. Tax increases would increase (not decrease) total tax revenues, even if cigarette smuggling increased to some extent. Furthermore, the evidence shows that cigarette smuggling is caused at least as much by general corruption as by high tobacco product tax and price differentials, and the team recommended strongly that governments not forego the benefits of tobacco tax increases because they feared the possible impact on smuggling, but rather act to deter, detect and punish smuggling.

Much of the evidence presented and summarized in "Curbing the Epidemic" was from high-income countries. But the main battleground against tobacco use is now in low- and middle-incomes countries. If needless disease and millions of premature deaths are to be

prevented, then it is crucial that developing counties raise tobacco taxes, introduce comprehensive bans on all advertising and promotion of tobacco products, ban smoking in public places, inform their citizens well about the harm that tobacco causes and the benefits of quitting, and provide advice and support to help people who smoke and chew tobacco, to quit.

In talking to policy-makers in developing countries, it became clear that there was a great need for country-specific analytic work, to provide a basis for policy making, within a sound economic framework. So the World Bank and the Tobacco Free Initiative of the World Health Organization (as well as some of the WHO regional offices and several other organizations, acting in partnership or independently) began to commission and support analysis of the economics of tobacco and tobacco control in many countries around the world.

The report presented in this Economics of Tobacco Discussion Paper makes a valuable contribution to our understanding of the issues and likely economic impact of tobacco control in a specific country setting. Our hope is that the information, analysis and recommendations will prove helpful to policy makers, help result in stronger policies to reduce the unnecessary harm caused by tobacco use.

Joy de Beyer

Tobacco Control Coordinator
Health, Nutrition and Population
World Bank

ACKNOWLEDGMENTS

The authors would like to express their deepest gratitude to the Tobacco Free Initiative, the World Health Organization and the WHO Regional Office for South-East Asia, for the technical and financial support for this study, and to the Ministry of Health of Myanmar for giving permission to conduct this study.

Our heartfelt thanks go to the Director General, Deputy Directors General and Director of Public Health of the Department of Health for their guidance and support. We are most grateful to the Township Medical officers of the survey townships and to the data collection team for their collaborated efforts in conducting the survey. We are also indebted to the basic health personnel of the survey sites for their assistance in the in-depth interviews.

Many thanks go to the International Health Division of the Ministry of Health and the WHO country office in Myanmar for facilitating the process to conduct this study.

Thanks are also due to everyone who had helped to conduct the dissemination workshop held at Grand Plaza Park Royal Hotel on the 10th of May, 2004 for their dedication and commitment towards poverty alleviation and tobacco control in Myanmar.

The authors are also grateful to the World Bank for publishing the report as an HNP Discussion Paper.

BACKGROUND INFORMATION

Introduction

Many studies conducted in the area of tobacco use reveal that poor and uneducated people are more likely to use tobacco in various forms than people with higher incomes and more education. Research findings from developing and developed countries suggest that tobacco use may be a major contributor to poverty. Expenditures on tobacco products as a percentage of total expenditures are often significant for low income groups, diverting money that could be spent instead on nutrition, health and education. Tobacco use has been found to contribute to malnutrition in countries such as Bangladesh and India.

In Myanmar, the household survey on tobacco economics found a mean yearly expenditure on tobacco of 2.7% of total household expenditure overall, 3.3% of total expenditures for urban households and 2.5% for rural households. However, these figures average tobacco expenditures over all households, including households that buy no tobacco products at all. If the analysis had looked only at households whose members use tobacco products, the percentages would be much higher – nearly twice as high. [1]

Although the actual expenditures for tobacco were lower in absolute terms for low income groups, who have less money to spare for non-food expenditure, the percentage of household expenditure on tobacco was relatively higher for lower income groups, which showed that tobacco was a burden on the poor and the under privileged. Betel chewing was practiced by nearly one fifth of the adult population and the expenditure for betel chewing has not previously been studied properly. Some tobacco users smoke as well as chew betel quid; expenditures for smoking plus betel chewing could be quite high for these users.

The Study on Tobacco Economics in Myanmar found a huge decline in real tobacco prices in Myanmar in recent decades. This most certainly increased consumption and thus the burden of disease and death toll related to tobacco use. Higher prices for tobacco products are the most effective way to reduce consumption. Estimates for Myanmar show a very high sensitivity to price changes; an increase of 10% in the price of tobacco products would decrease consumption by about 16%. The most price sensitive groups would be young people and low-income groups. [1]

Despite advocacy campaigns for higher tobacco prices, raising taxes on cheroots and betel quid with tobacco has never been considered seriously by policy makers. Evidence based arguments are much needed to advocate to decision makers to raise the tax levied on tobacco products. It is also required to inform decision makers about the burden that tobacco use imposes on the poor and the contribution of tobacco use to malnutrition and ill health.

This study was conducted in early 2004, and a background paper written for the Workshop on Tobacco Control and Poverty which was conducted on the 10th of May 2004 in commemoration of World No-Tobacco Day 2004, the theme of which was "Tobacco and Poverty: A vicious circle". The study was conducted with support from the World Health Organization.

General information about Myanmar

The Union of Myanmar is located in South–East Asia with Thailand and Laos in the east, China in the north and northeast, India in the northwest and Bangladesh in the west.

The estimated population was 53.4 million in 2004. More than 70% of the population resides in rural areas. The remaining 30% are urban dwellers. The annual population growth rate is 2.02%. The population is diverse with more than 135 ethnic groups speaking a variety of languages.

According to the UNDP Human Development Report 2001, the GDP per capita was US$1027 in the year 2000. The same report estimated the Human Development Index of Myanmar as 0.55. [2] The Human Development Index (HDI) is a summary statistic based on life expectancy, literacy rates and GDP per capita. In the Human Development Report 2000, countries with HDI value equal to or more than 0.800 were in the high human development category, countries with HDI values of 0.55 to 0.790 were in the medium human development category and countries with HDI values of less than 0.55 were in the low human development category. [3] In 1999, Myanmar was in the medium HDI category along with Thailand, Sri Lanka, Indonesia, Maldives and India whereas Nepal, Bangladesh and Bhutan were categorized in the low development category. [2.3]

UNDP developed a new index called the "Human Poverty Index" (HPI) in order to measure multi-dimensional aspects of poverty. The HPI is derived from the same social development dimensions used for calculating the Human Development Index (longevity, literacy and living standard) but uses different measures. It focuses on deprivations in three dimensions: longevity as measured by the probability of not surviving to age 40, literacy as measured by the adult literacy rate; and living standards as measured by the percentage of people not using improved water sources and the percentage of children who are underweight. The HPI for Myanmar was estimated as 28.0 in the year 2000. [2] The HPI ranking in 2000 showed Thailand as 21, Sri Lanka as 31, Maldives as 25, Myanmar as 43, India as 55, Bangladesh as 73 and Nepal as 77 among 90 developing countries. [2]

The Household Income and Expenditure Survey was conduced in 2001 to measure the incidence of poverty in Myanmar. The estimated poverty rate was 20.7 percent for urban, 28.4 percent for rural and 26.6 percent for the union. The poverty gap ratio was 6.8 percent. [4]

Background information on the tobacco industry and prevalence of tobacco use in Myanmar

The tobacco industry in Myanmar mainly comprises factories and cottage industries that produce cheroots. Cheroots are the most common type of tobacco products used in Myanmar. To make cheroots, Myanmar tobacco leaves are sun-cured and ground; their stems are baked and chopped; and these are mixed with tamarind, jaggery and a few other materials and wrapped with *sebastan* leaves. All cheroots are hand-rolled; they are either produced by cottage industries or rolled by the users themselves (referred to as hand-rolled cheroots in this report). A variety of leaves such as corn-husk and palm leaves are used to wrap the hand-rolled cheroots. A smaller form of cheroot wrapped in paper is known as "*putchun*".

Most of the cheroot industries hire women who take the material to their homes to roll. These women are paid per 1000 cheroots rolled and the majority of them are not officially registered as employees. It is estimated that they make up approximately 60% of the workforce engaged in the tobacco industry. [5]

There are two state owned cigarette factories, one in Yangon and the other in Pakokku, which employed 1690 people in 2000. There is no information in public sources on people employed in private domestic companies. Production of cigarettes by these factories has fluctuated considerably. With the introduction of foreign brands at cheaper prices, cigarettes produced by the state-owned factories have become less popular during the past few years. [5]

Several surveys with limited coverage provide smoking prevalence data, but there is no nationally representative survey. In a cross-sectional cardiovascular disease survey of adults within the urban and rural areas of Yangon division, carried out in 1989–90, a subgroup analysis of 2,611 persons included in the sample population (1,195 in urban areas and 1,416 in rural areas) showed that the overall prevalence of smoking in urban areas was 58% and 59% in rural areas. Among the urban population, 74% of the males and 46% of the females smoked. In the rural study population, 68% of males and 55% of females were smokers. [6]

In 1999, a study on smoking prevalence was conducted on 23,975 persons residing in 4,800 households in 29 townships of three Divisions (provinces) of Myanmar. The overall community prevalence of smoking was found to be over 30%, the prevalence among males being 50% and among females being a little below 9%. When smoking was differentiated by sex among adults over 14 years of age, 64% of males and 11% of females were reported to be smokers. [7]

Surveys conducted in 2001 for the Study on Tobacco Economics in Myanmar and the Myanmar Sentinel Tobacco Use Prevalence Study recorded prevalence rates for males of 31% and 43% respectively. Survey findings for female prevalence differ even more widely, ranging from 7% to 50%. Most surveys reported female prevalence around 20%. According to these reports, the majority of women smokers were from rural areas. [1,5]

The Sentinel Prevalence Study reported that among current smokers, 73% smoked cheroots, 17% smoked hand-rolled cheroots, 7% smoked cigarettes, 3% smoked cigars and 0.2% smoked pipes. [5]

Cigarette smoking was only reported by 3% of the population above 15 years of age and was higher in urban areas and among males. Cigar and pipe smoking was mostly reported by people aged 55 years or older, and these products were vanishing from the society. [5]

The household survey on tobacco economics reported that cheroots were most commonly used in both urban and rural areas, followed by home-rolled tobacco. Cheroot and hand-rolled cheroot smoking decreased with higher levels of education whereas cigarette smoking increased with level of education. [2]

Use of smokeless tobacco is also common in Myanmar. The Sentinel Prevalence Study reported prevalence of current smokeless tobacco as 15% of the population above 15 years of age, 24% of males and 8% of females. According to this survey, among current tobacco users, two thirds reported smoking and one third reported chewing. Among chewers most chewed tobacco with betel and only a small percent chewed raw tobacco. Smoking of cheroots and use of smokeless tobacco products is most commonly reported among the low income group and low education group. [3]

Objectives and design of the study

General Objective:

To identify the extent to which tobacco control measures could help to alleviate poverty.

Specific Objectives:

1. To explore the extent of tobacco consumption among low-income groups.
2. To assess the level of tobacco-related expenditure among households using tobacco.
3. To analyze the opportunity cost of tobacco expenditure of these groups, that is, the potential purchases of basic necessities such as food, health and education that could be made with the money spent on tobacco; to identify the amount of money spent on tobacco compared to spending on basic needs among marginal groups in peri-urban areas of Yangon and Mandalay and in rural areas of four townships representing four regions of the country, and conduct in-depth interviews on perceptions, knowledge and experiences regarding tobacco use.

Study design

There were three components to the methodology:

(a) Survey
A survey of low-income groups was conducted in peri-urban communities of Yangon (Thaketa) and Mandalay (Mahar Aung Myay) and four townships representing four

regions of the country: Dawai of coastal region, Myitkyina of hilly region, Pathein of Delta region and Pyi of central plain. The survey covered two metropolitan areas and four regions, but was not nationally representative.

In deciding on the sample size, prevalence of tobacco use was assumed to be 50% of the population as there were no national data on prevalence.

$$n = p(1-p)(Z_\alpha / \alpha)^2$$

{ where $p = 0.5$, $1-p = 0.5$, $\alpha = 0.05$ and Z_α for $\alpha = 0.05$ is 1.96 }

$$n = 0.5(0.5)(1.96 / 0.05)^2$$

$$= 384.16 \ (\sim 400)$$

Thus sample size was determined as 400 persons for each survey area. Sampling was conducted as follows: at each and every township of the country there were basic health personnel such as health assistants, lady health visitors, midwives and public health supervisors who have a complete list of households in their responsible area. Generally, a midwife or a supervisor has to take care of 4000 people, approximately 1000 households. They have detailed lists of infants, children, women of child bearing age, eligible couples etc to carry out their duties such as immunization, maternal and child health care, birth spacing, environmental health. They also have detailed records of heads of households and members of the households by occupation. From their list of households, stratification was done to select households belonging to the required study population of low income-groups which includes trishaw drivers, truck and bus drivers, manual laborers, small scale retailers, farmers and persons earning daily wages. Random sampling was done from this set of occupation groups; from those randomly sampled, only current tobacco users were selected to be interviewed.

A structured questionnaire was pre-tested in Dawpone township of Yangon Division among current tobacco users from low-income groups. The questionnaire was modified after testing and used to interview respondents of the six townships. About 400 tobacco users were interviewed at each survey township. A total of 2,414 tobacco users were interviewed from six townships during the survey.

The survey questionnaire included daily and monthly income, daily and monthly expenditure on food and non-food items, daily and monthly expenditure on tobacco products, tobacco use and knowledge about health effects of tobacco use (see Annex 1). In-depth interviews were also conducted on 5 persons in each area, totaling 30 persons. All the respondents were current tobacco users. (See Annex 2 for the outline of the in-depth interview.)

The questionnaire for the household survey and the in-depth interview compared average monthly expenditures on tobacco of a poor household with expenditures on health,

education and basic foods, and estimated the calorie intake lost because of spending on smoking and smokeless forms of tobacco products.

(b) Analysis

Analysis of the survey data was done using SPSS software. Analysis was done to compare expenditure on tobacco products with daily income of the sample population, their expenses on food and other basic needs such as education of children, clothing, housing, health, social activities etc and to estimate monthly expenses on tobacco as a proportion of their total monthly expenses.

(c) Econometric estimation of the price elasticity of tobacco products

Econometric analysis was done to estimate the price elasticity of demand for different tobacco products by income groups. As all the respondents were current tobacco users, the estimate covered only the intensity of tobacco use and failed to estimate total elasticity. The econometric analysis was done using STATA software.

Ethical considerations

After interviewing poor people about expenditures on tobacco, health education was provided to them using IEC materials and advice was given to quit tobacco use.

During in-depth interviews, counseling was also done to help them understand the negative effects of tobacco use and to throw light on the extent of money they were using on tobacco and how they could have spent the money instead on basic necessities. .

SURVEY FINDINGS

Socio-demographic characteristics of sample population

General characteristics of the sample population

Among the 2414 respondents, there were 2176 males and 238 females (Table 1). The median age of respondents was 36 years, the youngest respondent was 14 years old and the oldest was 78 years of age. As for marital status, 23% of the respondents were single, 70% were married, 3% were divorced and 4% were widowed. The families consist of an average of 5 persons with an average of 3 persons above 15 years of age per family.

According to ethnic groups, 90% were Bamars, 6% belong to national ethnic groups and 4% belong to other races. By religion, the sample was 90% Buddhists, 4.4% Christian, 4.1% Muslim and 1.5% Hindu.

Table 1: Distribution by region and sex

Region	Male (n)	Female (n)	Total
Yangon	372	30	402
Mandalay	394	21	415
Delta	393	6	399
Hilly	369	29	398
Coastal	310	89	399
Central Plain	338	63	401
Total	*2176 (90.1%)*	*238 (9.9%)*	*2414*

Education status of the sample population

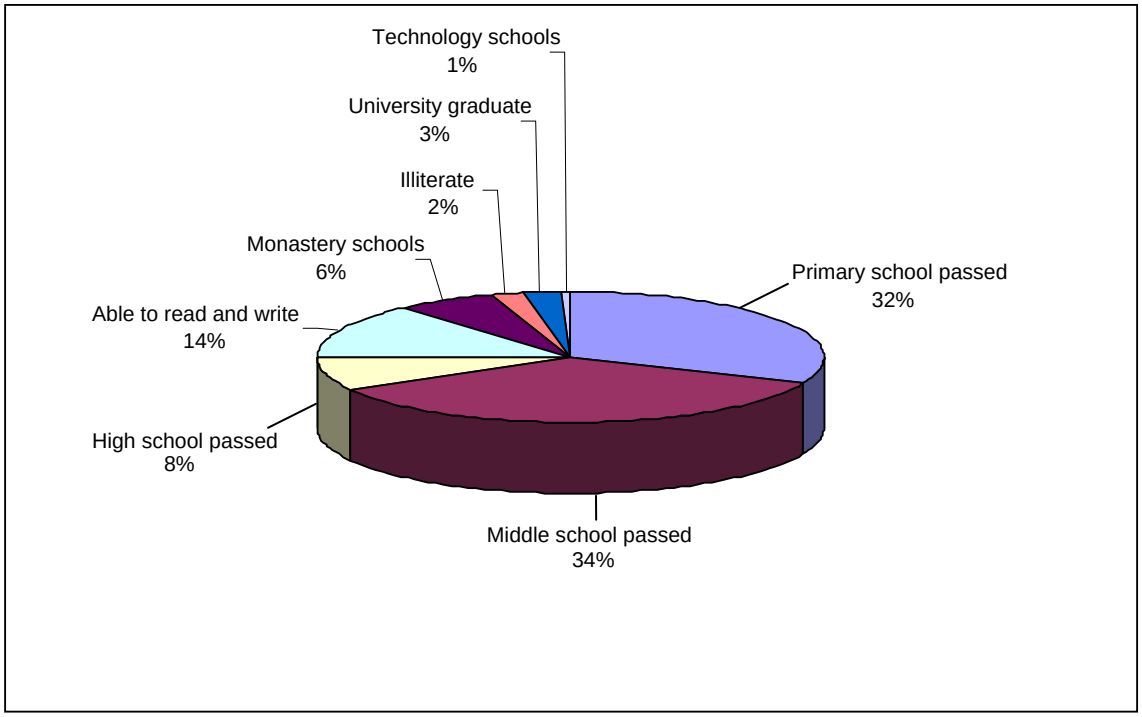
Only 2% of the respondents were illiterate, 6% had their education at monastery schools, 14% were able to read and write, 32% completed primary school and 35% completed middle school (Table 2, Figure 1). Only 8% had completed high school, 3% had a graduate degree from university and 0.5% of the respondents had attended training schools. More than half of the sampled population belonged to the lower education group (below primary school).

Table 2: Percent distribution by region and education

Region	Illiterate	Monastery schools	Able to read and write	Primary school passed	Middle school passed	High school passed	Univer-sity degree	Tech-nology schools	Other	Total
Yangon	1.0	5.5	7.5	42.3	33.6	5.7	3.5	0.5	0.5	100
Mandalay	1.2	6.3	24.3	26.7	34.6	4.1	2.9	0	0	100
Delta	0.5	4.5	7.0	35.3	37.1	13.0	2.3	0.3	0	100
Hilly	3.3	4.5	12.3	34.2	35.2	7.5	2.5	0	0.5	100
Coastal	3.3	11.5	21.1	30.3	21.6	7.5	3.3	1.3	0.3	100
Ctl. Plain	2.8	4.8	11.0	21.5	47.0	10.5	1.3	1.0	0.2	100
Total	2.0	6.2	13.9	31.7	34.8	8.0	2.6	0.5	0.2	100

n=2414

Figure 1: Percent distribution of respondents by education groups



Occupation of the sample population

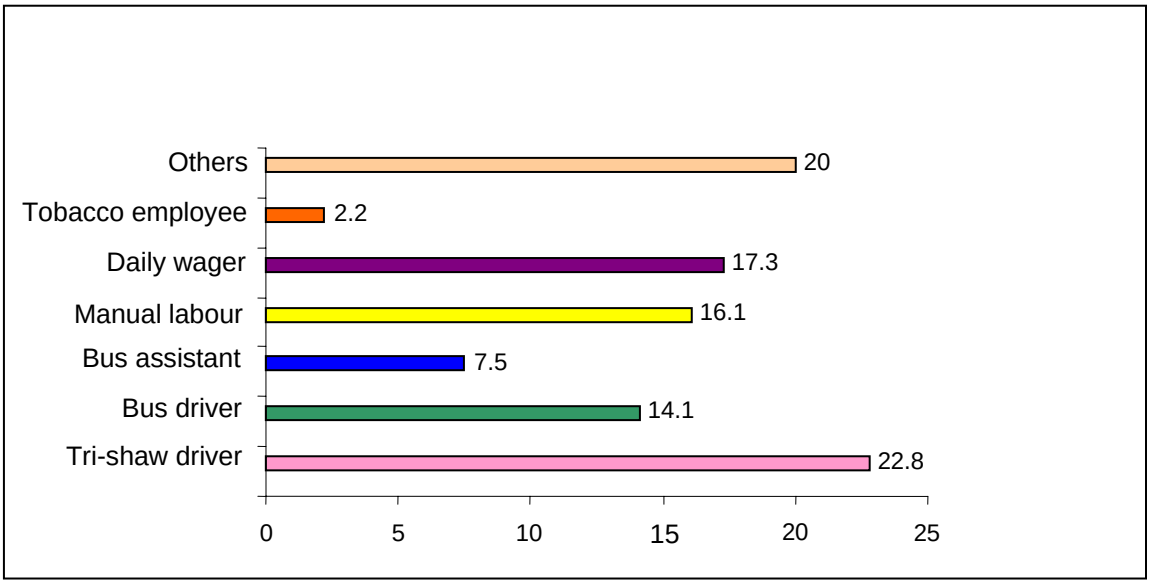
The sampled population comprised 2414 respondents; 23% were trishaw drivers, 14% were drivers, 8% were bus-assistants, 16% were manual laborers, 17% were daily wage workers, 2% were tobacco workers and 20% belong to other categories such as washer women, clerical staff , retail sellers, house-help, working at tea-shops and restaurants etc. (Table 3, Figure 2).

Table 3: Percent distribution by region and occupation

Region	Tri-shaw driver	Bus driver	Bus assistant	Manual laborer	Daily wager	Tobacco employee	Others	Total
Yangon	21.9	12.2	12.2	13.7	16.4	0	23.6	100
Mandalay	16.9	17.8	8.7	11.3	13.5	0.2	31.7	100
Delta	35.1	19.5	6.5	25.3	6.5	2.3	4.8	100
Hilly	28.6	12.9	3.3	14.2	19.2	0	21.8	100
Coastal	8.3	8.0	3.0	28.3	35.1	2.0	15.3	100
Ctl. Plain	26.3	14.3	11.0	4.3	13.3	8.5	22.5	100
Total	22.8	14.1	7.5	16.1	17.3	2.2	20.0	100

n=2414

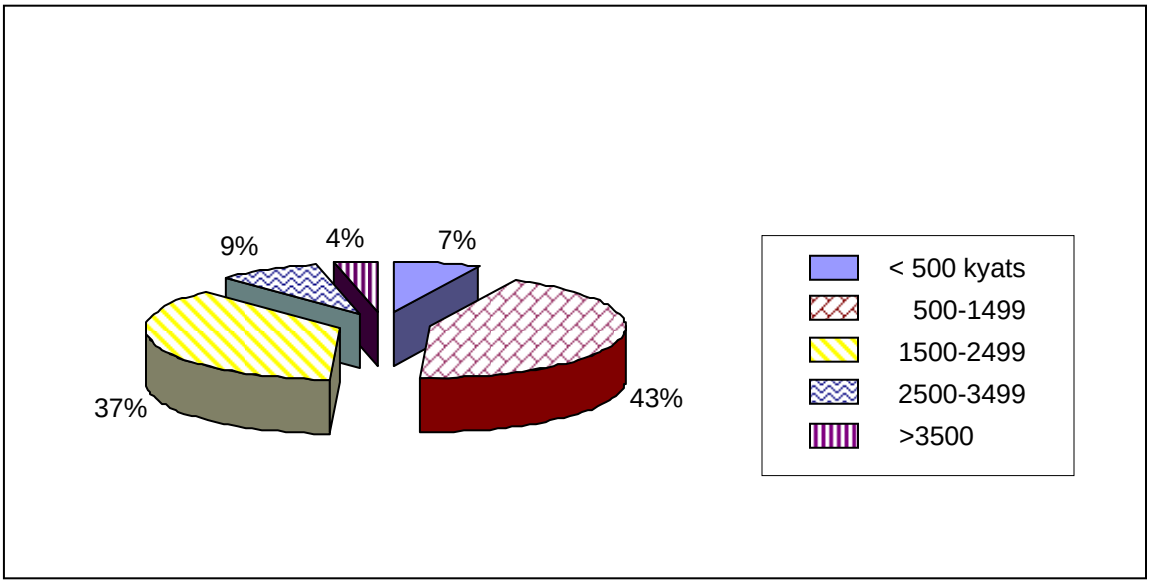
Figure 2: Percent distribution of respondents by occupation group



Income of the sample population

When the respondents were categorized into income groups based on their daily income, it was found that 7% belonged to the lowest income group (< 500 kyats per day), 44% belonged to group II (500-1499 kyats per day), 37% belonged to group III (1500-2499 kyats per day), 9% belonged to group IV (2500-3499 kyats per day) and 4% belonged to highest income group (more than 3500 kyats per day). More than 50% earned less than 1500 kyats per day, and about 45% earned between 1500 to 3500 kyats (Figure 3).

Figure 3 : Percent distribution of income groups (daily income)



Tobacco use of sample population

All the surveyed population used tobacco in one or more forms. They were all current users at the time of the survey: 80% of them were current smokers and 86% were smokeless tobacco users and 61% both smoked and were using smokeless tobacco products at the time of survey.

(A) Use of smoked tobacco products

Smoking by region

Among the six survey sites, the highest prevalence of smokers was found among the sampled population of the central region. There is the possibility of selection bias and another factor is that there are many cheroot cottage industries in the central plain (Pyi). Lowest rates of smoking were noticed among the sampled population of the two metropolitan areas of Yangon and Mandalay. (Table 4)

Table 4: Percent distribution by region and current smoker

Region	Yes	No	Total
Yangon	66.4	33.6	100
Mandalay	84.9	15.1	100
Delta	68.4	31.6	100
Hilly	86.6	13.4	100
Coastal	78.3	21.7	100
Central Plain	98.2	1.8	100
Total	*80.4*	*19.6*	*100*

n = 2414

Initiating factors to smoke

About one third of smokers started smoking because of peer pressure and another one third started smoking because they wanted to experiment (Table 5). A few started smoking when their parents asked them to light cheroots, and quite a few experimented because they thought it was stylish.

Other factors influencing decisions to smoke include working in the tobacco industry or restaurants where tobacco was easily or freely available, imitating models and actors from foreign films and movies, releasing anxiety and stress, wanting to kill the feeling of loneliness and trying to show their rebellious nature.

Table 5: Factors motivating to start smoking among current smokers

Reason	Percentage
Peer pressure	30.5
Want to experiment	36.0
Parent asked to light cheroots	6.8
Stylish	5.8
Lonely	5.3
Others	15.6
Total	*100*

n = 1940

Types of smoked tobacco products

Among the current smokers, more than half of them of them smoked cheroots, about one in four smoked cigarettes and about one in five smoked both cheroots and cigarettes. Only a little over 1% smoked cigars and less than 1% smoked hand-rolled cheroots. There were less than 0.5% of pipe smokers (Figure 4).

Cheroots are cheap, most commonly used by the low income group and low education group. Among the sampled population, the majority of trishaw drivers and manual laborers who earned less than the others were cheroot smokers; whereas the majority of bus drivers and assistants who earned more than the rest of the sampled population were cigarette smokers.

Smoking both cigarettes and cheroots concurrently was also found to be common; among the sampled population there was a tendency to switch to cigarettes when they had more money to spend. On the other hand, due to the general belief among the community that cheroots are less harmful than cigarettes, cigarette smokers had a tendency to switch to cheroots when they had symptoms such as cough and tightness of chest.

Among the cigarette smokers, *London*, *Vegas*, *Duya* and *Golden Triangle* were the most popular brands and among the cheroots *Three Lions Gold Strip* was the most popular. Golden Triangle cigarettes were popular in the coastal region whereas London and Vegas cigarettes were smoked in many part of the country. London is a product of British American Tobacco (BAT) which is produced locally in a joint venture with Myanmar Economic Enterprise and Vegas is a product of Sympoerna Company of Indonesia, also produced locally as a joint venture. Popular brands of cheroots varied in different regions of the country although the brand “Three Lions” was smoked in many parts of the country (Table 6).

Figure 4: Distribution of types of smoked tobacco products among current smokers

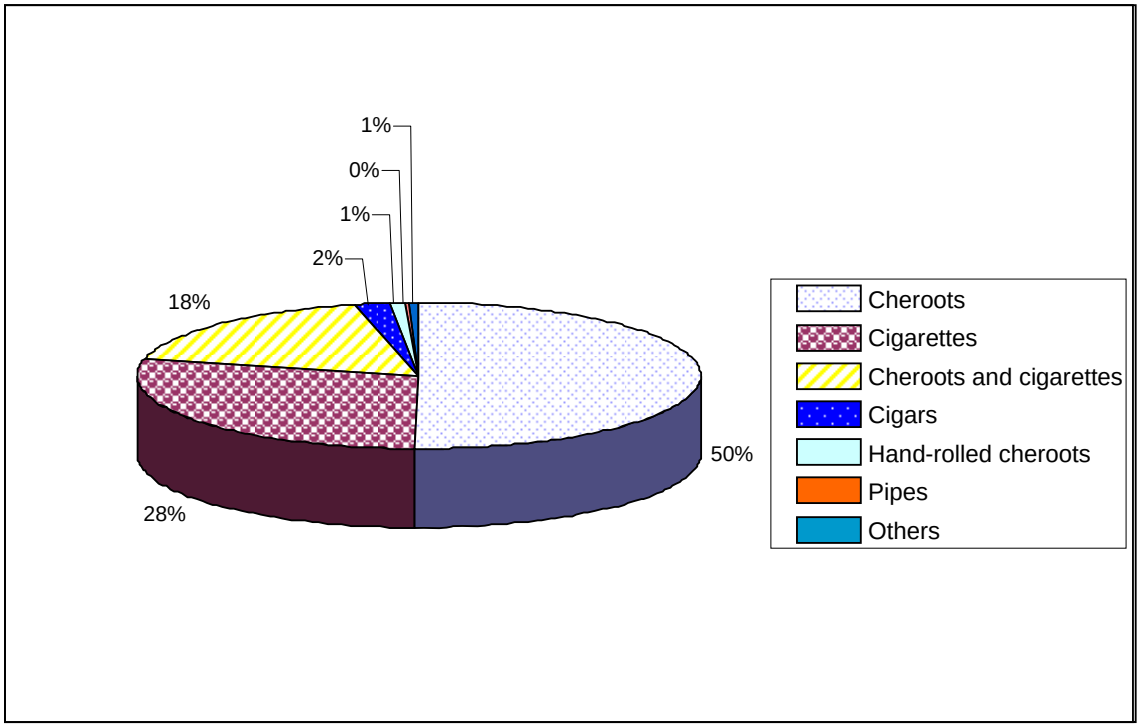


Table 6: Percent distribution of brands of smoking tobacco products

Brands	Percentage
Three lions, golden strip (cheroot)	30
Vegas (cigarettes)	10.3
London (cigarettes)	7
Ngwenagar (cheroots)	6.1
Pyit taing taun (cheroots)	5.1
Shwekyimin (cheroots)	5.0
Duya (cigarette)	2.8
Kyarpyan (cheroot)	2.6
Naychi (cheroots)	2.1
Kyae Ni (cheroots)	1.2
Golden Triangle (cigarettes)	1.1
Shwe Kyar (cheroots)	1.0
Other cheroot brands	24.5
Other cigarette brands	1.2
Total	*100*

n = 1940

About 85% of current smokers were daily smokers. The median age of starting to smoke was 18 years. A few started smoking as early as 5 years of age and about 21% started smoking before they were 15 years old. The median age of smoking daily was 20 years although about 15% became daily smokers below the age of 15 years. Daily smokers

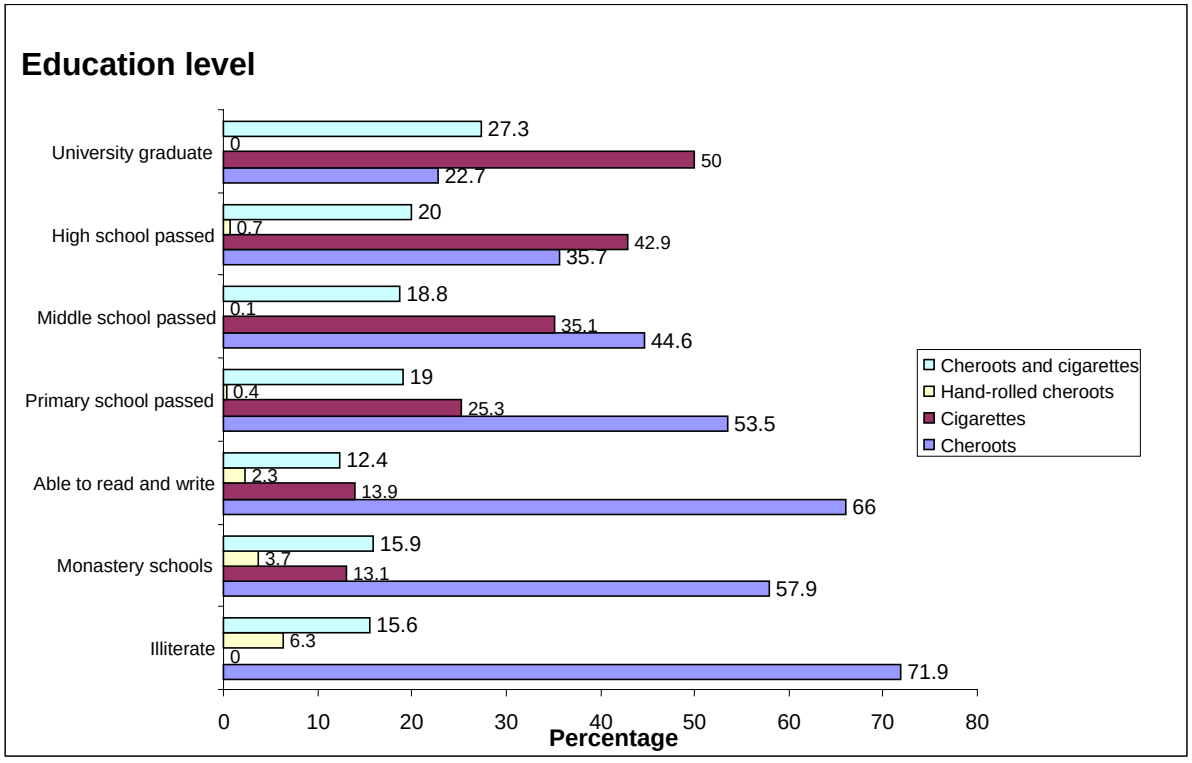
smoked an average of 5 sticks per day and occasional smokers smoked an average of 10 sticks per week.

Types of smoked tobacco products and education

From Figure 5, it can be seen that cheroots were the most commonly used smoking product among less educated groups and that the prevalence of cheroot smoking decreased with increasing level of education. Smoking of hand-rolled cheroots was also practiced only among the low-education groups. By contrast, cigarette smoking was most prevalent among the more educated groups. Persons smoking cheroots and cigarettes concurrently were found across all education groups.

Differences in types of tobacco products smoked across education groups is significant at p = 0.001.People with higher education smoked manufactured cigarettes whereas people with less education or illiterates smoked cheroots or hand-rolled cheroots.

Figure 5: Percent distribution of types of smoked tobacco products and level of education among current smokers

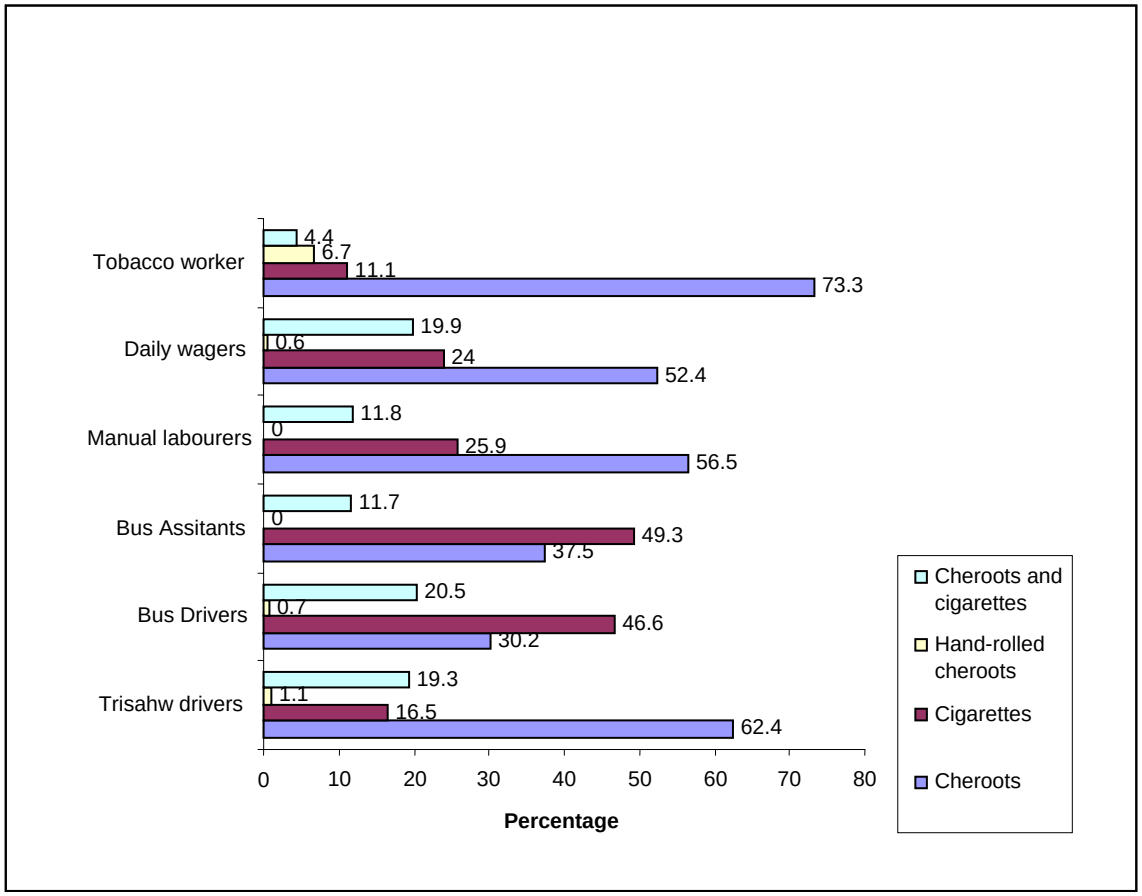


Types of smoking tobacco products and occupation

Figure 6 shows that trishaw drivers, manual laborers and daily wage workers mostly smoked cheroots. The majority of bus drivers smoked cigarettes -- they earned more than the other groups. Hand-rolled smoking was common only among trishaw drivers and tobacco workers. Many tobacco workers smoked cheroots, to which they had easy access.

Differences in types of tobacco products smoked across occupation groups is significant at p = 0.001. Thus the type of tobacco products smoked was significantly different across occupations groups; occupations with more income smoked manufactured products like cigarettes, whereas occupations with less income smoked cheroots or hand-rolled cheroots.

Figure 6: Percent distribution of types of smoked tobacco products within occupation groups

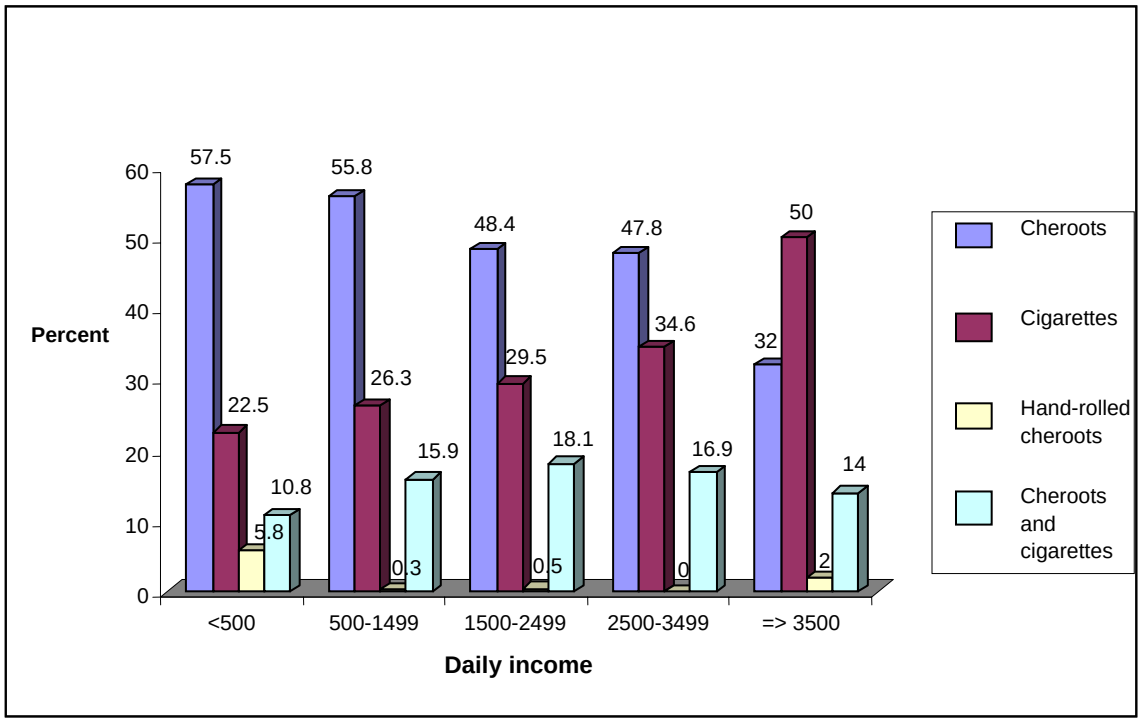


Types of smoking tobacco products and income

When analysis was done within income groups, it was found that the percentage of cheroot smoking deceased with increased level of daily income and percentage of cigarette smoking increased with increased level of daily income. Smokers in all income groups smoked both cigarettes and cheroots concurrently, with the percentage highest in the middle income groups (Figure 7).

Types of smoked tobacco products within income groups is significant at p = 0.001. Thus the types of tobacco products smoked were significantly different among different income groups; people with more money to spend smoked manufactured products such as cigarettes whereas people with less income smoked cheroots or hand-rolled cheroots.

Figure 7: Percent distribution of types of smoking tobacco products within income groups



On average there was only one smoker or user in each family. Most of the respondents were the ones smoking or chewing at the time of the survey; the rest of the family members were mostly dependents, comprising women and children (Table 7).

Table 7: Percent distribution of smokers per family

Item	Percentage
1 smoker in the family	72.7
2 smokers in the family	19.1
3 smokers in the family	5.9
4 smokers in the family	1.2
5 smokers in the family	1.1
Total	*100*

n = 1490

(B) Use of smokeless tobacco products

Smokeless tobacco use by region

Among the sampled population of current tobacco users, smokeless tobacco users were mostly found in the metropolitan areas and least found in the central plain (Table 8). Although selection by chance could not be excluded, from the sampled population, it

could be stated that smoking was highest in the central plain whereas smokeless tobacco use was lowest in that region. The reverse was seen in the metropolitan areas.

Table 8: Percent distribution by region and smokeless tobacco user

Region	Yes	No	Total
Yangon	90.1	9.9	100
Mandalay	94.6	5.4	100
Delta	92.4	6.6	100
Hilly	79.5	20.5	100
Coastal	90.3	9.7	100
Central Plain	68.5	31.5	100
Total	*86.1*	*13.9*	*100*

n = 2078

Initiation factors to use smokeless tobacco

About three in ten respondents started chewing betel quid with tobacco because they wanted to experiment with it, about one in five started using it due to peer pressure (Table 9). One in five users also answered that they started chewing just to kill time and a few answered that they chewed betel to keep them alert. Mainly drivers, trishaw drivers and bus assistants replied that they chew betel quid with tobacco to keep them alert and to prevent themselves from becoming sleepy during driving. Other factors include boredom due to monotonous work and lack of stimulation in their day to day work.

Table 9: Factors motivating to start using smokeless tobacco

Reason	Percentage
Peer pressure	20.7
Want to experiment	30.8
Just to kill the time	19.8
Lonely	1.4
To keep awake	8.1
Stress	2.9
Others	16.3
Total	*100*

n = 2078

Types of smokeless tobacco used

Among the smokeless tobacco users, more than 80% chewed betel quid with tobacco, more than 8% chewed betel quid with mixed tobacco from India and only about 2% chewed raw tobacco (Table 10).

In this report, the term “betel quid with tobacco” is used for the betel leaf preparation using Myanmar tobacco; the term “betel quid mixed with tobacco” is used for the betel leaf preparation using varieties of tobacco imported from India, Nepal and Bangladesh.

These include wet tobacco, tobacco cured in alcohol or honey or lemon and tobacco mixed with varieties of sweet smelling Indian spices.

There is another form of betel quid without tobacco, known as “sweet betel quid” where sweet ingredients such as coconut shreds are wrapped with the betel leaf. The betel leaf is usually coated with a thin layer of treated lime. Usually, tobacco users started with the sweet betel quid, but the majority would put tobacco into the betel quid in later stages and became addicted to tobacco. All smokeless tobacco users interviewed in this survey chewed betel with some form of tobacco in it.

Table 10: Percent distribution of types of smokeless tobacco used among users

Type of smoking tobacco product	Percentage
Betel with tobacco	83.3
Raw tobacco	2.2
Betel with Indian smokeless tobacco products	8.0
Others	6.5
Total	*100*

n = 2078

About 86.5% of current smokeless tobacco users were daily users. The median age of starting to chew betel with tobacco was 20 years although about 11% started chewing betel quid with tobacco before the age of 15 years. The median age of chewing betel quid with tobacco daily was 21 years although about 5% became daily users before age 15.

Daily users chewed about 10 pieces of betel quid with tobacco/raw tobacco per day. Occasional users chewed about 16 pieces per week.

Types of smokeless tobacco used within education, occupation and income groups

Contrary to the pattern found with smoked products, there were no significant differences in smokeless tobacco use across education, occupation and income groups (Figures 8, 9, 10).

Prevalence of smokeless tobacco use was found to be distributed evenly across all groups of education, occupation and income. Smokeless tobacco use was more of a cultural or traditional practice, there was no social taboo against it and people were less aware of the dangers of smokeless tobacco use than of smoking.

It was found that although chewing betel with tobacco and betel quid with Indian tobacco was prevalent across all education, occupation and income groups, chewing of raw tobacco was more prevalent among people with lower levels of education and income.

Figure 8: Percent distribution of types of smokeless tobacco products within education groups

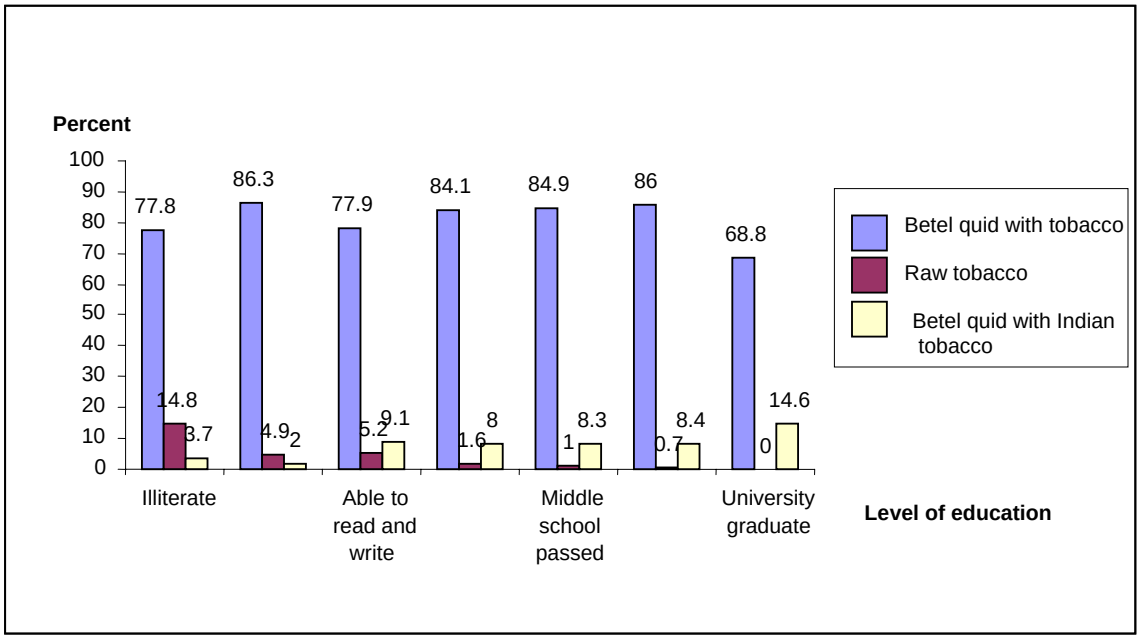


Figure 9: Percent distribution of types of smokeless tobacco products within occupation groups

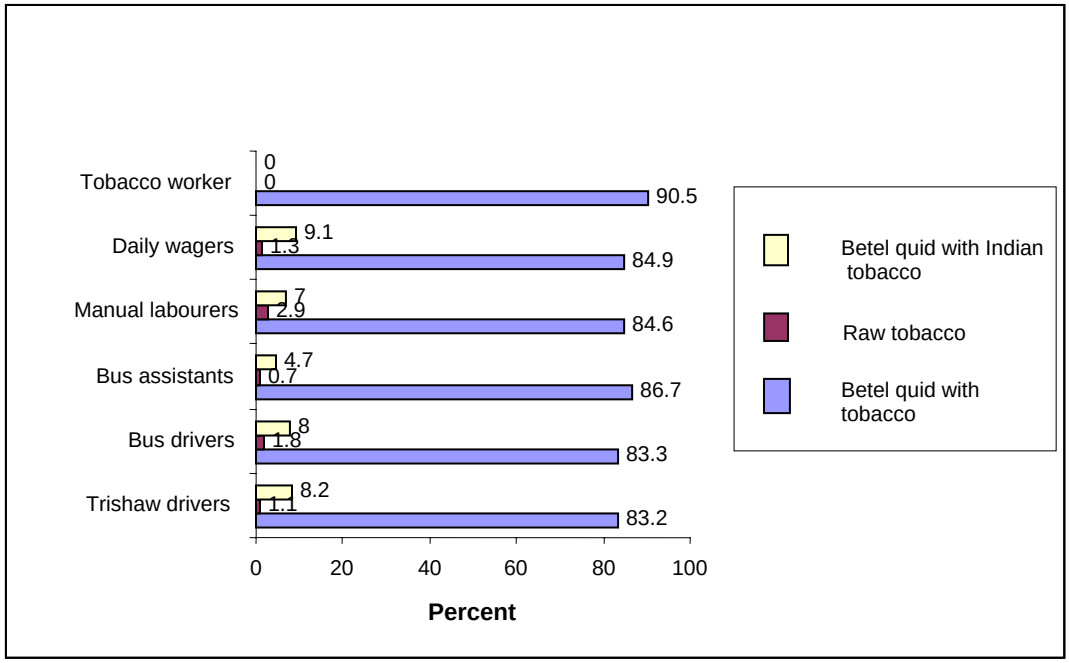
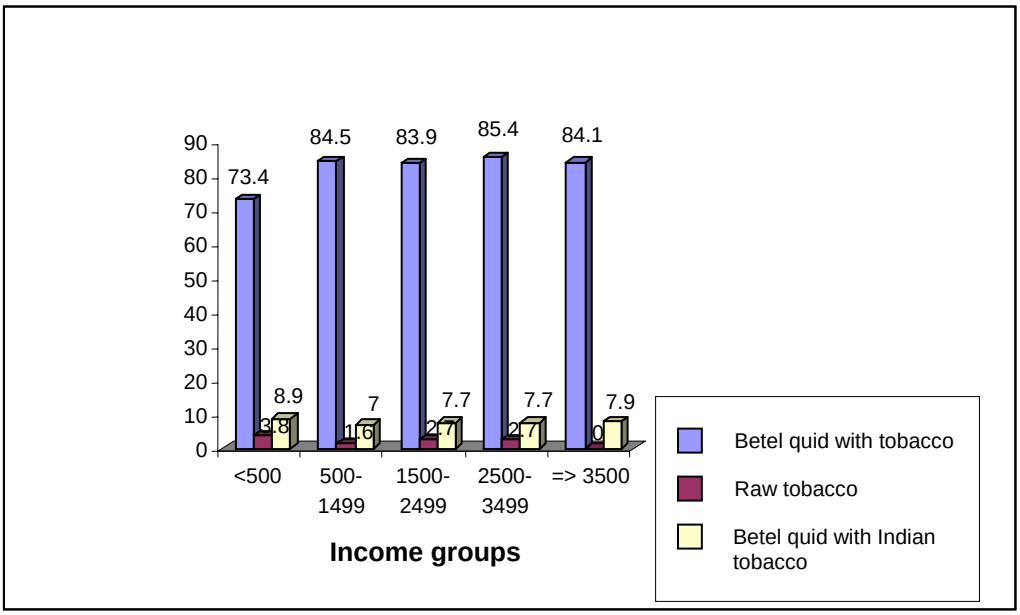


Figure 10: Percent distribution of types of smokeless tobacco products within income groups



Expenditures on tobacco by the sample population

Expenditures on tobacco as a percentage of income

Estimated as a percentage of daily income of respondents as well as families, daily expenditure on tobacco products was around 6% of daily income for smoked tobacco products, around 10% of daily income for smokeless tobacco products and around 15% of daily income for users of both (Table 11). In most cases, there was only one smoker and one smokeless tobacco user per family (Table 12); hence there was not much difference between the expenditure on tobacco of respondents and the expenditure of families.

Table 11: Tobacco expenditure as percentage of income of respondents

Item	Individual Expenditure as Percentage of income of respondents	Family Expenditure as percentage of family income
Daily expenditure on smoking products as percent of daily income	6.33%	5.99%
Daily expenditure on smokeless tobacco products as percent of daily income	9.08%	10.42%
Daily expenditure on smoking and smokeless products as percent of daily income for both users	14.43%	13.99%

Table 12: Percent distribution of smokeless tobacco users per family

Item	Percentage
1 user in the family	72.4
2 users in the family	18.3
3 users in the family	6.3
4 users in the family	1.6
5 users in the family	1.4
Total	*100*

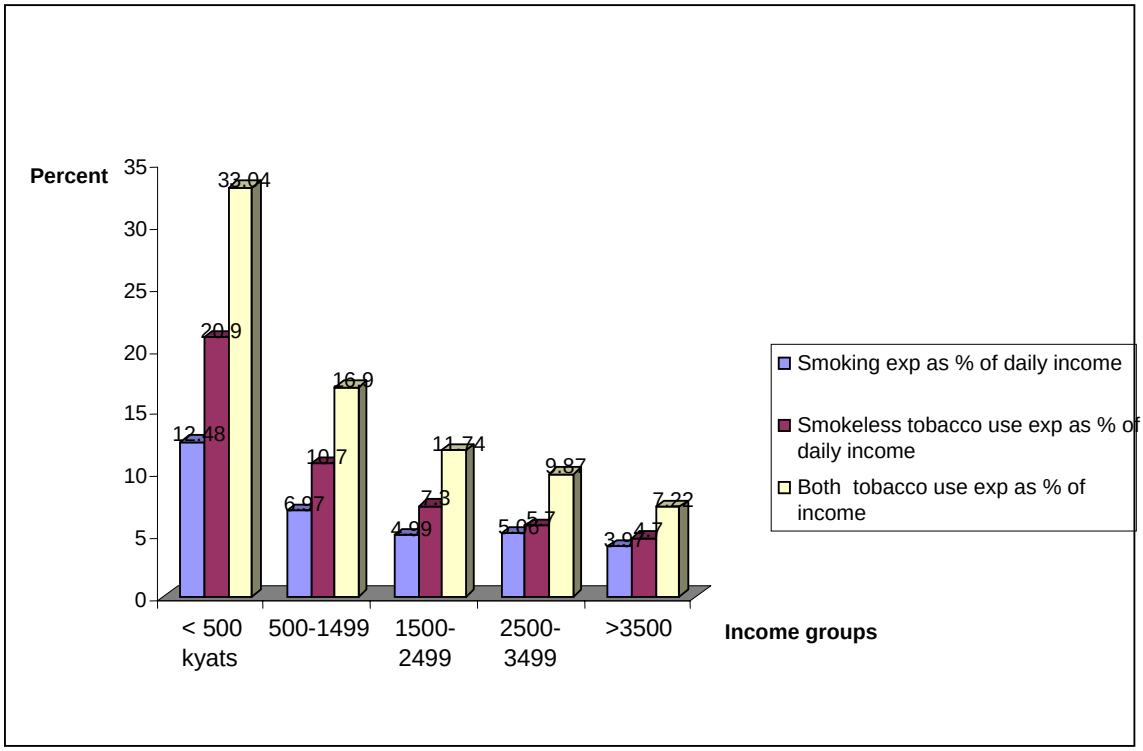
n = 2078

Expenditure on tobacco within income groups

The sample population was divided into five income groups. Tobacco expenditure as a percentage of income was highest among the lowest income group and declined at higher levels of income.

The highest proportion of income was spent by users of both product types across all income groups. Expenditure on smokeless tobacco products was nearly two times higher than expenditure on smoked products. Tobacco expenditure was as high as 33% of income for the lowest income groups for users of both types of product, 20% for smokeless users and 12% for smokers (Figure 11).

Figure 11: Daily expenditure on tobacco as % of daily income within income groups



During the previous year, the families of respondents had spent an average of 15,500 kyats on education, 6,000 kyats on health care, and 10,000 kyats on clothes (Table 13). A

rough estimate shows that the money the respondents had spent on smoked tobacco products during the past year was 2.4 times higher than the amount they had spent on education and 5.5 times higher than the amount they had spent on health care. For those who smoked cigarettes, expenditures on tobacco were much higher than expenditure on education and health.

Smokeless tobacco users spent on tobacco 3.2 times what they spent on education and 8.3 times their health expenditures; users of both smokeless and smoked spent 13.4 times as much as on education and 34.6 times as much as on health care.

Table 13: Family Expenditure

Item	Mean expenditure (in Kyat)	Expenditure as percentage of family income
Family expenditure on food per month	36188	60.02%
Family expenditure on accommodation per month	4227	7.02%
Family expenditure on fuel and water per month	3107	5.0%
Family expenditure on smoking tobacco per month	2770	6.72%
Family expenditure on smokeless tobacco per month	4162	9.82%
Family expenditure on both smoking and smokeless tobacco products per month	6914	13.97%

Tobacco versus food

Several studies have shown that poor families would benefit greatly if they shifted their tobacco expenditure to food instead. Rough estimates showed that with the amount of money spent on a pack of 20 cigarettes, families could buy one *pyi* (8 tins) of rice which could feed a family of five for a day; this could add 1100 calories per person a day which is nearly half the daily requirement. Alternatively, nearly 20 tickals of cooking oil, 20 tickals of fish, chicken or beef, 6 eggs and two viss of lentils could be bought with the money spent on tobacco products (Viss is a Myanmar measure for weighing vegetables, meat, fish, and lentils and cooking oil; approximately it is equivalent to 3.6 pounds and 100 tickals. One tickal is equivalent to 0.525 troy ounce, 1 troy ounce is equivalent to 31.103 grams). The average consumption of tobacco was about 5 cigarettes/cheroots per day with a range of 2 to 35 cigarettes/cheroots.

Similarly the amount of money spent on 20 cheroot sticks could buy half the amount of the above mentioned varieties of essential food. Prices of smokeless tobacco vary widely depending on the type of tobacco put into the betel quid; the effect of shifting smokeless tobacco expenditure to food could be similar to the analysis for cheroots.

Knowledge and attitude of sample population towards hazards of tobacco

About 84% said that they knew smoking causes disease, and 75% said that they knew using smokeless tobacco can cause disease. But only 11% knew that smoking can cause cancer and about 16% knew that it is associated with heart disease (Table 14). Less than 6% answered that smoking can cause strokes (cardiovascular incidents).

Table 14: Percentage of respondents with knowledge on diseases attributable to smoking

Disease	Percentage who knew the disease can be caused by smoking
Cancer	11.7
Heart disease	16.2
Lung disease	69.8
Stroke	5.7

Less than 40% of respondents knew that smokeless tobacco use can cause oral cancer (Table 15). Nearly half of them thought that due to the lime applied to the betel leaf, smokeless tobacco use can cause renal or bladder stones.

Table 15: Percentage of respondents with knowledge on diseases attributable to smokeless tobacco use

Disease	Percentage who knew the disease can be caused by use of smokeless tobacco use
Oral cancer	37.8
Others (renal and bladder stones)	44.1

Although more than half of the respondents thought that smoking should be banned in schools and hospitals, only 35% thought that smoking should be banned on buses and a major concern was that less than 10% thought smoking should be banned from public transport (Table 16). Although a law that prohibits smoking in theatres has existed since 1959, only 35% answered that smoking should not be permitted in cinema halls. Quite a few respondents answered that people should not smoke while walking on the streets because of the risk of fire caused by cigarette butts.

Table 16: Percentage of respondents who thought that smoking should be banned in pubic places

Public place	Percentage who answered that smoking should be banned in the place
Schools	51.7
Hospitals	57.0
Buses	34.5
Public transport	9.2
Cinema hall	35.3

The majority of the respondents knew vaguely about the tobacco control programme implemented by the Ministry of Health but they could not answer definitely. They had heard messages about dangers of smoking from a variety of media but most of them had not heard about the dangers of smokeless tobacco.

Conclusion

Tobacco users spend a considerable amount of hard-earned income on tobacco. They spend many times more on tobacco than on health, education and other necessities such as clothing and shelter. This tobacco expenditure could be shifted to food and other basic necessities. A significant shifting of tobacco expenditure to food could greatly reduce the prevalence of malnutrition and improve the nutrition status of families.

The survey showed that tobacco expenditure as a percentage of income was highest among the lowest income groups; it was as high as 33% for users of both smoked and smokeless tobacco products, 20% for smokeless tobacco users and 12% for smokers among the lowest income group earning less than 500 kyats per day. As the majority of the respondents were the sole bread-winners of their families, the huge percentage of income spent on tobacco took a big chunk out of the money which they took home to their families to be spent on food and other basic necessities.

One major issue highlighted by this study is that there is an increasing trend of using smokeless tobacco among the poor. Typically, people start chewing betel quid with betel nuts and lime, but almost all of them go on to put tobacco in their betel leaves. Recently, putting various forms of tobacco from India in the betel has become quite popular and fashionable. Knowledge of the dangers of smokeless tobacco was very limited among the sample population; this is one critical issue to be recommended to the National Tobacco Control Programme.

ESTIMATION OF PRICE ELASTICITIES

Increasing the price of tobacco products is the most effective measure to reduce tobacco use. Higher prices increase incentives for quitting and reduce initiation. An increase in prices also reduces consumption by current tobacco users and deters ex-users from starting again. Evidence has shown in many studies that the young and the poor are more sensitive to price changes given their more limited available resources. The World Health Report 2002 measured the cost-effectiveness of a selection of tobacco control interventions such as price increases through taxation, smoke-free public places, bans on advertising of tobacco products, information dissemination and cessation support using nicotine replacement therapy. Results show that if only one intervention had to be chosen, it should be taxation. Higher tax rates improve the health of the population and are highly cost-effective – they cost very little to implement, have strong impact, and generate additional tax revenues. Combining taxation with other measures such as comprehensive bans on advertising and information dissemination about the dangers of tobacco use and the benefits of quitting would achieve even greater improvements in population health.

Price elasticity is a measure of the quantitative impact of a price increase on the level of consumption. When using household data, this measure is usually called the total price elasticity.

Total price elasticity = Elasticity of smoking participation + Conditional price elasticity of demand.

The total price elasticity, that is the total impact of a price increase on tobacco consumption, captures both the participation elasticity and the intensity elasticity. The participation elasticity measures the elasticity of smoking participation; it represents the impact of changes in price on the probability that people smoke. Smoking intensity measures the conditional price elasticity of demand, that is how a price increase would impact the quantity the tobacco user decides to consume.

The following analysis uses the data collected from our survey. The survey only gathered information among tobacco users; this means that the calculation of the smoking participation elasticity was not possible. Only the conditional price elasticity of demand was calculated. In the following pages, when we discuss the price elasticity we would thus be referring solely to the conditional price elasticity. This represents just one portion of the total price elasticity and we can assume that the following results are an undervaluation of the total price elasticity which is expected to be higher (in absolute terms). To illustrate by an example, the results from the previous analysis "Tobacco Economics in Myanmar"[1] published in 2003 show that the total price elasticity was equal to -1.62, sum of the participation elasticity (-1.28) and the intensity elasticity (-0.34).

[1] Dr Nyo Nyo Kyaing. *Tobacco Economics in Myanmar*. HNP Discussion Paper, Economics of Tobacco Control Paper No.14. A World Bank and WHO publication. October 2003, World Bank, Washington DC

Results

The consumption equation is estimated using the log-log Ordinary Least Squares method (OLS). No data were collected on the price of the tobacco products consumed so the price was calculated by dividing the monthly expenditure on tobacco products by the monthly consumption of the tobacco products. This approximation presents the problem of possible endogeneity of price. To avoid this problem, an alternative method was used; the two stage least square method (2SLS) where a tax variable is used as an instrument. A test was performed in order to test whether the price data are endogenous. The test is applied to all the different equations used and price was found to be exogenous in some equations and endogenous in other equations (results are provided in Annex 3). Consequently, results of the OLS estimation are used for the groups where price was exogenous and results of the 2SLS estimation are used for groups where price was endogenous.

The tax variable is calculated using the commercial tax incidence applied on the different tobacco products; 75% of the price of cigarettes, 20% of the price of cigars and pipes, 25% of price of smokeless tobacco including betel quid with tobacco, 10% of price of cheroots, hand-rolled cheroots and other tobacco products.

The other variables used as exogenous variables in the consumption equation are defined as follows:

Income: Monthly income of tobacco user in Kyats
Addict: addiction variable corresponding to the number of years of tobacco usage (age of tobacco user minus age of start)
Female: dummy variable equals 1 if tobacco user is a female, 0 otherwise;
Married: dummy variable equals 1 if tobacco user is married, 0 otherwise;

Illiterate: dummy variable equals 1 if tobacco user is illiterate, 0 otherwise;
Medium Education: dummy variable equals 1 if tobacco user either writes and reads or attended monastic school or completed primary school or completed middle school or went to vocational school, 0 otherwise.
High Education: dummy variable equals 1 if tobacco user either completed High School or is a university graduate, 0 otherwise.

Trishaw: dummy variable equals 1 if the tobacco user's occupation is trishaw driver, 0 otherwise.
Manual: dummy variable equals 1 if the tobacco user's occupation is manual labourer, 0 otherwise.
Daily: dummy variable equals 1 if the tobacco user's occupation is daily wager, 0 otherwise.
Truckbus: dummy variable equals 1 if the tobacco user's occupation is either truck driver or bus assistant, 0 otherwise.
Tobacl: dummy variable equals 1 if the tobacco user's occupation is in a tobacco related work, 0 otherwise.

The estimations are made for the whole population as well as in sub-groups by product consumed and by income group. The sub-groups by product consumed are: smokers of all smoking products, cheroots smokers, cigarettes smokers, smokers of both cheroots and cigarettes, smokeless tobacco products users, users of betel quid with tobacco and finally users of Indian smokeless tobacco.

Regarding the income groups, four groups were defined according to monthly income of respondents:
Group 1: $I \leq 24\,000$ Kyats
Group 2: $24\,000 < I < 45\,000$
Group 3: $45\,000 \leq I < 75\,000$
Group 4: $I \geq 75\,000$
The income figure used to define the lowest income group was based on the poverty line of 1US$ a day or less used in the Human Development Indicators of the United Nations Development Program (UNDP). 1$ a day income is equivalent to around 24 000 Kyats a month.

Price elasticity of different tobacco products

The conditional price elasticity of consumption for all tobacco products was estimated at -0.11 (standard deviation: 0.04), significant at the 1% level. This result implies that if the prices of all tobacco products were to increase by 10%, the quantity consumed by tobacco users would fall by 1.1%. This is a very small price response. However, as will be shown later, when estimations are made for sub-groups of tobacco products, the price elasticities differ and are much larger for cheroots and smokeless tobacco products.

Smoked products

The price elasticity for all smokers (excluding people who used only smokeless products) was -0.17 (standard deviation: 0.04), significant at the 1% level. This means that if prices of all smoked products were to increase by 10%, consumption of smoked products would decrease by 1.7%; this too represents a low price elasticity. But needless to remind that it only represents one part of the total price elasticity.

Cheroot consumption

The exogenous variables included in the consumption of cheroots equation were: *income, age, addict, female, married, illiterate, medium education, manual, trishaw* and *daily*. The education and occupation variables were selected according to the prevalence of cheroot smoking within these groups. The descriptive statistics presented above showed that cheroot consumption was most prevalent among illiterates, and more prevalent among individuals with medium education than individuals with higher education. This applies also to trishaw drivers, manual labourers and daily wage workers compared with truck drivers and bus assistants. The dummy *tobacl* was excluded from most of the estimations because of scarcity of observations on tobacco workers.

Table 17 shows that the price elasticity of demand for cheroots is -0.36; a 10% cheroot price increase would decrease cheroots consumption by about 3.6%. Results of the estimation by income groups show that low-income individuals are the most responsive to a price increase. An increase of 10% in the price of cheroots would reduce cheroot consumption by 5% among the poorest users. Given that this price elasticity only represents one part of the total price elasticity, the total price elasticity would be much higher (in absolute terms).

Table 17: Conditional price elasticity of demand for cheroots

Price Elasticity					
	Average	**Income groups**			
		1	2	3	4
Cheroots	-0.36** (0.043)	-0.5** (0.084)	-0.44** (0.077)	-0.22** (0.076)	-0.32* (0.14)

** and * Significant at the 1% and 5% levels respectively
Values between brackets represent the standard deviation

Cigarettes Consumption

The exogenous variables used in the consumption of cigarettes equation also take into account the education and occupation groups where prevalence of cigarette consumption is highest. The variables included are thus: *income, age, female, addict, married, high education, manual* and *truckbus*.

The price elasticity of cigarettes for the whole population is -0.25 and is significantly different from zero (Table 18). The income groups most sensitive to a price increase in cigarettes are the middle groups, which have the highest prevalence of cigarette smokers compared to the other two groups. The low and non significant values for groups 1 and 4 may be due to the low prevalence of consumption in these groups.

Table 18: Conditional price elasticity of demand of cigarettes

Price Elasticity					
	Average	**Income groups**			
		1	2	3	4
Cigarettes	-0.25* (0.059)	-0.15 (0.17)	-0.37* (0.12)	-0.25* (0.098)	-0.14 (0.13)

* Significant at the 1% level
Values between brackets represent the standard deviation

Cigarettes and cheroots consumption

The exogenous variables used in the estimation of the consumption of both cheroots and cigarettes are: *income, age, female, married, addict, medium education, daily, trishaw* and *truckbus*.

The price elasticity for the overall population is -0.17 and is significantly different from zero (Table 19). In the income sub-groups, the poorest groups are the most sensitive to a price increase. A 10% price increase of cigarettes and cheroots would decrease tobacco consumption by 3% among the poorest individuals. This is also in line with the findings showing that the poor react the most to a price increase in tobacco products. However, the price elasticities of the other income groups are not significant.

Table 19: Conditional price elasticity of demand of cigarettes and cheroots

Price Elasticity					
	Average	**Income groups**			
		1	2	3	4
Cigarettes and Cheroots	-0.17* (0.075)	-0.29* (0.13)	-0.19 (0.18)	-0.1 (0.14)	-0.27 (0.23)

* Significant at the 5% level
Values between brackets represent the standard deviation

Smokeless products

The estimation performed for subgroups of smokeless tobacco products showed no patterns, consistent with the descriptive statistics presented earlier. Given the lack of data, only estimations for the whole population are shown in Table 20. The exogenous variables used for the estimation of the consumption of smokeless products were: *income, age, addict, female* and *married, medium education, manual* and *truckbus*.

Results show greater sensitivity to prices changes in smokeless tobacco products than smoked products. Price elasticity of smokeless tobacco products is -0.55 and significant. The price elasticity of betel quid with tobacco is -0.52 and the price elasticity of Indian smokeless is -0.65 and both values are significantly different from zero. This means that there is a health benefit in increasing the price of smokeless tobacco products. Unfortunately, estimation by income groups was not possible and more information would be needed in the future to be able to measure the impact of a price increase on the poor.

Table 20: Conditional price elasticity of demand of smokeless tobacco products

All smokeless products	**Betel**	**Indian**
-0.55* (0.039)	-0.52* (0.042)	-0.65* (0.16)

* Significant at the 1% level
Values between brackets represent the standard deviation

Conclusion

In summary, all estimation results show a clear inverse relationship between prices of tobacco products and their consumption. The higher the prices, the less people will use

tobacco products. It is important to note that the price elasticity calculated only measures the impact of a price increase on the quantity tobacco users will consume, and ignores the fact that some users will quit. This conditional price elasticity of demand is only part of the total price elasticity, which would have a much larger value (in absolute terms). The conditional price elasticity of all tobacco products is -0.11; a 10% increase in the price of all tobacco products would reduce the quantity consumed by 1.1% among tobacco users. Regarding consumption of smoked products, the conditional price elasticity is -0.17. Those two elasticities are relatively low. However, price elasticity of cheroots is -0.36 and it is even higher among the consumers of the lowest income group. The price elasticity is -0.5 for the lowest income group and -0.44 for the second lowest income group. The price elasticity for cigarettes is -0.25. With regards to the consumption of smokeless products, the conditional price elasticity is higher than smoking products: -0.55 for all smokeless products. In the disaggregated group it is -0.52 for Betel consumption and -0.65 for Indian smokeless tobacco. Unfortunately, due to a small number of observations among smokeless tobacco, the estimation by income groups was not possible.

Given the significance of these results, there is no doubt that price increases do have an impact on tobacco consumption. An increase in the price of these products, in particular cheroots and smokeless products, for which the taxation rate is very low, is thus recommended. Furthermore, it is suggested that an analysis focusing on smokeless tobacco should be done to look in more detail into these less commonly studied products.

INSIGHTS FROM IN-DEPTH INTERVIEWS OF CURRENT TOBACCO USERS

During the survey, an exploratory in-depth interview was conducted among current tobacco users to probe their behaviour, perception and knowledge regarding the health, social and economic effects of tobacco use and tobacco expenditure.

A total of 30 persons were interviewed, 5 from each survey site. These interviewees belonged to the low-income group and all of them were current tobacco users, either smoking or chewing betel quid with tobacco or using both at the time of survey. The interviewees were identified through the basic health personnel of the surveyed townships. Criteria for inclusion were current tobacco usage, belonging to low income group (identified by their occupation) and willingness to participate in the survey.

In-depth interviews were conducted in the local language by trained interviewers. Before conducting the interview, interviewers explained the objectives of the study and sought permission to take field notes and to tape the interview. Topics discussed include factors influencing the initiation of tobacco use, their perceptions of tobacco use among youth, women and the general population and their own tobacco use, their knowledge of dangers of tobacco use and the status of their health, tobacco use by family members, daily and monthly income of respondents and their family members, daily and monthly expenditure by the respondents and their families on food, other necessities and tobacco. They were also asked their views on certain tobacco control measures such as prohibition of tobacco advertisements and designation of smoke-free areas.

Findings

Profile of respondents

Most respondents were aged 20 to 50; 1 was 16 years old and 4 were above 60 years of age. The majority of respondents were males; most female respondents belong to older age group.

Initiation of tobacco use

Starting to smoke

As many studies have reported, many tobacco users started smoking or chewing tobacco during adolescence. Most respondents had started smoking or chewing betel quid during their teens with a few exceptions who had started at a very young age or late in their thirties. A few respondents replied that they first tried smoking when their parents or grandparents asked them to *light their cheroot* which was a common practice in rural areas. Although parents had generally prohibited smoking and chewing betel when they were students, it was tolerated when they became adults and independent.

An exceptional case was seen in a woman, who had started smoking when she was only five years old; her mother passed away during her infancy, leaving her with her father who spoiled her out of pity for being motherless at a young age. When she saw some older women smoking, she asked her father to let her try smoking and her father taught her how to smoke. He even bought her a small match to light up the cheroots. At the time of the survey, she was already a heavy smoker suffering from repeated bouts of asthmatic attacks and chronic bronchitis. She was totally addicted to tobacco and did not have the willpower to stop smoking in spite of doctors' advice.

One woman replied that she started smoking because she thought it would *lessen her unhappiness*. She smoked whenever she quarreled with her husband. A considerable number of respondents reported trying tobacco *just to kill time*, or to relieve boredom. Many respondents reported trying to smoke out of *curiosity,* wanting to *experiment* with something that they regard as a symbol of adulthood; while some started smoking due to *peer pressure*. Even if their friends did not persuade them to try tobacco, they wanted to experiment with what their friends were doing. Evidently they had to hide the fact from their parents and teachers.

"*I remembered well the day I started smoking. I was only 15 years old, a high school student. That day I and a group of my classmates skipped class and went to the football ground. After playing football, we took some rest. My friends had some cigarettes with them; they were passing the cigarettes around and I tried one or two puffs. At that time one teacher saw us and came running; we had to run very fast to escape from being punished. I remembered the incident very well. Now I am smoking about 10 cigarettes a day."* (Male vendor, 21 years)

"When I started smoking I did it because I thought that smoking was stylish. When someone smoked, it looked good in my eyes, so I tried one or two smokes and I got hooked on it". (Male driver, 31 years)

"*Many youth started smoking because they think it is stylish and manly to smoke; they think a person looks good if he has a cigarette between his fingers. Some people would also look very attractive with the way they keep their cigarettes between the lips. When young boys sit together at teashops, cigarettes are essential for socialization."*
(A manual labourer, 21 years)

Starting to chew

It was a general opinion among the respondents that chewing betel (*kwan*) is deeply rooted in traditional Myanmar culture. They argued that *kwan* (betel), *hsey (*tobacco) and *lephet* (tea-leaves) are the three essential delicacies served to guests at homes, at weddings and at donation ceremonies. They also felt that it would be impolite to refuse the betel which someone offers as a token of friendship and hospitality, particularly in the rural areas.

It is evident that none of the respondents has ever thought seriously about the dangers of chewing betel. Some people switched from smoking to betel chewing after having symptoms such as cough or tightness because they thought betel chewing is less dangerous than smoking.

Almost all of the betel chewers started with betel alone, but later on, the majority put some form of tobacco in it. Only a very few still chewed betel without tobacco, known as *sweet betel (Kwanywa acho:* betel quid with some ingredients including coconut shreds and some Indian spices which give a sweet taste to the betel quid).

"Putting tobacco into the betel gives it a better smell, a smell which attracts people around you. It also gives the betel better flavour and taste. Once you start putting tobacco into the betel, chewing betel without tobacco does not taste good at all. It lacks something". (A washerwoman, 45 years)

A considerable number of respondents said smoking and chewing betel with tobacco helps them feel *occupied and relieved their boredom or laziness*. Drivers and bus-assistants as well as trishaw drivers reported that they chew betel to *keep them awake and alert* during their long hours of work.

One respondent, a waiter at a restaurant, said he started to chew betel when he was in middle school, because he thought that those who chewed betel quid looked good with reddish lips.

"I started chewing betel quid about 5 years ago. I do not remember why I started it, there was no specific reason; it was just to kill time and to have something to do. Gradually I started putting Indian tobacco (ahmwe) in the betel. I have never thought seriously about any harm that might be caused by chewing betel. Many people are chewing betel and I do not think it is dangerous. But I would not like my son, especially the one who is attending college to chew betel. I think educated persons should not chew betel. It does not look nice. My younger son is also only 15 years old, I told him not to smoke nor chew tobacco. I would not like any of my sons to use tobacco, it may cause disease".

(A divorced woman with two sons, 46 years.)

Pattern of tobacco use

The majority of smokers smoked cheroots ranging from 5 to 20 sticks per day. The popular brand of cheroots varied in different areas: the "Three lions brand with golden strip" (*chinthe thone kaung shwe patt)* was the most popular brand in many areas. Almost all of the women respondents belonged to the older age group of over 40 years and they were cheroot smokers.

Belonging to the low-income group, the majority of smokers started smoking cheroots which were much cheaper than cigarettes. A few of the interviewees were cigarette smokers. Many cigarette smokers smoked about one pack of cigarettes a day; the range was between 5 to 40 cigarettes. Smoking both cheroots and cigarettes was common.

People tend to smoke cigarettes when they have more money to spend; on the other hand there was a general concept among smokers that cheroots were less dangerous than cigarettes; hence they switch from cigarettes to cheroots when they have symptoms such as coughing or tightness of chest.

Regarding chewing, there were no raw tobacco chewers among the respondents. Many chewed betel quid with Myanmar tobacco mixed with areca nut, lime and various ingredients, some of them put Indian smokeless tobacco (*ahmwe) or* wet tobacco (tobacco mixed with water) or cured tobacco (*hsey paung*): hsey paung is tobacco soaked in honey or alcohol or lemon. Most betel chewers chewed about 15 pieces of betel: the range was from 5 to 25 pieces.

Awareness, knowledge and perception of health effects of tobacco

Awareness of negative health effects of smoking and chewing

Most smokers were aware that smoking is bad for health, and had some awareness of the specific diseases for which smoking increases risks. Almost all of them knew that smoking could cause some form of lung disease; in fact many were suffering from chronic cough, tightness of chest or asthmatic attacks at the time of survey. The majority also knew that smoking could lead to cancers, specifically lung cancer. A few smokers also responded that smoking could lead to heart disease and hypertension, one or two smokers knew that Tuberculosis is associated with smoking.

A considerable number of respondents had read about dangers of smoking on billboards, posters and journals. Many of them had also heard from radio and television; one woman smoker who had been suffering from heart disease and was hospitalized frequently was persuaded by her family to watch the health education programmes on dangers of smoking that were being broadcast frequently on television, but she refused to watch them. She said she dared not look at the pictures of patients with cancers and diseases, she already knew that smoking is not good even if she could not quit smoking.

In contrast, very little was known about dangers of smokeless tobacco. No one had heard specifically about hazards of smokeless tobacco; the only disease which they believed to be caused by chewing betel quid was "urinary stone" (*kyauk);* the perception was that lime which is an essential ingredient of the betel quid might get concentrated in the urinary system and form urinary stones.

"*You could get sick by smoking because you have to inhale the smoke, but with betel, you are not swallowing the betel, after chewing it everyone spits it out. So, I don't think chewing betel can cause any illness."* (A male manual labourer, 31 years.)

One respondent had seen two of his friends develop ulcers and sores in the mouth, in one case it was severe enough to cause a hole in the cheek (cancrum oris). But this friend did not admit that the hole in the cheek was caused by heavy chewing of tobacco; he

admitted that he did not know the cause but he believed that it could not be due to chewing betel.

Awareness on dangers of passive smoking

Knowledge on the dangers of passive smoking was virtually universal among the respondents. The majority felt that people should not smoke near children as "*cigarette smoke is bad for the children*". Many of them thought that smoking should be banned from public places such as schools, hospitals, offices and public transport. Most of the respondents also replied that smoking while walking must be prohibited to prevent fire from cigarette butts.

"I knew that tobacco smoke is not good for others; I have a very close friend who could not tolerate tobacco smoke; once I was smoking near him and he became breathless and tears ran down from his eyes. I felt so bad after this. I almost hated myself for being unable to stop smoking." (A male trishaw driver, 46 years)

"I know that the smoke from my cigarette will hurt people nearby. Although they do not smoke, they will be inhaling the smoke from my cigarettes and I think they will have the same bad effect like me." (A male old manual worker, 30 years)

"My girlfriend complained whenever I smoked. She said she could not stand the smell of cigarettes. I thought she was too bossy and wanted influence over my lifestyle; I did not like being told what to do and not to do, so I broke up with her." (Male driver, 20 years)

Having ill-effects on health

Being chronic and heavy smokers, many respondents had one or more symptoms at the time they were interviewed. Many had chronic coughs with expectoration of mucus and shortness of breath; one woman had been repeatedly hospitalized for asthmatic attacks and another woman was diagnosed as having heart disease. Many smokers noticed that they had less stamina than before; they reported that their performance had been weakened in every way due to heavy smoking. One 30 year old manual laborer who used to play football said that he could not play anymore.

"At first I thought that smoking keeps one fresh, releases mental stress and unhappiness. Now I feel dull and gloomy after each smoke, I did not feel fit to work after smoking."
(A male worker at restaurant, 21 years)

Being a sensitive subject, the issue of impotency was not openly discussed during the interviews. It was discussed with older male respondents over 40; one man who had smoked a pack of cigarettes a day for more than 15 years admitted he had lost interest in sexual activities; but he took it to be a result of his meditation and praying.

"*My wife and I are not sleeping together nowadays; she understood that I am too involved in religious matters and she did not complain".*

A considerable number of the betel chewers expressed symptoms such as palpitations and stomach pains. A few complained about loss of taste and feeling of thickness of the tongue.

Quitting tobacco use

The majority of respondents knew tobacco is bad for health; many of them had symptoms related to smoking and a few had been diagnosed by doctors as having heart or lung diseases; yet, almost all of the respondents were finding it difficult to quit smoking or chewing tobacco. Many of them had tried at least once to stop without success. The "sour taste in the mouth after meals" was the most common reason that they decided to smoke or chew again. One respondent reported that she could not sleep at nights during the period she was trying to quit smoking. The asthmatic woman said she felt very weak without tobacco. One of the most common reasons that led to the failure of quitting was lack of support from friends and the social environment they live in. Friends would give them tobacco to smoke or chew which they found hard to refuse.

Although many respondents had received advice from medical personnel to stop, there was no specific support group or counseling services for cessation of tobacco use.

The general opinion among respondents was that quitting betel with tobacco would be much more difficult than to quit smoking.

"I could quit smoking if I want to, but I would not be able to quit chewing betel with tobacco, it has become a habit that will be very difficult to stop."
(Male trishaw driver, 46 years)

"My wife has been suffering from some form of lung disease due to chronic smoking; she was breathless sometimes and had to be admitted to hospital several times. Doctors advised her to stop smoking, but she would not follow their advice. Our eldest son even threatened his mother that he would never come back to see her if she did not stop smoking, this saddened her very much but she just could not help herself. In fact, both of us knew that smoking is bad for health, doctors told us, we also saw a lot about it on television, but we still could not stop smoking. I have cut it from 6 per day to 3 per day. I sometimes hated tobacco, I felt like we could not get out of this circle; trying to quit and then smoking again." (Male trishaw driver, 46 years)

"The sour taste in the mouth after meals is the most unbearable thing when trying to quit. This sour taste could only be relieved by smoking or chewing betel with tobacco. Whenever I tried to stop using tobacco, I had to use it again because this sour taste in the mouth after meals was almost unbearable. The hunger for tobacco was worse than the hunger for food or water." (Washerwoman, 46 years)

"A lot of people will find it very difficult to stop smoking or chewing tobacco without drugs; they do not have willpower or strength to stop without the aid of drugs. I think the government should produce drugs that will help people to quit tobacco".

(A male taxi-driver, 23 years)

Perception on tobacco advertisement

Almost all of the respondents had never thought seriously about tobacco advertisements. Most of them thought that the tobacco industry was doing its own business to get profit and it was nothing to be complained of. However a few respondents raised concern about the effect the advertisements would have on the youth. The general opinion was that advertising would have negligible impact on older persons who had the tendency to be loyal to their own cigarette brands, but would greatly affect the youth.

"As I had already chosen the brand I liked, advertisement did not have any effect on me at all. I would not switch from one brand to another just because some cigarette company advertises that its brand is better. They were advertising only for their profit; we are not interested." (Male driver, 20 years)

"Advertising stickers are becoming more and more attractive; you know about the modern youth, they want to experiment what is new and stylish. They will try it as a new experiment and might become addicted. " (Male driver, 46 years)

"Nowadays we are seeing young boys as young as 10 or 11 years old with cigarettes in their hands, they were copying the styles of the handsome youth that they saw in the cigarette advertisements; they also took after models and film stars. I think, models and film stars in the advertisements, especially foreign models and stars are teaching the youth how to smoke". (A restaurant worker, 21 years, male)

"Cigarette companies are hiring young girls to promote sales; these girls dress up in mini-skirts, or skirts with slits up to their thighs (which is improper for our Myanmar girls), and approach young boys; they offer free cigarettes to the boys who find it difficult to refuse, they even light up cigarettes for the boys. It is very annoying to see young boys getting hooked to tobacco in this way. This sort of advertising should be prohibited."

(A 31 year old male, manual worker)

Perceptions on tobacco control measures

On health education

As far as awareness of tobacco control measures was concerned, many had seen the health education programmes about dangers of tobacco. They were aware that the government is enhancing anti-tobacco activities and support this. There are different views on education programmes. Although many respondents appreciated the health education programmes, some were doubtful about the usefulness of educating the youth not to experiment with tobacco.

"When I see young people smoking I say to myself, they are making the same mistake that I made. But due to the nature of youth, I don't think it is wise to tell them not to smoke. They would not listen; they would want to experiment what is being advertised attractively and what other young people are doing. I think the health personnel should do more than educating. Since they know that smoking is bad for health they should put up stronger regulations. This would help people who want to stop smoking."

(A male trishaw driver, 30 years)

On price measures

Many respondents thought tobacco users would definitely reduce consumption if prices of tobacco products were raised. The majority also agreed that prohibition of sale of single sticks would also reduce the consumption of tobacco.

"We are poor and we have to be careful on what we are spending. I am smoking cheroots because they are very cheap. The usual price is 10 kyats per stick. Some brands are even cheaper; you can get 3 sticks for 10 kyats. If the government or health personnel would raise the price of cheroots to say 50 kyats per stick, I would think twice before buying a cheroot. In fact I would rather quit because I would not be able to afford it. I believe the government should increase the prices of cheroots if they want to see less people smoking cheroots." (Male manual labourer, 38 years)

"*We sell cigarettes and cheroots at our shop. Most of the buyers are poor and they usually buy one or two sticks at a time. They could not afford to buy cheroots or cigarettes in packs. If there is a law which says that cigarettes must be sold only in packs of 20, the number of people buying cigarettes will definitely drop. They would rather switch to cheroots. If the government is planning to come up with a law, that law must include both cigarettes and cheroots".* (Male vendor, 45 years)

On smoke-free places

The majority felt that smoking should be banned at hospitals, schools and public transport. They were mainly concerned with the effect that tobacco smoke might have on children.

<u>Tobacco expenditure</u>

The respondents belong to the low-income group. In most cases, at least two persons per family were earning money; usually the head of the family and one of the older sons or daughters were working and the family would also include one or more children who were attending school. For the female respondents, almost all of them had some form of odd job such as splitting cashew nuts, washing, working at a cheroot cottage industry etc.

The income of the respondents ranged from 500 kyats to 5000 kyats per day. The families of the respondents were spending from 1000 to 1500 kyats per day on food; about 220 to

500 kyats on rice which is the main staple food of Myanmar families and the remainder on vegetables and cooking oil, and a few kyats on fish and meat. They bought clothes about three to four times a year and they spent only a negligible amount on education and health. Only a few respondents had high school or university students at home that required a considerable percentage of their income on their education whereas most of the respondents had only primary or middle school students or school dropouts.

On the other hand, the respondents were reported to be spending from 50 to 1500 kyats per day on tobacco. They were spending least on cheroots and most on cigarettes and betel with Indian tobacco. The general opinion was that betel was more costly than cheroots, as they were chewing many pieces of betel quid per day. Betel with one brand of Indian tobacco in it known as "Signal" would cost as much as 25 kyats per piece and the expenditure on betel quid per day would rise to 500 kyats. For a few respondents, tobacco expenditure amounted to 20% of their daily income. There were a few exceptional cases. One young driver was spending nearly half of his income on tobacco. He smoked more on the days when he earned less to get rid of his worries.

The majority of the respondents had never calculated their expenditure on tobacco. They did not begrudge the money they were using on tobacco. They had the feeling that they deserved this much as they were working very hard.

"Now that you asked, I guess I am spending about 100 kyats for cheroots and 300 kyats for betel with Indian tobacco that is around 400 kyats for tobacco. I do not feel guilty about that. I am working and earning money, I ought to spend that much on something I like. I cannot go on without tobacco. I need tobacco for my daily work. I would not go to work unless my wife has put 400 kyats in my pocket to buy cheroots and betel".

(Male trishaw driver, 46 years)

"I am earning about 1000 to 1500 kyats per day. I spend about 600 kyats a day on cigarettes and betel. Sometimes the customers would buy me betel or cigarettes as tips. I have to carry heavy loads of goods everyday. I need tobacco and alcohol for relaxation. As I am working very hard and earning money, I feel that I deserve this much."

(Male manual labor, 28 years)

"*If I have to buy cigarettes in a pack, I would know how much I have been spending on cigarettes. As it happened, I usually bought my cigarettes in loose forms, one or two at a time and I did not calculate the amount of money I have been spending on cigarettes*". (20 year old driver, who smoked over 20 cigarettes/day and spent half his earnings on cigarettes)

However, quite a few respondents expressed feelings of guilt.

"*I sometimes thought that buying cigarettes is like burning money; I was spending from 600 to 1000 kyats everyday on cigarettes*".

(A male dresser at a township hospital, 47 years)

"My husband used to work in a hospital. He stopped smoking after seeing patients suffering from diseases due to smoking. Now, I am the only one smoking at home, he said I was buying disease with the hard-earned money. As he had retired, I was the one earning money by splitting cashew nuts. I should stop smoking but I could not help myself. I need to smoke to ease my problems. " (A female manual laborer, 52 years)

Conclusion

It was a sad experience to conduct the in-depth interviews. Most of the respondents had started smoking or chewing betel at a very young age; in one case it was as early as 5 years of age. Since they had been smoking and chewing for many years, by the time of interview many of them had various forms of tobacco-related illnesses. In spite of this, they could not quit tobacco as they were totally addicted. Lack of support from friends, family and health personnel for the tobacco users to quit is also a critical issue.

In-depth interviews revealed that respondents had never considered seriously the amount of money they were spending on tobacco. They felt that as the bread winners of the family, they have the right to spend on something they liked; something that they felt is needed for their pleasure and to relax. However, a few respondents replied that they would reconsider if the price of cheroots went up or if there were regulations that banned sale of loose cheroots. As cheroots are very cheap compared to cigarettes and could be bought in loose forms, they did not perceive that they were spending much on tobacco. Similarly, for cigarette smokers, they failed to add up the amount of money they were spending on cigarettes since they were buying them one or two at a time.

Even at very low prices of cheroots and betel quid, a considerable percentage of the respondents were spending as much as 20% of their daily income on tobacco. As the majority of the respondents were the sole bread-winners of their families, this huge percentage of income spent on tobacco took a big chunk of the money which could have been spent on food and other basic necessities for their families.

In addition to the expense borne by the users of smokeless tobacco, another issue of major concern was that almost all of the respondents were not aware of dangers of smokeless tobacco; it highlights the urgent need to include a campaign against smokeless tobacco in the National Tobacco Control Programme. There is also a universal opinion among users that to quit smokeless tobacco would be much more difficult than to quit smoking.

The majority of respondents voiced that tobacco advertisements should be banned; they also knew that their smoking could harm other people and were concerned about the effect of the tobacco smoke on children. It was the universal opinion that smoking should be banned from public places and public transport.

RECOMMENDATIONS

1. Tobacco is a major problem among low income groups in Myanmar. Myanmar has ratified the Framework Convention on Tobacco Control and has become a Party to the Convention. Following the ratification of the Framework Convention on Tobacco Control, measures should be sought to reduce the economic burden of tobacco on poor households. Tobacco control measures should be implemented following the guiding principles of Framework Convention on Tobacco Control by introducing laws and regulations and taking measures to enforce the laws.

2. Health education activities should be enhanced to promote community awareness and involvement with the aim of preventing tobacco use among the youth and vulnerable groups. Enhancing community awareness campaigns with the aim to reach the poor and the uneducated is vital. Appropriate IEC materials should be developed and intensified with the involvement of all partners using the national language. In addition, lessons on hazards of tobacco use should be included in the school curriculum and cooperation with health promotion programmes should be ensured and strengthened for tobacco control among school children.

3. Appropriate price and tax measures should be implemented to raise prices of tobacco products, because this is the most effective way to reduce consumption. Price and tax measures should aim at increasing prices harmoniously for all tobacco products both local and imported in order to prevent substitution. In addition to price and tax measures, smokeless tobacco products should also be brought under other regulatory measures, including creating awareness about the dangers of using these products.

4. Support from health personnel, community support groups and friends is urgently required to help people to quit. The National Tobacco Control Programme should enhance its education programmes to reach the poor and the uneducated; the programme should also include provision of health education on dangers of smokeless tobacco. Community cessation programmes should be expanded to form support groups for those who want to quit tobacco.

5. Targeted programmes should be developed to reduce tobacco use among the poor (cessation, awareness creation through IEC).

6. The National Tobacco Control Committee, under the guidance of the National Health Committee, should encourage and provide support for developing alternative livelihoods for tobacco growers and sellers.

7. There is a need to strengthen mechanisms for multi-sectoral collaboration on tobacco control.

8. Tuberculosis being one of the diseases of poverty and given the close link between death from TB and tobacco use, TB and NCD programmes should have elements of

tobacco control. Similarly, all health promotion programmes should also be linked to tobacco control.

9. Tobacco control focal points should be designated at decentralized local bodies and networking facilitated among the focal points.

REFERENCES

1. Kyaing, N.N. October 2003. *Tobacco Economics in Myanmar*. Economics of Tobacco Discussion Paper No.14, World Bank, Washington DC.

2. World Health Organization, South-East Asia Region. *Health Situation in the South-East Asia Region, 1998-2000*, World Health Organization, Regional Office for South-East Asia Region, New Delhi, 2002 (Adopted from UNDP, Human Development Report 2001).

3. United Nations Development Programme: *Human Development Report 2000,* New York, Oxford University Press.

4. Union of Myanmar. April 2005. *Myanmar Millennium Development Goals Report 2005.*

5. Kyaing, N.N. et al. 2001. Myanmar Sentinel Tobacco Use Prevalence Study. WHO SEARO Report 2001.

6. CVD Project and AIDS Project, Department of Health and Department of Preventive and Social Medicine, Institute of Medicine 1, Yangon, Myanmar. *Prevalence of cardiovascular diseases in rural areas of Hmawbi and urban Yangon city, 1991.* Paper presented to Myanmar Research Congress.

7. Naing K.S., T. Sein et al., Department of Preventive and Social Medicine, Institute of Medicine 1, Yangon, Myanmar. *Prevalence of smoking in 29 townships of Bago, Magwe and Mandalay Divisions, September 1999.* Paper presented to Myanmar Research Congress.

8. Guindon E., A-M. Perucic and D. Boisclair. October 2003. *Higher Tobacco Prices and Taxes in South East Asia: An effective tool to reduce tobacco use, save lives and generate revenue.* HNP Discussion paper, Economics of Tobacco Control paper No: 11 Tobacco Free Initiative, World Health Organization and World Bank, Washington DC.

9. World Health Organization. *World Health Report 2002.* World Health Organization, Geneva.

10. John, S. and S. Vaite. October 2002. *Tobacco and Poverty: Observations from India and Bangladesh*. PATH Canada.

11. Efroymson D. and A. Saifuddin. July 2000. *Hungry for Tobacco: An analysis of the economic impact of tobacco on the poor in Bangladesh.* PATH Canada.

12. World Health Organization, South-East Asia Regional Office: *Country Profiles on Tobacco or Health.* 2002. World Health Organization, Regional Office for South-East Asia Region. New Delhi.

13. World Health Organization. 1995. *The World Health Report Archives 1995-2000. P*age 67.

ANNEX 1

Survey questionnaire

Only current users of any form of tobacco will be interviewed.

Section 1: Basic information of the individual

May I please have some information about you?

1	General Information	
1.1	Serial Number (Unique number)	
1.2	Geographical location (Code: Ygn 1, Mdy 2, Delta 3, Hilly 4, Coastal 5, Plain 6)	
1.3	Age (completed years)	
1.4	Sex (Male 1, Female 2)	
1.5	Marital Status (Single 1, Married 2, Separated/ Divorced 3, Widowed 4, Others 5)	
1.6	Educational level (Illiterate 1, Monastic 2, Can read and write 3, Completed Primary 4, Completed Middle 5, Completed High 6, University graduate 7, vocational 8, others :please specify 9)	
1.7	Religion (Buddhist 1, Christian 2, Muslim 3, Hindu 4, Others 5)	
1.8	Ethnicity (Bamar 1, National Races 2, Others 3)	
1.9	Occupation (Trishaw driver 1, Truck driver 2, Bus assistant 3, Manual labourer 4, daily wages 5, tobacco-related work 6, others 7:please specify)	
1.10	How many members are there in your family?	
1.11	How many of them are above 15 years of age?	

Section 2: Tobacco use

May I now go on to your tobacco use habits?

2	Tobacco Use	
2.1	Are you currently smoking any tobacco product? (Yes 1/No 2)	
2.2	If yes, which of the smoked products are you using now? (Cheroots 1, Cigarettes 2, Cigars 3, pipes 4, Hand-rolled cheroots 5, Others 6) If you are using more than one type of tobacco, please write down all the types of tobacco product ever used.	
2.3	Are you currently using any smokeless tobacco product? (Yes 1/No 2)	
2.4	If yes, which of the smokeless tobacco products are you currently using? (betel quid with tobacco 1, raw tobacco 2, Indian smokeless tobacco products 3, Others 4)	
2.5	Do you smoke tobacco products daily? (Yes 1/No 2)	

2.6	Do you use smokeless tobacco products daily? (Yes 1, No 2)	
2.7	At what age did you experiment smoking? (completed age)	
2.8	At what age did you experiment using smokeless tobacco? (completed age)	
2.9	At what age did you start smoking daily? (completed age)	
2.10	At what age did you start using smokeless tobacco daily? (completed age)	
2.11	What motivated you to begin smoking? (Peer pressure 1, experiment 2, parent asked to light cheroots 3, stylish 4, lonely 5, others; please specify 6)	
2.12	What motivated you to begin using smokeless tobacco? (Peer pressure 1, experiment 2, just to kill the time 3, lonely 4, to keep me awake 5, stress (6) others (7) please specify.	
2.13	For daily users how many sticks of tobacco do you use in a day?	
2.14	For occasional users, how many sticks of tobacco do you use in a day?	
2.15	For daily users how many packets of smokeless tobacco do you use in a day?	
2.16	For daily users how many packets of smokeless tobacco do you use in a day?	
2.17	Which brand of cheroots / cigarettes/cigar etc do you usually smoke? (Specify)	
2.18	How much do you usually spend a day on smoking tobacco products?	
2.19	How much do you usually spend a month on smoking tobacco products?	
2.20	How much do you usually spend a day on smokeless tobacco products? (Specify kyats)	
2.21	How much do you usually spend a month on smokeless tobacco products? (Specify kyats)	
2.22	How many of your family members are currently smoking any tobacco product?	
2.23	How many of your family members are using any smokeless tobacco product?	
2.24	How much do your family members usually spend a day on smoking tobacco products? (Specify kyats)	
2.25	How much do your family members usually spend a month on smoking tobacco products? (Specify kyats)	
2.26	How much do your family members usually spend a day on smokeless tobacco products? (Specify kyats)	
2.27	How much do your family members usually spend a month on smokeless tobacco products? (Specify kyats)	

Section 3: Income and expenditure

Now I would like to know about the income and expenditure of you and your family.

3	Income and expenditure	
3.1	For daily wagers only How much do you earn in a day? (Specify kyats)	
3.2	For salary/ others paid monthly or by any other means. How much do you earn in a month? (Specify kyats)	

3.3	How much does your family earn in a day? (Specify kyats)	
3.4	How much does your family earn in a month? (Specify kyats)	
3.5	How much do you and your family spend on food in a day? (Specify kyats)	
3.6	How much do you and your family spend on food in a month? (Specify kyats)	
3.7	How much did you and your family spend on education (school fees/ school books/tuition fees etc) during the past year? (Specify kyats)	
3.8	How much did you and your family spend on health (drugs /going to clinics/ traditional medicine/check-ups) during last year? (Specify kyats)	
3.9	How much did you and your family spend on clothes during last year? (Specify kyats)	
3.10	How much did you and your family spend on rent in a month? (Specify kyats)	
3.11	How much did you and your family spend on water and electricity and fuel in a month? (Specify kyats)	

Section 4: Knowledge about Tobacco Control

May I now go on to your knowledge about tobacco control?

4	Tobacco Control	
4.1	Do you know that smoking causes disease? Yes (1) No (2)	
4.2	If yes, what are the diseases that can be caused by smoking? (Please tick in the brackets if they mentioned the disease) Cancer ( ) Heart disease ( ) Lung Disease ( ) Stroke ( ) Others – please specify (----------)	
4.3	Do you know that chewing betel quid with tobacco can cause diseases? Yes (1) No (2)	
4.4	If yes, what are the diseases that can be caused by chewing betel quid with tobacco? (Please tick in the brackets if they mentioned the disease) Cancer lip, oral cavity, tongue ( ) Others -- Please specify (----------)	
4.5	In your opinion what are the places that smoking should be banned? (Please tick in the brackets if they mentioned the place) Schools ( ) Hospitals ( ) Public transport ( ) Cinema hall ( ) Others. Please specify (----------)	

INTERVIEWER'S CLOSING REMARKS

Thank you. This ends our questions. You have been very helpful. Again, thank you for your time. Your answers have been very helpful.

ANNEX 2

Outline of In-depth Interviews

1. Tobacco use status---- using some questions from the survey questionnaire
2. When did they start to use tobacco?
3. What are the factors that determined the initiation of their tobacco use? What made them start or experiment smoking or chewing? Did they have any guilt about it when they start smoking or chewing? How do their parents, family members, teachers and other people in their environment react to this behaviour?
4. How do they feel about their using of tobacco currently? What is the opinion or attitude of their family members?
5. Their income- their expenditure on food, education, health and tobacco.
6. Have they ever thought of how much they were spending on tobacco? How do they feel about this? What is the feeling or opinion of their family members about this?
7. Have they ever thought of how they could use tobacco money on other necessities for their family?
8. Have they ever tried to quit tobacco? If yes, why? If no, why?
9. Have they ever heard of dangers of tobacco? If yes, from where? If they have heard, what is their opinion about this?

ANNEX 3

The Durbin-Wu Hausman endogeneity test

	Tobacco products		
	All	**Smoking**	**Smokeless**
Price Residual coefficient	-0.73*** (0.056)	-0.31*** (0.06)	3e+06*** (6.12e+05)

Price Residual coefficient					
	Average	**Income groups**			
		1	**2**	**3**	**4**
Smoking					
Cheroots	2.35e+06*** (7.47e+05)	2.97e+06*** (1.43e+06)	4.5+06*** (1.3e+06)	5.2e+05 (1.4e+06)	-1.9e+06 (2.6e+06)
Cigarettes	-2.7e+06*** (1.02e+06)	-1.4e+05 (1.7e+06)	-1.4e+06 (2.4e+06)	-3.4e+06** (1.6e+06)	-9.6e+06** (4.1e+06)
Cigarettes and Cheroots	3.4e+06*** (1.2e+06)	7e+05 (2.22e+06)	8.89e+06*** (2.34e+06)	2.06e+06 (2.17e+06)	9.98e+05 (7e+6)
Smokeless					
Betel	2.81e+06*** (6.62e+05)	-	-	-	-
Indian	1.98e+06 (2.21e+06)	-	-	-	-

***, ** and * Significant at the 1%, 5% and 10% levels respectively
Values between brackets represent the standard deviation

The Durbin-Wu Hausman endogeneity test is applied to the consumption equation.

A log-log OLS estimation of the price equation is made using as exogenous variables tax, age, sex, marital status, education, occupation, income and the estimated price residual variable is extracted from this equation. The price residual is then included in the estimation of the demand equation of the tobacco product as an exogenous variable. If the coefficient of this variable is not significant, this would mean that price is an exogenous variable. As shown in the table, in many cases, the coefficient is significantly different from zero which means that price does seem to be endogenous in some estimation groups. Consequently, when the coefficient of the residual is significant, we use the 2SLS estimation, when it is not we use the OLS estimation.

H N P D I S C U S S I O N P A P E R

Economics of Tobacco Control Paper No. 31

Study on Poverty Alleviation and Tobacco Control in Myanmar

Nyo Nyo Kyaing, Anne-Marie Perucic and Khalilur Rahman

Co-Researchers: San Shway Wynn, Ko Ko Naing, Kyaw Zeya, Kyaw Khaing, Nyi Nyi Latt and Maung Maung Than Hteik

August 2005

Tobacco Free Initiative
World Health Organization

HNP
HEALTH, NUTRITION, AND POPULATION
THE WORLD BANK