



TAX ADMINISTRATION REFORM AND MODERNIZATION PROJECT USING WEB MINING PROCESS

S.Kannan^{1*}, Dr.G.N.K.Suresh Babu²

¹Research Scholar, Department of Computer Science, Bharthiar University, Coimbatore.

*Asst.Prof, Department of Computer Applications, Bharath University, Chennai.

²Professor & Head, Department of Computer Science, Acharya Institute of Technology, Bangalore.

Kannanmca2006@yahoo.co.in, gnksureshbabu@gmail.com

ABSTRACT

Tax administration should be effective in the sense of ensuring high compliance by taxpayers, and efficient in the sense that administrative costs are low relative to revenue collected. Good tax administration requires strong technical capacity by the administrative agency but also a well-designed tax. The administrative agency should be able to identify and evaluate the effects of both current tax policies and tax policies under consideration, be able to simplify the current tax system if needed, within the economic and political spectrum, be aware of any law changes and emerging avoidance practices, and maintain a connection between the rule of law and tax administration.

Keywords: Tax Audit, Tax Administration, Tax Policies, GDP, Tax Deductions.

Introduction:

When generating higher revenue or reducing tobacco use is the goal, the administrative agency should aim at increasing taxes on goods that have large sales volumes and few producers – hence making it easy to collect taxes, with inelastic demand, a low share of tax on retail prices, easy definability, and a lack of close substitutes. These goods provide a relatively sustainable and profitable revenue stream. Tobacco products have most, if not all, of these characteristics. We will discuss a number of features of tobacco products and the importance for government to evaluate their impact on tax revenues and consumption.

1.1.Price elasticity of tobacco products:

Based on evidence from a growing number of countries, including lower middle income countries, demand for tobacco products is inelastic (price elasticity is less than -1 in absolute value), with price elasticity ranging

between -0.2 to -0.8 (with a few exceptions; see the summary in Annex Table 4). Consequently, an increase in taxes will result in a net gain in total tax revenues.

1.2. Share of tax in retail price:

As seen in Annex Table 3, the share of total tax in retail price varies between 8 percent and 89 percent among countries (WHO GTCR, 2009). The share of tax in retail price ensures revenue increases as long as the tax rate increase is far larger than the price increase it generates. That means, revenue increases would be ensured in many instances, even when the price elasticity is greater than -1 (in absolute value). Table 6 below shows the percentage of increase in revenues under different price elasticity scenarios and different tax shares by country income groups, as the excise tax per pack of cigarettes increases by 50%, 75% and 100%. It demonstrates that low and lower middle income

countries could generate significant revenues if they increase their excises, even when demand for cigarettes becomes less inelastic in the near future. Note that estimations here do not take

into account the impact of increases in per capita income on cigarette consumption and hence on revenues.

Percentage increase in excise revenues under different price elasticity scenarios.

	Total tax as % of retail price	Excise as % of retail price	As excise tax per pack increases by	% increase in excise revenue when the price elasticity of demand is equal to			
				- 0.4	- 0.6	- 0.8	- 1.0
Low Income Countries	40%	25%	50%	40%	35%	30%	25%
			75%	58%	49%	40%	31%
			100%	73%	60%	47%	33%
Lower Middle Income Countries	45%	30%	50%	38%	32%	26%	20%
			75%	54%	43%	33%	23%
			100%	68%	52%	36%	20%
Upper – Middle and High Income Countries	56%	45%	50%	32%	23%	14%	5%
			75%	43%	28%	12%	- 4%
			100%	52%	28%	4%	- 20%
	65%	50%	50%	30%	26%	10%	0%
			75%	40%	22%	5%	- 12%
			100%	47%	20%	- 7%	- 33%
High Income Countries	85%	70%	50%	22%	8%	- 6%	- 20%
			75%	18%	1%	- 3%	- 68%

NOTE: These calculations do not take into account brand substitution (cross price elasticities), income effects or illicit trade. VAT and retailers' margin (RM) are assumed to be 15% and 10% of retail price respectively.

Source: Author's calculations using data from WHO GTCR 2009

2.0. Income effect:

Empirical evidence from most low and middle income countries indicates that there is a positive relationship between demand for cigarettes and per capita income. When per capita income increases, consumers may increase their consumption or switch towards more expensive brands, and these would contribute positively to the revenue stream. However, data between 1990 and 2007 reveal that the relationship between income and

cigarette consumption has been reversed in higher income countries. During this time, average real GDP per adult population (15 years old and up) increased by 19.5 percent worldwide, from US\$6,848/adult to US\$8,181/adult. At the same time global cigarette consumption per adult population decreased by 17 percent from 1,453 pieces to 1,208 pieces. Although higher income countries experienced a 26 to 27 percent increase in per adult income (GDP/adult), per adult cigarette consumption declined by 35 percent in high



income countries and 14 percent in upper middle income countries. Lower middle income countries experienced the highest increase in per adult income²⁰ (an increase of 121 percent), but consumption in these countries fell by only one percent, likely reflecting the impact of other tobacco control measures that about offset the effects of income increases on demand. The positive relationship between income and consumption is most evident in low income countries where average per adult income increased by 26 percent and cigarette consumption per adult increased by 24 percent, from 337 pieces in 1990 to 418 pieces in 2007 (IMF, 2009; ERC, 2008). Christo Ananth et al. [5] proposed a system in which FASTRA downloads and data transfers can be carried over a high speed internet network. On enhancement of the algorithm, the new algorithm holds the key for many new frontiers to be explored in case of congestion control. The congestion control algorithm is currently running on Linux platform. The Windows platform is the widely used one. By proper Simulation applications, in Windows we can implement the same congestion control algorithm for Windows platform also. The Torrents application which we are currently using can achieve speeds similar to or better than —Rapid share (premium user) application.

Despite reductions in global per capita consumption, evidence from a growing number of countries shows that the market share of premium brands has been increasing, suggesting that consumers are shifting their preferences towards higher-priced brands as income increases. For example, in recent years, gross domestic product (GDP) more than doubled in Viet Nam, while the market share of upscale

foreign brands increased from 5 percent in 1998 to 20 percent in 2005. The retail prices of foreign brands ranged from \$0.63 to \$1.88/pack whereas lower grade brand prices ranged from \$0.07 to \$0.63/pack (Guindon et al., 2010). In Russia, the market share of premium cigarette brands was the fastest growing segment of the cigarette market between 2004 and 2005, even in rural areas which have experienced strong economic growth accompanied by growing purchasing power (Ross et al., 2008). In Pakistan, a low income country, the share of premium brands is predicted to increase from 15 percent to 17% between 2006 and 2011, while mid-priced and economy brand shares are expected to decline from 85 percent to 83 percent during that time (Euromonitor, 2009). Similar trends are also observed in Turkey and Egypt. The price for Marlboro cigarettes in Egypt was EL 4.50/pack and its market share was 3.6 percent in 2001 (Euromonitor, 2009). In 2009, the price almost doubled to EL 8.50/pack while its market share increased to over 6 percent (MoF Egypt 2009). In Turkey, there are two to three fold differences in prices between premium and economy brands. Despite this, the market share for the premium brands increased from 7.5 percent in 2001 to 18.4 percent in 2006 (Euromonitor, 2009), and 20 percent in 2008 (Yurekli et al., 2010). The market share for economy brands decreased from 59 percent in 2001 to 45.4 percent in 2006 (Euromonitor, 2009) and 41 percent in 2008 (Yurekli et al, 2010)

2.1. Overall impact of cigarette tax increases on consumption and tax revenue:

Tax authorities should be aware of the market conditions and the factors affecting consumer purchasing behavior. From a revenue



perspective, large volumes of sales help generate more revenues as excises increase, despite tax-induced reduction in sales. However, a positive relationship between income and tobacco consumption can level off the expected tax-induced reductions in sales, leading to higher revenues for the government but smaller reductions in consumption. Designing the tax structure and determining the level of tax increase should be evaluated carefully by taking into account the price and income sensitivity of consumers, so that tax policy serves both public health and revenue objectives. As shown in Annex Table 3, the majority of countries have ample of room to increase their revenues as they increase taxes. However, a rule of thumb suggests that in order to achieve public health objectives by increasing prices and reducing consumption, increase in tobacco taxes should be higher than inflation and increases in income, so that the tobacco products become less affordable.

3.0. Have a Well-Designed Tax Policy:

A well-designed excise tax policy exhibits transparency and easy definability, increasing efficiency by reducing administrative costs. A good candidate for a well-designed tax system is a simple and unified excise tax system with all tobacco products taxed at the same level. Such a system would be an ideal system for tax authorities with respect to generating more revenues while reducing cigarette consumption. A strong case can be made for a uniform specific excise tax in terms of generating more revenues, by reducing non-compliance and unfavourable pricing strategies among producers, while reducing cigarette consumption by increasing average cigarette prices. Furthermore, a uniform specific excise reduces price gaps between

brands and tobacco products, minimizing substitution behavior of consumers among brands and products. The impact of such a system on price gaps is illustrated in Figure 6 for higher priced brands and lower priced brands. In this Figure a uniform tax of 0.5\$ per pack is considered. Figures 6 to 11 that follow also estimate the impact of different tax structures using comparable assumptions (same distribution in the producer price). The price gap in a uniform specific tax seems to be the smallest compared with all other tax structures.

3.1. Reforming tax structures:

As described in chapter 2, countries use different tax structures when taxing tobacco products. This section examines some of these structures, discusses the drawbacks and suggests possible next steps.

3.2. Uniform ad valorem tax structure:

Under a uniform ad valorem excise system, as illustrated in Figure 7 for low priced brands and high priced brands, the resulting price gap between brands can be quite wide.

4.0. Tax system with a minimum specific excise floor:

Large price gaps between high and low priced brands that result under an ad valorem tax structure also produce large gaps in the amount of tax collected on these brands. As a result, some governments have introduced a minimum specific excise floor (e.g. Russia, Ukraine, Turkey) to ensure higher revenues from brands in lower price bands, while levying either an ad valorem excise (e.g. Turkey) or a mixture of both excises (e.g. Russia and Ukraine) on higher-priced brands. These structures are



illustrated in Figures 8 and 9 for low priced brand to high priced brand. In such a structure, the excise tax applied is either a mixture of both excises or only ad valorem, unless the associated tax payment is less than the specific minimum, in which case the minimum excise applies. A minimum specific excise ensures revenues from low priced brands while at the same time puts pressure on those brands to increase their prices. Prices for low priced cigarettes go up while higher taxes are paid for expensive cigarettes, ensuring higher revenues. As the ad valorem excise increases, the revenue stream depends on the manufacturers' pricing decision. Depending on higher-priced brands' share in total tobacco excise revenues, any unexpected industry price reductions will jeopardize the expected revenues from higher ad valorem rates. For example, Turkey generates most of its revenues from mid-priced to premium brands that are subject to ad valorem taxes and its revenue stream depends on manufacturers' pricing decisions. At times, tax administrators negotiate with manufacturers to increase their prices in order to increase revenues. However, such negotiations do not always produce the desired results, leading to lower than anticipated revenues. The cost of administering the ad valorem part of the tax system may increase in this process because of (i) negotiations with the manufacturers to increase their prices and (ii) monitoring for tax avoidance practices, as the corresponding price serving as the tax base is determined by the manufacturers. Russia is a good example. Prior to 2007, Russia levied an ad valorem tax on the wholesale price (ex-factory price exclusive of sales tax or VAT). Some manufacturers declared a very low wholesale price, but after the tax was levied, the wholesalers added their own price margins and shared the profit with the

manufacturers (Ross et al, 2009). Since 2008, Russia levies an ad valorem excise based on the maximum retail price.

4.1. Suggested Next Steps:

Given the existing evidence, a minimum specific floor system requires strong technical capacity, implies higher costs of administration, and higher likelihood of experiencing "unfavourable" pricing strategies and possible tax avoidance compared with a uniform specific excise system. In order to avoid unexpected results and ensure revenue flows in the mid- to long term, the minimum specific floor system can be moved towards a uniform specific excise system by increasing the minimum specific floor tax relatively more than the ad valorem rate. The ad valorem rate in the meantime needs to be adjusted carefully so that current excise liabilities and the revenue stream of the premium and mid priced brands are not compromised.

4.2. Differential excise system:

As mentioned in chapter 2, many countries, including large cigarette producing and consuming countries (e.g. Bangladesh, Brazil, China, Egypt, India, Indonesia, Pakistan, Philippines, and Ukraine), impose a differential excise tax system by levying different rates within and among tobacco products. One of the consequences of such differential tax systems can be even wider price gaps among brands, as illustrated in Figures 10 and 11, where a lower rate is applied to a low priced brand and a higher rate is applied to a higher priced brand.

Since a differential tax system is based on various product characteristics, it provides incentives for tax avoidance to the extent that



manufacturers can alter their pricing or production decisions to avoid higher tax liabilities. For example, when the tax authorities in Turkey set up a differential excise system by imposing tax rates favouring brands with high oriental tobacco content, companies quickly adjusted the content of their brands and avoided the higher taxes. Actual revenues ended up well below expected revenues due to the product alteration. In 2009, the retail price of one of the premium brands in Egypt was reduced in order to avoid higher taxes, falling into the mid-level category on which a lower tax was applied. In Indonesia, the differential tax system favours companies with small production systems, and currently there exist about 4,500 small to mid scale companies producing white and kretek cigarettes. In order to eliminate such tax avoidance, the Indonesian government passed legislation banning the establishment of new small to mid-scale companies.

5.0 Ensure tax compliance for higher revenues:

The strength of administration comes from the administrators' ability to monitor and enhance tax compliance, and ensure higher revenues by reducing opportunities for tax evasion and tax avoidance. The rationale for monitoring tax compliance derives from the primary goal of tax administration which is to "collect the taxes and duties payable in accordance with the law and to do this in such manner that will sustain confidence in the tax system and its administration. The actions of taxpayers – whether due to ignorance, carelessness, recklessness, or deliberate evasion – as well as weaknesses in a tax administration mean that instances of failure to comply with the law are inevitable. Therefore, tax administration should

have in place strategies and structures to ensure that non-compliance with tax law is kept to a minimum" (CTPA, 2008).²¹ Tax authorities in many countries may implement the following compliance measures as they may be indicated in tax laws:

- Require producers, importers and exporters to register for tax purposes and get a license for production, distribution, and retail sales;
- Eliminate non-compliance by monitoring domestic production and trade activities by
 - conducting physical control,
 - requiring tax stamps on tobacco products, and
- Require tax payers (manufacturers, importers) to file tax returns and pay the tax liability within a specific period of time after the tobacco products leave the factories or before entering the country.

Conclusion:

Strong tax administration is a requisite for ensuring high compliance effectively and administering tax policies efficiently. Good tax administration requires strong technical capacity supported by a well-designed tax. Given the low price elasticity and low share of excises in retail prices, countries still have room to increase their excises in order to increase revenues while reducing tobacco consumption. However, administrative agencies should be aware of the market conditions and the factors affecting tobacco sales and hence their impact on the revenue stream. These factors should be taken into consideration when a tax policy is designed so that both public health and revenue objectives are achieved. It is a rule of thumb that tax should increase more than the inflation rate and the increases in per capita income level. That would reduce the affordability of cigarettes by



increasing retail prices while achieving higher revenues. A simple and unified specific excise system can be considered a well designed tax policy in terms of ensuring transparency, easy definability and increasing tax administrations' efficiency. Although countries levy different excise taxes, given economic and political feasibilities, excise systems can be simplified in the short-term and may move towards a unified specific system in the mid to long term. Compliance with the tax system can be ensured in various ways, including adopting a state of the art monitoring, tracking and tracing system, supported by an increased number of enforcement officers/investigators on the ground. Governments should evaluate these systems based on their needs. Existing evidence suggests that old tax stamps are less effective in deterring illicit or counterfeit cigarette production and trade, but are better than having no tax stamps.

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