

Poverty kills. But if China doesn't act soon, so will affluence.

Today's Smokers, Tomorrow's Statistics

China Meets The Marlboro Man

By **Brad Edmondson**



This is what the good life means in China today: A rural factory worker has something extra in his pocket at the end of the week. He celebrates by visiting the butcher and bringing home steaks, so his family can have a taste of prosperity.

The good life could also mean giving small gifts to friends. When two office workers meet in Shanghai, for example, it's common for one to offer the other a cigarette. The standard response is to take it and inhale before beginning the conversation. To refuse a cigarette creates an awkward moment – after all, you are refusing a gift.

China has one-sixth of the world's population, and it is making the transition from poverty to relative affluence in less than one life span. The country's gross domestic product per capita doubled between 1978 and 1987, then doubled again between 1987 and 1996. This transformation has brought remarkable improvements. Life expectancy at birth has increased from 54 years in 1962 to 70 years in 1997, two years longer than the global average. Literacy has increased from 64 percent of adults in 1980 to 80 percent in 1995.

Yet there are less positive aspects to China's economic transition. Seven out of 10 men in China smoke cigarettes, and the average daily consumption (per man) has risen in virtual lockstep with income, from one cigarette in 1952 to four in 1972 and 11 in 1996. Tobacco already causes about 800,000 deaths a year in China, according to estimates released last fall. But the full impact of recent increases in consumption will not be felt for about 30 years.

In the middle of the 21st century, when today's new smokers are tomorrow's victims of lung cancer and heart disease, China can expect some 3 million

tobacco-related deaths a year. Most of these premature deaths will be among men, because they smoke more than 90 percent of the 1.8 trillion cigarettes sold annually in China.

One reason for the long life expectancy of Chinese people is their low-fat diet. But China's economic transition is also increasing the proportion of calories Chinese consume as fat. Chinese beef consumption quadrupled between 1990 and 1995, for example, and the amount of grain used for animal feed increased from about 20 million tons in 1980 to about 85 million in 1995.



Any country that makes the transition from agrarian poverty to industrial wealth goes through a variety of changes, with long-term effects that go far beyond economics. The best known of these is a transition in health and illness. Countries whose national incomes are beginning to rise are often able to make rapid improvements in public health by drilling deep wells for drinking water, eliminating open sewers and other causes of infectious disease and providing basic modern medicines. These measures have immediate and dramatic impact on deaths from disease, especially among children.

But as the nation's life expectancy increases and incomes continue to rise, more people can afford to buy the traditional symbols of modern wealth and sophistication. Eating and leisure habits change, and the leading causes of death become more and more associated with old age and affluence. The most prominent of these is cancer.

Nutrition and disease experts are looking closely at connections between economic transitions and health transitions – and many of them see China as a test case for the rest of the developing world. Their hope is that China can achieve affluence while avoiding the health mistakes made by other rich countries, and tobacco control is their chief concern. One might expect the primary opposition to preventive measures would come from tobacco companies and government officials. But the biggest challenge will no doubt come from consumers. For when a newly prosperous wage earner in Beijing (or Mexico City or Bangkok) dreams of the good life, the dream usually includes steak, booze and smokes.

HAND-WASHING AND HOSPITALS

The health transition has happened in every industrial country in roughly the same way. In 1900, about 40 percent of deaths in the United States were caused by 11 major infectious diseases: typhoid, smallpox, scarlet fever, measles, whooping cough, diphtheria, influenza, tuberculosis, pneumonia, polio, and

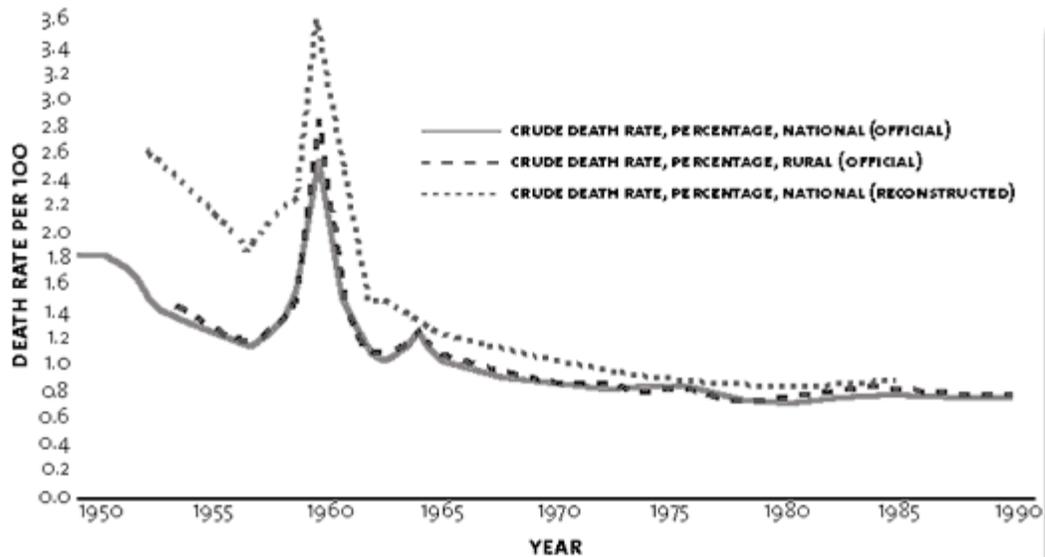
diseases of the digestive system. Only 16 percent of deaths were caused by cancer, stroke or heart disease. One life span later, the numbers had virtually reversed. In 1973, infectious diseases caused just 6 percent of deaths in the United States, while 58 percent were due to these three chronic conditions.

Researchers agree that hospitals, vaccines, and the other blessings of modern health care have been responsible for part of the change. But most can be traced to measures that are often taken for granted.

According to Thomas McKeown, a British physician who studied the decline in mortality in England and Wales, the biggest improvements came from the simplest things. In the 18th and much of the 19th century, mortality declines were entirely due to improvements in environmental conditions – cleaner drinking water and less exposure to sewage. Between 1900 and 1971, about three-quarters of the additional fall in mortality in England and Wales were due to control of infectious diseases through a variety of public and private health measures. Thus just one-quarter of the 20th century decline was not attributable to the control of microorganisms.

Vaccines and antibiotics often get the credit for stopping microorganisms, but they don't deserve first billing. In 20th century England, advances against airborne infectious diseases such as influenza were responsible for half of the decline in the death rate. The major reason for this advance was improvement in nutrition: England's rising standard of living allowed more people to eat a balanced diet and thereby maintain strong immune systems.

Water-borne diseases such as typhoid and food-borne diseases such as salmonella accounted for one-sixth and one-tenth of the mortality declines, respectively. The main cause of these declines was reduced exposure to the disease through better personal hygiene. Medicine has had its share of triumphs: vaccines have made smallpox extinct on the planet, and they may soon eradicate polio. While our grandparents saw pneumonia as a death sentence, we have antibiotics. So we now view pneumonia as a serious but treatable condition. But medicine does not drive the health transition.



SOURCE: Judith Banister, *China's Changing Population* (reconstructed rates); People's Republic of China (official rates).

Indeed, medical measures are most useful as defensive weapons. They repel disease when it looms, providing a sense of security. Even so, the most potent weapons against disease are preventive measures that keep microorganisms from entering the body. John and Sonja McKinlay of Boston University have pointed out that most of the increase in medical spending in 20th century America began in the mid-1950's. And by that time, mortality declines had already occurred for the majority of diseases vulnerable to miracle drugs.

RICH AND POOR DISEASES

Some of the best data on China's health transition come from The China Project, a joint venture of the Chinese Academy of Preventive Medicine, Oxford University and Cornell University. In the mid-1980's and again in the 1990's, researchers visited a sample of Chinese households to administer a battery of tests that included a lengthy health questionnaire, a basic medical exam and blood tests. China is worth the effort because the rest of the world can learn from its example, argues Project co-director T. Colin Campbell of Cornell. After all, China is keeping more than a billion people relatively healthy on a diet that is low on animal products. It is also making a rapid transition from agrarian poverty to industrial wealth. But, at least so far, it has avoided many of the major diseases of Western countries.

Another strength of the China Project's data is that some areas surveyed are remote and still mostly unaffected by the nation's economic boom. Researchers used this geographic variation, along with information from Chinese mortality records, to look for causes of death correlated with poverty on the one hand and affluence on the other.

Their "diseases of poverty" include pneumonia; the associated problems of pregnancy and birth, and tuberculosis – all of which are concentrated in inland and northern China, where economic activity, population density and literacy rates are relatively low. Many people still do not follow basic rules of hygiene in

these areas and many have little access to basic medical care.



The "diseases of wealth" are seven kinds of cancer, plus diabetes and heart disease. They are far more prevalent in urban coastal areas, where the economy has taken off and diets are more likely to include large amounts of meat, eggs, soy sauce, beer, processed carbohydrates and sugar. While the diseases of wealth are all strongly associated with old age, the risk of having them increases substantially for people who eat a diet rich in animal products and sugar, who smoke and who do not exercise.

Tobacco use is only one of many factors in the transition from diseases of poverty to diseases of wealth. But it attracts a lot of attention because it is strongly associated with a single consumer product – cigarettes – and because consumption of that product is associated with what economists call "discretionary" income.

According to a 1992 study by the World Health Organization, Poland consumes more cigarettes per adult than any other country in the world, at 3,620 cigarettes a year per resident aged 15 and older. Other countries in the top 10 are all affluent places such as Japan, Switzerland, the Netherlands and Australia. The United States ranks 11th, at 2,670 a year, and China (excluding Taiwan) ranks 32nd out of 100 countries rated, with 1,900 cigarettes per adult per year. Note that the numbers for China would top Poland if Chinese women also smoked.

Countries with the lowest consumption of cigarettes were extremely poor places such as Mozambique, Nigeria and Guatemala, which ranked last on the list with a per-adult figure of 340 cigarettes a year.

HOW DEVELOPMENT DELAYS DEATH

In poorer countries, death often results from the lack of basic medical care. In richer countries, death associates with cancer and other conditions of old age.

DISEASES OF POVERTY	DISEASES OF AFFLUENCE
Pneumonia	Stomach cancer
Intestinal obstructions	Liver cancer
Peptic ulcer	Colon cancer
Other digestive disorders	Lung cancer
Nephritis	Breast cancer
Pulmonary tuberculosis	Leukemia
Infectious diseases (other than tuberculosis)	Diabetes
Parasitic diseases (other than schistosomiasis)	Coronary heart disease
Eclampsia	Brain cancer (ages 0-14)
Rheumatic heart disease	
Metabolic and endocrine disease (other than diabetes)	
Diseases of pregnancy and birth (other than eclampsia)	

SOURCE: T. Colin Campbell et al, "China: From Diseases of Poverty to Diseases of Affluence", in *Ecology of Food and Nutrition*, Vol. 27, p. 133-144.

The connection between wealth and cigarette consumption is not absolute, however, and in recent years some wealthy countries have seen cigarette use move down the socioeconomic ladder. The percentage of Americans who smoke has declined sharply from 43 percent in 1966, when the landmark Surgeon General's Report on Smoking and Health was released, to about 25 percent today. But more than 30 percent of high school dropouts smoked in 1995, compared with 14 percent of college graduates. Contrast that with 1966, when college grads were more likely to be smokers than high school dropouts.

In the last decade, the class division among American smokers has become a chasm. Smoking is regarded as deviant behavior by many professionals in the United States, but cigarette breaks are still the rule in blue-collar work settings such as construction sites. People pressing for tobacco control in the developing world hope that they can use education to break the connection between cigarettes and discretionary income. At the same time, global tobacco companies are counting on this connection to open new markets. Governments are often caught in the middle: Their leaders may recognize the long-term folly of promoting tobacco, but they are attracted by easy tax revenues linked to tobacco sales. And once again, China offers the best example of these forces in action.

SMALL, RICH AND SMOKY

TOP COUNTRIES FOR CIGARETTE CONSUMPTION, PERSONS AGED 15 YEARS AND OLDER

Countries with the highest rates of cigarette use usually have relatively few people and are growing slowly, but have high household incomes.

RANK PER CAPITA	COUNTRY	CIGARETTES PER CAPITA 1992	POPULATION 2000	GROWTH RATE 1990-2000
1.	Poland	3,620	39,010	0.2%
2.	Greece	3,590	10,735	0.6%
3.	Hungary	3,260	19,795	-0.6%
4.	Japan	3,240	126,582	0.2%
5.	South Korea	3,010	47,351	1.0%
6.	Switzerland	2,910	7,374	0.8%
7.	Iceland	2,860	280	0.9%
8.	Netherlands	2,820	15,893	0.6%
9.	Yugoslavia*	2,800	10,140	0.4%
10.	Australia	2,710	18,950	1.1%
11.	United States	2,670	274,943	1.0%

** population figures are for Serbia only*

SOURCES: World Health Organization, U.S. Bureau of the Census

COST OF A CIGARETTE

As they enjoy their daily smokes, many Chinese consumers might remember the times when life was not nearly as good. Before the Red Army's victory in 1949, China endured decades of war that devastated the population. In the 1950's mortality fell sharply as social order was restored – but these improvements were temporary.

Forty years ago, Beijing's near-absolute control over the essentials of life created a catastrophe. Perhaps 30 million Chinese died because of the social experiment called The Great Leap Forward, which forced skilled farmers to become workers in bizarrely inefficient factories while making radical, ill-conceived changes in farm organization. The result was large-scale crop failures and famine from 1958 to 1961. According to the United States Census Bureau, the death rate went from an estimated 18 deaths per thousand in 1957 to 45 per thousand in 1960 – and then fell again to 14 per thousand in 1962.

Mortality had been on a steady decline before the famine, and death rates continued to decline for at least 15 years thereafter. Since 1984 an average of seven to eight Chinese per thousand dies each year – a rate slightly below that of the United States. But many Chinese still have first-hand memories of war, famine and the terror of the Cultural Revolution. To them the perils of cigarettes may seem small by comparison.

China's coming wave of smoking-related deaths will be quieter than the horrors of Maoism, but the death toll could be greater. As with The Great Leap Forward, China's tobacco epidemic will be closely linked to government actions: China recently became the world's leading tobacco producer, and some 90 percent of Chinese tobacco companies are owned by the government.

Europeans mainly owned the tobacco companies in China until they were nationalized at mid-century. In the last decade, however, the China National Tobacco Corporation has turned to Western companies including RJ Reynolds, Rothmans and Philip Morris for assistance in promoting their products. Western cigarette makers now sponsor Chinese sporting events that cater to young adults, such as the Marlboro Soccer League. At the Nightman disco in Beijing, young women hand out free 555-brand cigarettes and advertising banners for 555 encourage the dancers to "forget your worldly cares."

Private cigarette companies have three good reasons to join with the Chinese government. The first is to establish a presence in the country in hopes that their profits from legitimate Chinese sales will eventually rise. The second is to acquaint Chinese with their marketing messages, which fuel demand within the already-huge black market in cigarettes. And the third is to help China with its plans to become a major tobacco exporter.

Revenues from exports of Chinese tobacco have increased from virtually nil in 1980 to the equivalent of an estimated \$600 million in 1995. China could well become the world's biggest tobacco exporter in a matter of decades, displacing all production in the United States.

BIG COUNTRIES DON'T SMOKE MUCH (YET)

The most populated nations are often in the developing world, where the smoking habit is just starting to catch on.

RANK PER CAPITA	COUNTRY	CIGARETTES PER CAPITA 1992	POPULATION 2000	GROWTH RATE 1990-2000
1.	China	1,900	1,253,438	1.0%
2.	India	1,370	1,012,909	1.7%
3.	United States	2,670	274,943	1.0%
4.	Indonesia	1,180	219,267	1.6%
5.	Brazil	1,500	169,545	1.2%
6.	Russia	N/A	147,938	0.0%
7.	Pakistan	640	141,145	2.1%
8.	Bangladesh	990	132,081	1.8%
9.	Japan	3,240	126,582	0.2%
10.	Nigeria	370	117,328	3.0%
11.	Mexico	970	102,912	1.9%

SOURCES: World Health Organization, U.S. Bureau of the Census

Even as Beijing prepares these ambitious export plans, it apparently understands that smoking is a net drag on the Chinese economy. One study by Chinese researchers estimated that, in 1993, the tax revenues China earned from cigarettes were outweighed by the economic costs of smoking-related morbidity by the equivalent of \$3 billion. Anti-smoking efforts began in China in the early 1980's, and stricter laws have recently taken effect. Advertising for cigarettes in print and electronic media has been banned since 1995. Smoking in most public places is illegal in 71 cities and three provinces.

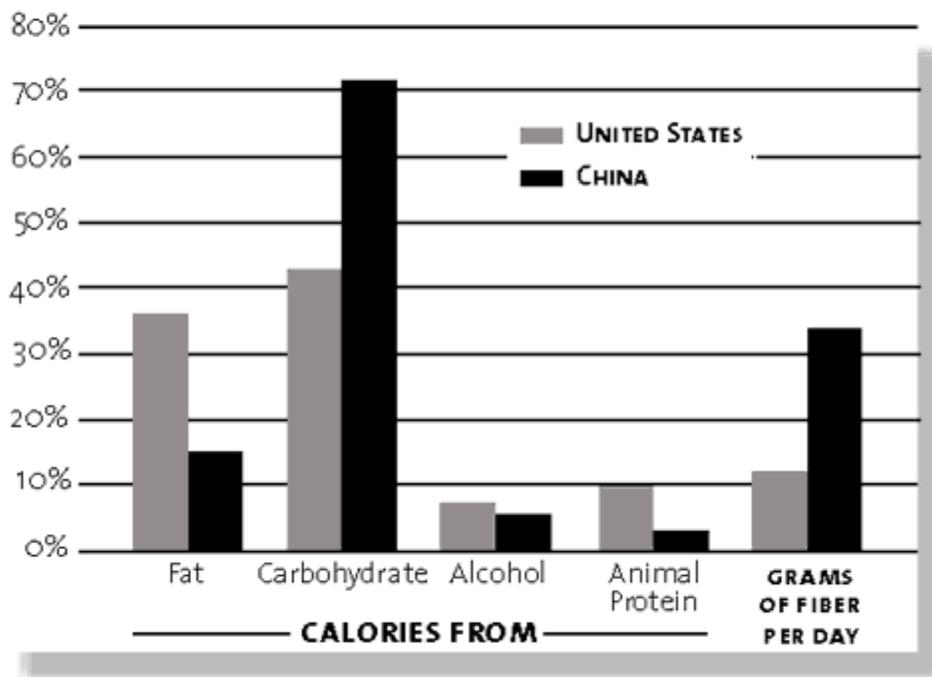
However, tobacco companies get around the advertising ban by placing their well-known brand logos and other images in advertising that does not show cigarettes. Getting the government to approve further controls on tobacco is complicated by the fact that tobacco is China's largest source of industrial tax revenue.

So far, the anti-smoking message is not getting through. More than half the Chinese people think smoking does little or no harm and, according to Dr. Yang Guanghua at the Chinese Academy of Preventative Medicine, six in 10 do not know that it can cause lung cancer. Perhaps most telling, 73 percent of Chinese men smoke – but only one percent identify themselves as former smokers.

WHY CHINESE FOOD IS GOOD FOR YOU

CALORIE DISTRIBUTION OF AVERAGE DIET, U.S. VERSUS CHINA, 1983

In 1990, China's diet was close to the ideal recommended to U.S. citizens by their government



SOURCE: Junshi Chen et al, *Diet, Lifestyle and Mortality in China*.

CHINA'S FUTURE: UP IN SMOKE?

Last fall, China's Academy of Medical Sciences and Oxford University released a study that brought China's health transition into sharp focus. Between 1989 and 1991, researchers visited the families and friends of one million people who had died in China between 1986 and 1988. If the person in question had died after age 35, the researchers determined whether he or she had been a smoker before 1980. If the person had been a smoker, the researchers gathered more information about his smoking habits. These data were then combined with cause-of-death information from death certificates.

The study was large enough and detailed enough to estimate, for the first time, the risk of death from various causes among Chinese smokers and non-smokers. Combining these risk ratios with population projections allowed the team to make the first large-scale projections of tobacco-related deaths in China.

Diseases associated with tobacco use already cause about 13 percent of deaths in Chinese men, and will probably account for 33 percent of male deaths if those who recently started smoking continue at their current rates of consumption. Yet

smoking causes only about three percent of deaths in women, and is in decline because the rates of female smoking have actually fallen in recent years. Two-thirds of Chinese men now become smokers before the age of 25, and about half of those who persist will be killed by tobacco.

These proportions are similar to those found in affluent countries where widespread smoking has been common for three decades or more, such as the United States or France. The conclusion is inescapable: If the Chinese smoke like Americans, they will die like Americans.

The study estimated that 100 million of the 300 million Chinese males now under age 30 will eventually be killed by tobacco if they don't quit smoking. Tobacco caused about 600,000 deaths in China in 1990. But it will cause about 800,000 deaths in 2000 – and as many as 3 million a year by the middle of the next century if current smoking rates do not change.



Kids watch mice being asphyxiated by cigarette smoke at a Beijing health fair.

Thirty years from now, if current rates continue, China will be a nation of relatively healthy women caring for sick and dying men. If Chinese women start smoking as their men do, China will become a nation of sick and dying spouses caring for each other.

These visions become even more disturbing when one realizes that the government-induced epidemic comes on the heels of another government policy – the "one-child norm" – that placed heavy penalties on women bearing more than one child. Thanks to dramatic decreases in fertility, China is already one of the world's most rapidly aging nations. Thus it is entirely possible that China could become a nation of sick old men (and perhaps sick old women as well) with few children to provide care or pay their medical bills.

The choice of whether to smoke should be up to individuals, and few Westerners would favor more restrictions on Chinese freedom. Yet the health of an economy also depends on the health of its people, and smoking places China's status as the world's most desirable consumer market in serious jeopardy.

Judith Mackay, a longtime activist for tobacco control in China, sees the

emergence of yet another kind of health transition – this one to a vigorous national program of preventive health measures. Nations that have gone through this transition, she says, will have active health education programs and extremely restrictive tobacco policies. Those that have not made the transition will struggle with rising morbidity, as well as entrenched tobacco interests that manipulate public opinion.

China still has time to make the leap to a preventative health care strategy. Indeed, in light of past "leaps," China may be in a better position than most countries to change behavior radically and quickly. Those who invest in China and the rest of the developing world would be wise to pay attention to the health transition. For in the long run, post-transition countries will be far more promising as consumer markets, as well as being far better places to live.

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