

Regulation of Tobacco Consumption and Policy Challenges in Georgia

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Abstract

In recent years, tobacco regulation is one of the most important issues in state policy from economist point of a view. As contemporary recognized, tobacco products are addictive goods and, as other similar goods (alcohol, drugs), the demand for them is characterized by low elasticity. However, the change (increase) in prices will still affect consumption decline. The degree of decline depends on a variety of factors, including age, income, consumption intensity, standard of living or time perspective. Therefore, when designing and implementing policies, it is particularly important to determine types of consumers to whom the results of regulations are mostly effective.

Key words: Tobacco, elasticity, policy, effectiveness

Model and research analysis

In the process of preparation of tobacco policies, it is necessary to take into consideration the results of the government interventions, which are aimed to increase prices of inelastic goods (or supply constraints). The first consequence of such actions is that, due to the elastic nature of supply, the supply volumes will increase and the operating costs will be reduced in order to compensate the possible loss caused by the increased risks. As for demand, due to its relatively inelastic nature, it will respond less effectively to the increase in prices, which may lead to an increase in the overall market volume.

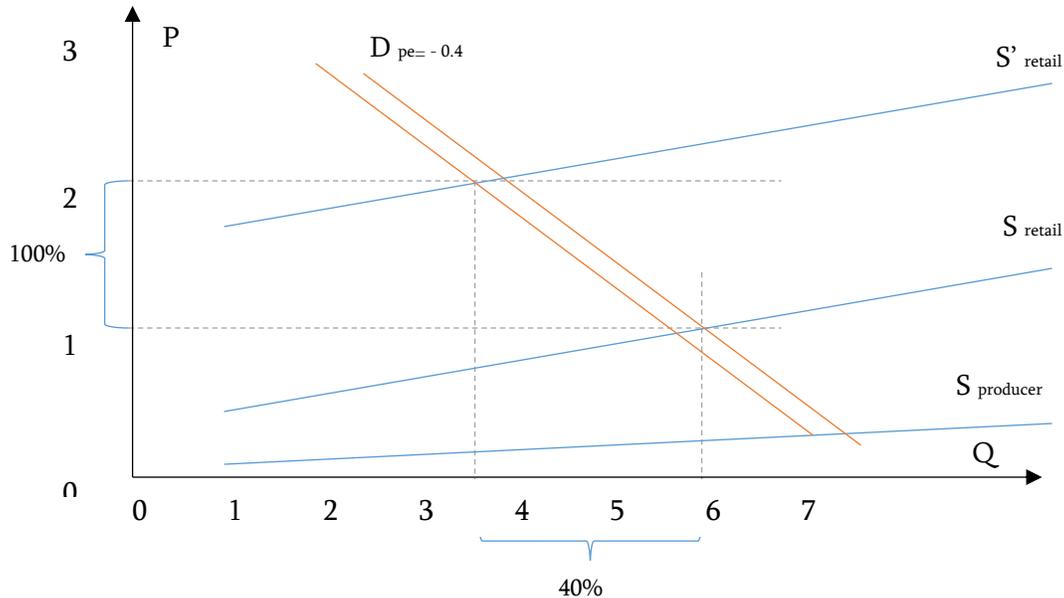


Figure 1. Supply/Demand model and price elasticity

The model described in Figure No 1 implies that, under the government policy the price of tobacco will increase by 100%, which will be followed by a shift in the supply curve from S_{retail} to S'_{retail} . The market demand will be decreased by 40% considering the elasticity, and the demand curve will shift to the left. Although demand has reduced, the market volume has increased: in the given chart, the initial market volume was 6 units and after the increase of prices, it increased to 7.2. This means that the policy implemented according to such scenario cannot achieve the desired result, as it cannot reduce the market volume.

This model implies that the demand for tobacco is clearly inelastic. Indeed, the studies show that the increase of tobacco prices results in medium decrease in both the number of smokers and the amount of consumed tobacco products (World Bank, 1999). According to the World Bank's report of 1999, in other equal conditions, increase of prices by 10% leads to the decrease of tobacco consumption by 4% in developing countries, and the decrease by 8% in the developed countries. In the meta-analysis of elasticity, in which 86 papers on tobacco elasticity published in 2001 were studied and compared, the average elasticity coefficient of tobacco was calculated to be 0.48, which means that the increase in prices by 10% leads to the decrease of demand for tobacco products by 4.8% (Gallet & List, 2003). Approximately the same figure is given in the 2011 report of the International Agency for Research on Cancer, according to which the effect of price increase

on the tobacco products in the high-income countries is defined by a 0.4 elasticity coefficient (in the USA, the price elasticity of demand for tobacco was 0.2 and in the UK it was 0.6) (International Agency for Research on Cancer, 2011). It is also notable that the elasticity of demand in the case of change in prices varies at individual levels. For example, young people are more sensitive to the increase of prices because they have less income and, unlike adults, they are not regular smokers. The elasticity of cigarette demand (Lewit, Coate, & Grossman, 1981) in teenagers was 1.44. This paper analyzes the impact of three government regulations on the cigarette demand among teenagers (increased tax on cigarettes, anti-smoking campaign in the media, and the prohibition of cigarette advertising in the media), which demonstrated the effectiveness of price regulation compared to other regulations. In the following study (Lewitt & Coate, 1982) the authors established that the elasticity of demand for cigarettes in adults was 0.42; the elasticity of demand for cigarettes in college students (Chaloupka, Wechsler, & Henry, 1997) was 1.11. The studies also proved that the sensitivity to the price changes of the young smokers' demand for cigarettes is relatively intense (Evans & Huang, 1998), (Tauras, Chaloupka, & F., 1999), (International Agency for Research on Cancer, 2011).

Recent studies on the elasticity of demand for tobacco in terms of gender did not show any significant differences (International Agency for Research on Cancer, 2011), however, on the basis of comparison of the data of studies published before 2001, it has been established that elasticity of demand in men is 0.5 and in women - 0.34 (Gallet & List, 2003).

A summary of the studies reviewed by us is presented in Table No 1, which shows that the demand in the conditions of change of prices is somehow sensitive in the lowest-income customers. Therefore, the impact on price increases is likely to be effective in adolescents and the part of the population having low income, which will ultimately result in the decrease in tobacco demand.

	World Bank, 1999	Gallet & List, 2003	International Agency for Research on Cancer, 2011	Lewit, Coate, & Grossman, 1981,1982	Chaloupka, Wechsler, & Henry, 1997 Evans & Huang, 1998, Tauras, Chaloupka, & F., 1999
Developed countries	-0.4	-0.48 (86 papers analyzed)	-0.4 -0.2 US -0.6 UK		

Developing countries	-0.8				
Adolescent			-1.11	-1.44	-1.11
Adults				-0.42	
Gender		men -0.5 women - 0.34	No differences found		

Table 1. Research results on Tobacco elasticity

Thus, the study of elasticity is very important when determining the desired result. If the policy aims not only to reduce consumption but also to reduce the market volume, the increase in prices must be so high that the overall market level is also reduced considering the elasticity of demand. However, a large amplitude between the prices of the manufacturer and the prices of the retail supplier should be also taken into consideration, which may make the steps, aimed at increasing the prices, more expensive.

Analysis of the tobacco policy in Georgia

Lack of data in Georgia does not allow us to evaluate with great confidence the effectiveness of the implemented policies on the tobacco market, usually, in this case, the prices of the respective substances and the description of the consumed amounts are not available. The only thing, according to which we can discuss the validity of the presented model, is a several-step process of increasing cigarette prices in recent years, which started in 2013 with the increase in the prices of excise stamps. For this analysis, we use the data provided by the National Statistics Office of Georgia, which includes the quantity of imported cigarettes in terms of prices, as well as the information on cigarette prices provided in Georgian online publications in different years. Before creating a perfect model, this model lacks the figure of consumption of different types of cigarettes, which would enable us to calculate the overall elasticity index.

For the purposes of simplicity, let's assume that since 2013, only Winston cigarettes have been imported at the price indicated in Table No 5. The same table also includes the data published by Geostat, in a processed form (according to Geostat, the imported cigarettes are presented according to their prices, which we have converted into quantities). The result is given in Table No 2.

After the first increase in prices, the importers thought that demand would increase, and imported the increased amount of cigarettes in the following year 2014. However, the steady increase in prices in the following years, which was affected by the increase of excise tax in 2013-2016, as well as the expectations, resulted in the reduction in the overall demand for imported cigarettes. It is also noteworthy that the increase in income cannot affect the demand (elasticity is almost zero).

In addition, it should be noted that the flexibility of the local cigarette manufacturers also contributed to the reduction in import. Locally produced cigarettes were an important factor as a substitute in this process. Local production managed to avoid excise tax by placing modified product on the market. As excise tax affected less non-filtered cigarettes, local manufacturers placed non-filtered cigarettes on the market at the old price and gave each buyer filters free of charge. Indeed, such adaptation and the maintenance of the same benchmark of local cigarette prices on the market has shifted the demand for imported cigarettes to the locally manufactured cigarettes. Accordingly, the reduction of the quantity of imported cigarettes in Table No 2 can be partially explained by this fact.

Year	Import (thousand boxes)	Price per one pack of Winston	E price elasticity of demand	Income per person (year)	E price elasticity of income
2012	50122	1.8		2666	
2013	43260	2.2	-0.19	3013	-1.48E-10
2014	52227	2.2	0	3344	2.07E-10
2015	42998	2.4	-0.40	3482	-3.82E-10
2016	31773	3.2	-0.13	3626	-5.20E-10
2017	28309	3.6	-0.08	3806	-1.67E-10

Table 2. Price elasticity of demand and income of imported cigarettes

Another issue, which is also important in drafting the policy, is the type of target market, i.e. what kind of market are we dealing with, a legal market or a black market. In the case of implementation of the price regulation policy on the legal market (for example, cigarette and alcohol market), the increase in prices of inelastic goods will not have a significant effect on the consumption or the reduction of the overall market volume (negative result). Although, this policy will have a positive effect on the increase in paid taxes (positive result). An increase in prices on

the elastic regulated market will result in the reduction of demand (positive result) and the overall market volume (negative result). As for the illicit market, if the government enhances fighting against drugs by applying various sanctions, it will lead to the increase in prices and not the decrease in supply. As demand for drugs is less sensitive to such a change, the demand will change slightly (negative result) and the volume of the drug market will increase (negative result).

In this case, the marginal benefits, earned by the marginal costs borne by the state, will be negative. While the increase in prices on a non-regulated elastic market will produce desired results both by reducing the consumption and the market volume (Table No 3).

	Regulated market: Tobacco, Alcohol	Illegal Market: Marijuana, cocaine...
$E > 1$	Demand reduction + Total income reduction -	Consumption reduction + Illegal market losses
$E < 1$	No changes in consumption - Income increased +	No changes in consumption - Illegal market income increased -

Table 3. Impact of price increase in different elasticities on regulated and illegal markets

Conclusion

It can be assumed that the regulation of tobacco in Georgia is one of the successful projects. Considering its inelastic nature, the gradual increase in prices was followed by the reduction of demand for imported cigarettes. However, the local market took advantage of the gaps in the policy and substituted the supply with the local tobacco products.

On the one hand, the state policy led to the increase in revenues and in local production, while on the other hand, the implementation of this policy was not likely followed by the reduction of the volume of the tobacco market.

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