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## Recent Tobacco Tax Rate Adjustment and Its Potential Impact on Tobacco Control in China

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### Abstract

**Objectives**—To compare the new tobacco tax structure effective May 2009 with the tax structure before May 2009 and to analyze its potential impact.

**Methods**—Published government statistics and estimated price elasticities of the demand for cigarettes are used to estimate the impact of the new tax rate adjustment on cigarette consumption and population health.

**Results**—The new adjustment increased the tax rate by 11.7 percentage points at the producer price level. Converting this 11.7 percentage point increase to the retail price level would mean an increase of 3.4 percentage points in the retail price tax rate. Thus, China's new cigarette tax rate at the retail level would be 43.4% instead of the previous 40%.

**Conclusions**—The primary motivation for the recent Chinese government tobacco tax adjustment is to raise additional government revenue. Because the additional ad valorem tax has not yet been transferred to smokers, there is no public health benefit. It is hoped that the Chinese government will pass along these taxes to the retail price level, which would result in between 640,000 and 2 million smokers quitting smoking and between 210,000 and 700,000 quitters avoiding smoking-related premature death.

**What this paper adds**—This paper provides an up-to-date policy analysis of the new Chinese tobacco tax rate adjustment.

### Keywords

Tobacco Taxation; Impact; China

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## I. Introduction

In late May 2009, the Chinese Ministry of Finance (MOF) and the State Administration of Taxation (SAT) issued Taxation Document No. 84, “The Notice Regarding Adjustment to Tobacco Product Excise Tax Policy,”<sup>1</sup> effective May 1, 2009. The adjustment is as follows:

1. The ad valorem tax for Class A cigarettes increases from 45% to 56%.
2. The ad valorem tax for Class B cigarettes increases from 30% to 36%.
3. All adjustments are levied on the producer price. Class A cigarettes are those costing 7 RMB (US \$1.03, US \$=6.80 RMB at 2009 exchange rate) per pack or higher at the producer level, and Class B cigarettes cost less than 7 RMB per pack. Before May 1, 2009 5 RMB (US \$0.74) was the class benchmark.
4. An additional 5% tax is applied to the wholesale price, after adding the new increases in the ad valorem tax.

According to the document, the purpose of this adjustment is to increase government revenue from cigarette products and also to improve the cigarette tax structure.

The producers and wholesale prices of various cigarette brands are jointly determined by the China National Tobacco Company (CNTC) and the State Pricing Bureau within the National Development and Reform Commission (NDRC), according to Article 17, Peoples’ Republic of China Tobacco Monopoly Act. The wholesale price for Chinese cigarettes is usually set by the State Taxation Monopoly Administration (STMA) at 40% above the producer price for Class A cigarettes and 30% above the producer price for Class B cigarettes.<sup>2</sup> Imposing a 5% additional tax on the wholesale price for Class A brands implies that the tax base for the wholesale price ( $P_w$ ) is  $2.184 P_p [P_p (1 + 56\%)(1+40\%)]$  where  $P_p$  is the producer price. Likewise, the tax base for the wholesale price ( $P_w$ ) for Class B cigarettes is  $1.768 P_p [P_p(1 + 36\%)(1 + 30\%)]$ . The 5% wholesale tax increase converted into the producer price tax rate is 10.9% ( $2.184 \times 5\%$ ) for Class A cigarettes and 8.8% ( $1.768 \times 5\%$ ) for Class B cigarettes. Therefore, the new combined producer price tax rate and wholesale price tax rate at the producer price level is 66.9% ( $56\% + 10.9\%$ ) for Class A brands and 44.8% ( $36\% + 8.8\%$ ) for Class B brands. In other words, the new ad valorem tax rate is 21.9% higher ( $66.9\% - 45\%$ ) for Class A cigarettes and 14.8% higher ( $44.8\% - 30\%$ ) for Class B cigarettes than under the old tax structure.

The Class B brands, which cost between 5 RMB (US \$0.74) and 7 RMB (US \$1.03) per pack at the producer level, were taxed at 45% under the old tax structure and are now taxed at 36% under the new tax structure. However, if one includes the new 5% tax increase on the wholesale price, the resultant 44.8% ( $36\% + 8.8\%$ ) tax rate is less than 0.2 percentage point, but very close to the previous 45% level. This finding implies that there may not be a tax rate increase for brands costing between 5 RMB and 7 RMB per pack at the producer level.

The taxation document does not mention whether this tax adjustment is related to the Chinese government’s 2005 ratification of the World Health Organization (WHO) Framework Convention on Tobacco Control (FCTC), and specifically to its compliance with

Article VI on raising tobacco tax rates. On the other hand, it is possible that this adjustment will have positive effects on tobacco control in China if these additional taxes are shifted to the retail price. Raising the tobacco tax is considered one of the most effective policy instruments for tobacco control.

With a slowdown of the Chinese economy in early 2009, the Chinese government was seeking additional tax revenue to stimulate the economy. Because the Chinese National Tobacco Company (CNTC) is a government monopoly agency, the government can require the CNTC to transfer additional profit to the government as fiscal revenue. We believe that this new tobacco tax adjustment was designed to serve as a formal basis for the funds to be transferred as well as a prelude for the central government to reform its tobacco tax structure. The intent of this adjustment is to make higher priced cigarettes (Class A) more expensive relative to lower priced cigarettes (Class B). The Taxation Document No. 84 specified that the additional taxes will be absorbed by the CNTC and not transferred to the retail price. There are two possible reasons for this requirement: political and economic. First is the political reason, i.e., the Chinese government does not want to disturb smokers, especially the low-income smokers experiencing additional economic stress under the sluggish economy. Second is the economic reason, i.e., the central government understands that CNTC has a comfortable profit margin and could absorb this additional tax burden, thereby potentially resulting in the CNTC becoming more efficient to maintain its net profit.

The purpose of this note is (1) to compare the new tax structure with the previous tax structure, which was implemented in 2001, and (2) to analyze the potential impact of the new tax structure on the Chinese government's tax revenue as well as its short-term and long-term impacts on cigarette consumption.

## II. Comparison of the New Tax Structure with the Old Tax Structure

Table 1 compares the structure of the Chinese tobacco tax before and after May 1, 2009.<sup>3</sup> The specific excise tax (0.06 RMB per pack) remained the same. Under the new tax structure, the ad valorem tax increased from 45% to 56%, an 11 percentage point increase for cigarettes with a producer price of 7 RMB per pack or higher. For brands priced at least 5 RMB but less than 7 RMB, the new tax rate is actually 9 percentage points less than under the old tax structure. For brands costing less than 5 RMB, the tax rate increased 6 percentage points. In addition, a new across-the-board 5 percentage point tax is based on the wholesale price, which includes the new producer (ad valorem) tax.

According to statistics provided by China Tobacco,<sup>4</sup> the relative distribution of producer sales incomes in 2008 was about 20% for cigarettes with a producer price of 7 RMB per pack or more, 30% for those priced between 5 RMB and 7 RMB, and 50% for brands costing less than 5 RMB per pack. Since ad valorem tax revenue is based on the price of cigarettes, not the quantity sold by type, the value of sales is used to reflect the relative weights of government tax revenue received from different classes of cigarettes. Cigarette prices in China vary from about 2.0 RMB (US \$0.30) per pack to more than 200 RMB (US \$29.41) per pack. Thus, the weighted ad valorem tax rate net increase in the producer price under the new adjustment is 11.7%  $[(21.9\% \times 0.2) + (-0.2\% \times 0.3) + (14.8\% \times 0.5)]$ .

The Chinese government has reported that the previous aggregate excise tax rate at the producer price level was 65%.<sup>6</sup> A 65% producer price tax rate translates to a retail price tax rate of 40%,  $t_p / (t_p + 1)$ . With the new adjustment, our estimated 11.7% tax increase will increase the producer price tax rate to 76.7%. Thus, the new retail price tax rate will be 43.4% compared to 40%, an increase of 3.4%.

### III. Potential Impact on Chinese Government Tax Revenue, Cigarette Consumption, and Population Health

The new tax adjustment is focused on producer and wholesale prices. Since the Chinese cigarette industry is a national monopoly, the Chinese government has decided to absorb all of the tax increase. The government has predicted that this tax adjustment will generate an additional 50 billion RMB (US \$7.3 billion) in tax revenue.<sup>7</sup> We assume that this additional 50 billion RMB projected by the Chinese government is under the condition of no change in the retail price and, therefore, no change in cigarette consumption. Our new estimated adjusted rate at the producer price level (converting the new 5% wholesale price into producer price) is an additional 11.7 percentage points. In 2008, the cigarette industry contributed 450 billion RMB (in tax and profit) to the central government.<sup>8</sup> The 11.7% of 450 billion RMB is 52.65 billion RMB, which is quite close to the Chinese government forecast, showing that our estimated adjusted tax rate is quite consistent with the government projection.

Under the current Chinese government price policy, producers and wholesalers would not pass along these tax increases; thus, the tax increases will have no effect on cigarette consumption in China. While retail prices have not yet changed, consumers believe that the cigarette industry will eventually pass along these tax increases to the consumer.<sup>9</sup>

To simulate the potential impact of the recent tax adjustment if it were passed along to the retail level, we use 2007 baseline data since some of the key economic data for 2008 are not yet available. Below is a simulation assuming a 3.4% increase in the average price of cigarettes at the retail price level of 6.64 RMB (US \$0.98) per pack. Under the assumption of price elasticity of  $-0.15$ ,<sup>3</sup> a conservative estimate, a 3.4% increase in the retail price will reduce cigarette consumption by about 545 million packs of the total national cigarette consumption of 106.98 billion packs. The government will gain an additional 22.58 billion RMB (US \$3.4 billion) in revenue. Based on the estimated participation (of quitting) elasticity of  $-0.06$  (40% of  $-0.15$  total price elasticity), with 308 million current smokers in China, an additional 3.4% tax increase will result in about 640,000 smokers quitting smoking and will avert 210,000 (one-third of 640,000) smoking-related premature deaths among quitters.<sup>10</sup>

Under the assumption of price elasticity of  $-0.50$ , cigarette consumption would be reduced by 1.82 billion packs. Similarly, if the total price elasticity of the demand for cigarettes is  $-0.50$ , the participation (or quitting) price elasticity is  $-0.20$ . Under this simulation, an additional 3.4% tax increase in the retail price of cigarettes results in about 2.09 million of the 308 million current smokers in China quitting smoking, and 700,000 quitters (one-third

of 2.09 million quitters) avoiding smoking-related premature deaths. The government will gain 19.63 billion RMB (US \$2.87 billion) in revenue.

The Chinese government's prediction of an additional 50 billion RMB in tax revenue from the new tobacco tax adjustment assumes no reduction in cigarette consumption. The recent shortfall of government tax revenue due to the economic downturn coupled with the government's need to expand expenditures to stimulate the Chinese economy requires additional tax revenue. The Chinese government has identified two sources of additional tobacco tax revenue: the announced increase in the ad valorem tax rate at the producer price level and the new additional 5% tax rate at the wholesale price level. These additional revenues will come from CNTC's profits as a monopoly. At present, because the tax burden has not been transferred to smokers, there is no price change for consumers, and thus, no public health benefit from the new tobacco tax adjustment.

#### IV. Conclusions and Recommendations

The motivation of the Chinese government with the recent tobacco tax adjustment is mainly to raise additional government revenue by adjusting its ad valorem tax on tobacco products. As shown from the revised tax structure, and allowing for no change in the retail price, the Chinese government intends to maintain its tobacco consumption sales and, in fact, its ad valorem tax will actually be reduced for the most mainstream price brands costing between 5 RMB and 7 RMB per pack. The government document makes no mention of whether this tobacco tax adjustment is related to China's compliance with the WHO Framework Convention in Tobacco Control (FCTC), Article VI. In response to comments from public health professionals concerning this recent Chinese government tobacco tax adjustment, the official China tobacco website indicates that the NDRC and CNTC are considering the possibility of transferring these tax burdens to consumers, particularly on the middle-lower price brands.<sup>9</sup>

The Chinese government could claim that this tax adjustment is a positive step toward the implementation of FCTC Article VI if these taxes are passed along to the retail price. The increase at the retail price level would be about 3.4%. Even with this relatively small tax adjustment, the projected impact would increase government revenue by between 19.63 billion to 22.58 billion RMB (US \$2.87 billion to US \$3.3 billion), reduce the number of smokers by between 640,000 and 2.09 million, and reduce the number of premature deaths by between 210,000 and 700,000.

So far, this tax adjustment has left unchanged the relatively low specific excise tax on cigarettes (0.06 RMB per pack). The disadvantage of the ad valorem tax is that it creates incentives for smokers to switch to cheaper brands when taxes and prices rise, thereby reducing a potentially positive public health impact of a tax increase. In general, an increased specific excise tax is a most effective tax instrument for tobacco control, especially when the price of cigarette ranges so widely from about 2 RMB to more than 200 RMB per pack. Raising the specific excise tax would narrow the wide range of cigarette price dispersion in China. A specific excise tax is a cost-effective fiscal instrument that raises cigarette prices by the same amount across the board. The current two-tier ad valorem

tax structure in China has, in fact, widened the gap between the two classes of cigarettes from 15% to 20% such that producers may be tempted to switch from higher prices to lower prices (setting the price below the Class A brand threshold to make it a Class B brand). Also the widening gap of the two-tier ad valorem tax may encourage smokers to switch to lower price brands, thus making the tax instrument less effective.

We therefore recommend that the Chinese government raise the specific excise tax on cigarettes by additional 1 RMB per pack and eliminate the two-tier ad valorem tax, replacing it with a uniform tax rate. Since the Chinese government has just made a tax adjustment, it may not be realistic politically to change the tax structure in the immediate future. As a first step, therefore, we recommend that the Chinese government at least pass along the current tax increases from the producer / wholesale price to the retail price to fulfill its initial obligation to the FCTC. In the meantime, it is important for the tobacco control research community to evaluate the impact of the recent tax adjustment on potential changes in Chinese smoking prevalence, cigarette consumption patterns, and industry responses.

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## References

1. <http://www.shui5.cn/article/ct124017.html>.
2. Shi, J.; Chen, W. Analysis of China's Actual Tobacco Tax Burden—a case study in Class A cigarette consumption tax. In: Hu, T., editor. (In Chinese) Tobacco Taxation in China—History, Current Status, and Reform. Beijing, China: Chinese Finance and Economics Press; 2009 Jul.
3. Hu T, Mao Z, Shi J, Chen W. Tobacco Taxation and Its Potential Impact in China. Report prepared for the Bloomberg Initiative to Reduce Tobacco Use. 2008
4. [http://www.tobaccochina.com/news/analysis/wu/20074/2007416122\\_250334.shtml](http://www.tobaccochina.com/news/analysis/wu/20074/2007416122_250334.shtml).
5. Zhang TQ. Effects of Tobacco Consumption Tax Adjustment on Brand Competition. 2009 Jun 24. <http://www.chinatobacco.com>,
6. Liu, T.; Xiong, B. Tobacco Economy and Tobacco Control (in Chinese). Beijing, China: Economic Science Press; 2004.
7. <http://www.Chinatobacco.com/20090812>.
8. [http://www.bjreview.com.cn/business/txt/2009-07/04/content\\_205363.htm](http://www.bjreview.com.cn/business/txt/2009-07/04/content_205363.htm).
9. <http://www.chinatobacco.com/20090830>.
10. Shafey, O.; Ericksen, M.; Ross, H.; Mackay, J. The Tobacco Atlas. Third edition. Atlanta, Georgia: American Cancer Society; 2009.

**Table 1**

Comparison of Chinese Tobacco Excise Tax Structure Before and After May 1, 2009

	<b>Before May 1, 2009</b>	<b>After May 1, 2009</b>
Specific Excise Tax	0.06 RMB	0.06 RMB per pack
<i>Ad Valorem Tax</i>		
Price per Pack	5RMB 45%	7RMB 56%
	<5 RMB 30%	<7RMB 36%
Wholesale Tax	0%	5% *

\* Wholesale price includes the ad valorem tax