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REDUCING TOBACCO USE THROUGH TAXATION: THE EXPERIENCE OF THE REPUBLIC OF KOREA

Cover photos (clockwise from left): Seoul, South Korea. Photo by Dmitriy Berdnik / Unsplash. Paper Lanterns, Seoul. Photo by Todd Brogowski / Unsplash. Market trader craftsman smoking at street market stall Seoul Korea. fotoVoyager / iStock.

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Washington, DC, June 2018

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ABSTRACT

Tobacco taxation in the Republic of Korea (hereafter referred to as Korea) is often seen as a tax policy that prioritizes higher tax revenue, when in fact the main objective of the policy is actually to enhance public health through smoking cessation. This misconception often leads to unreasonable opposition to increased tobacco taxes – a situation partly responsible for the price of cigarettes in Korea increasing only seven times in 30 years. As a country with one of the highest male smoking rates and one of the lowest cigarette prices in the world, Korea has prioritized many tobacco control efforts, including bans on smoking in public places, regulations on tobacco advertising, and public education about the harms of tobacco use. Consistent implementation of tobacco control policies has helped to magnify the importance of using tobacco tax rises as the basis of tobacco price policy – though these reforms took a long time to implement.

Korea has experienced substantial reductions in smoking prevalence as a result of tobacco tax reforms. Along with other tobacco control programs, tobacco taxation has shown to be effective in reducing smoking. The most recent and significant tax reform in 2015 was the first in a decade – during which time the real price of cigarettes and the effective tax rate declined. At the same time, tobacco affordability rose. In response, the 2015 tobacco tax reform increased the price of cigarettes by an ambitious 80 percent, and took a strong stance on taxing other tobacco products and e-cigarettes in exactly the same way as cigarettes.

As a next step, indexing tobacco taxes to inflation or income growth rates needs to be considered, ensuring that the real price of cigarettes and effective tax rates are not reduced over time, and that affordability does not rise. This is important because, should it be another 10 years before the price of cigarettes is increased again, the effect of tobacco tax on smoking cessation could be eroded by growing affordability. Indexing tobacco taxes in this way could also help familiarize consumers with the idea of regular price increases, motivate current smokers to quit, and deter young people from taking up smoking in the first place.

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INTRODUCTION

Tobacco tax is an important policy tool for reducing smoking prevalence and promoting public health in all countries – be they advanced, developing or emerging economies. Tobacco excise taxes achieve two key, attractive policy goals: (a) the public health objective of reducing demand for tobacco products (in particular, consumption among current smokers) and reducing the number of new smokers via higher prices induced by taxes; and (b) achieving higher overall tax revenues – revenue that in low- and middle-income countries can be used to fund welfare spending and universal health coverage. Of these two objectives, enhancing public health should be a higher priority than revenue-generation.

But despite their track record, effective tobacco tax policies are not easy to implement. Critics of tobacco excise taxes argue against them on the grounds of regressivity, as low-income and vulnerable groups spend a greater share of their income on cigarettes compared to smokers in higher-income groups, and low-income people generally smoke more than higher-income people. However, there is increasing evidence that once health benefits and their economic implications for smokers and their families are included, tobacco taxes may be progressive overall, and that lower-income people are more responsive to price changes. Critics also argue that smokers hit by tax hikes may swap to cheaper tobacco products or illicit products – thereby fueling illicit trade and undermining the excise tax policy itself. So, while some governments try to reduce the risk of illicit trade through less stringent excise policies, there is no evidence that such tax policies deter illicit trade.

Other critics of tobacco taxes point to the risk of possible substitution of tobacco with alcohol and junk food, thereby cancelling out health benefits to some degree. They also argue that if smokers are "rationally addicted," the marginal damage of smoking and the optimal Pigouvian tax rates on tobacco products may be lower than expected. But there is no concrete, empirical evidence that those who quit tobacco use swap to consuming alcohol or junk food instead, and because of possible time-inconsistency in preferences, and negative impacts of smoking on the environment and others living with and around tobacco users, the marginal social damage of smoking and optimal tax rates on tobacco products may not be lower than expected.

Korea has one of the highest male smoking prevalence rates in the world, and one of the lowest cigarette prices. Until 2015, the price of cigarettes in Korea was the second lowest – and is still in the bottom quarter – of all OECD countries. To date, the country has undergone seven tobacco tax reforms, each of which has generated much opposition

and strong public resistance. This resistance meant that the price of cigarettes in Korea increased only seven times between 1996 and 2015, and that the price of cigarettes was static between 2005 and 2015. In 2015 this changed, with the raising of the price of all tobacco products by 80 percent. The 2015 tobacco tax reforms were strong in that they increased taxes on all tobacco products and e-cigarettes almost at the same time. This study examines these developments, including how Korean tobacco tax policies have evolved over time; how they have affected cigarette consumption and smoking prevalence among different age and income groups; and how they have affected tax revenues.

ABBREVIATIONS

KIPF:	Korea Institute of Public Finance
KOSIS:	Korean Statistical Information Service
KT&G:	Korean Tobacco and Ginseng Corporation
NHPC:	National Health Promotion Charge
NHPF:	National Health Promotion Fund
OECD:	Organization for Economic Cooperation and Development
TPSC:	Tobacco Production Stabilization Charge
VAT:	Value added tax

KOREAN TOBACCO TAXATION AT A GLANCE

Korea's tobacco excise taxes comprise specific excise taxes and a general value added tax (VAT). No ad valorem excise tax is levied on tobacco products.[1] Specific excise taxes[2] (levied on each pack of 20 cigarettes) include the tobacco excise tax, the Local Education Tax, the National Health Promotion Charge (NHPC), the Waste Charge, the Tobacco Production Stabilization Charge (TPSC), and a Special Consumption Tax (see table 1).

Korean tobacco taxation treats all tobacco products in the same way, including e-cigarettes (in Korea, e-cigarettes – including heat-not-burn tobaccos – are seen as being as harmful as cigarettes, unlike in some countries where they can be used as part of smoking cessation efforts). Individual tax rates on different kinds of tobacco products are generally set by converting each unit into an equivalent in terms of a pack of cigarettes. As seen in table 2, Table 3 and Table 4, the same specific excise taxes are levied on other tobacco products with separate tax rates per gram of each tobacco product. Tax rates on e-cigarettes differ by type – e-cigarettes are taxed per milliliter of nicotine solution, while heat-not-burn tobaccos are taxed per 20 sticks.

As a final vestige of the days when Korea's tobacco industry was controlled by the then nationalized (and now privatized) KT&G, government tax reforms not only set the excise rate for tobacco products, but also their price. Cigarette prices may vary by brand, but the prices set for domestic brands require government approval. Cigarette excise tax rates are generally determined based on the pre-determined price of a cigarette, and additional taxes may be levied.[3] Government ministries including the Ministry of Finance, Ministry of Health and Welfare, and the Ministry of Interior and Safety participate in tobacco tax reforms, as some tobacco tax revenues are earmarked for their use.

As tobacco control efforts such as bans on smoking in public places, regulations on tobacco advertising, and public education initiatives have been actively implemented, the importance of tobacco tax policies has been magnified.

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[1] In the pre-1989 period, the first tobacco tax on cigarettes (the Tobacco Sales Tax), was introduced as an ad valorem excise tax. Tobacco taxation was then transformed into the current specific excise tax system.

[2] Specific excise taxes imposed on tobacco products are revenue sources for central government, local government, and special funds. Tobacco excise tax provides important revenue for local government. Local education tax is earmarked to local education finance. The NHPC, TPSC, and waste charges are all earmarked to specific funds. Only the Special Consumption Tax introduced by the 2015 tax reforms is earmarked for general use.

[3] For instance, in the 2005 tobacco tax reform, the price rise of 500 won was levied to fulfil the National Health Promotion Charge (NHPC) and tobacco excise tax with the ratio of 50:50, in principle. After assigning VAT and manufacturer's margins, the rest of the price raise was distributed among each tobacco tax.

Evolution of Cigarette Taxes in Korea

Korea's tobacco taxation has evolved alongside changes in the country's tobacco industry, which began as a monopoly, with the government controlling tobacco production, sales and profits. In 1985, under the auspices of the newly established public Korean Monopoly Corporation, a 27 percent ad valorem tobacco excise tax was imposed on cigarettes,[4] rising to 77 percent by 1987. In 1989, the Korean Monopoly Corporation became the Korean Tobacco and Ginseng Corporation,[5] and the tobacco tax system changed from an ad valorem excise tax to a specific excise tax, levied on not only cigarettes but also other tobacco products such as cigars, pipe tobacco, roll-your-own-tobacco, chewing tobacco and snuff. As a local government tax, tobacco excise tax accounted for a significant

Table 1. Cigarette taxes in Korea (Korean won per pack)

		1989	1994	1996	1997	1999	2001	2002	2004	2005	2008	2015
Taxes and Charges	Tobacco Excise Tax	360	360	360	360	360	510	510	510	641	641	1,007
	Local Education Tax	-	-	184	184	184	255	255	255	321	321	443
	National Health Promotion Charge	-	-	-	2	2	2	150	354	354	354	841
	Waste Charge	-	-	4	4	4	4	4	7	7	7	24.4
	Public Fund	-	20	-	-	-	-	-	-	-	-	-
	Tobacco Production Stabilization Charge	-	-	-	-	-	-	10	15	15	-	5
	Special Consumption on Tax	-	-	-	-	-	-	-	-	-	-	594
	General VAT	-	-	-	-	100	118	136	182	227	227	409
	Total Taxes	360	380 (42%)	548 (55%)	550 (55%)	650 (59%)	889 (68%)	1,065 (71%)	1,323 (66%)	1,565 (63%)	1,550 (62%)	3,323 (74%)
Retailer's Margin and Cost			520	452	550	450	441	435	677	935	950	1,177
Retail Price			900	1,000	1,100	1,100	1,300	1,500	2,000	2,500	2,500	4,500

Sources:

1. Local Tax Act, article 52, 151.
2. Enforcement Decree of the Act on the Promotion of Saving and Recycling of Resources, article 11.
3. National Health Promotion Act, article 23.
4. Special Consumption Tax Act, article 1.

[4] Before privatization, raising cigarette prices required government approval. With the privatization of the tobacco industry, cigarette pricing was transformed from a government approval system to a reporting system. However, the price of the most-sold domestic brands still tends to be set by government.

[5] Privatized in 2002, the Korean Tobacco and Ginseng Corporation became KT&G.

portion of local government revenue. Tobacco excise tax remained the only excise tax on cigarettes until 1994, up to which point Korea's cigarette industry had been closed to foreign manufacturers. Following trade negotiations, Korea's domestic markets were eventually opened up in 1995, and various charges, surtax, and value added tax (VAT) were then levied on packs of cigarettes, and further tobacco tax reforms subsequently implemented.

As table 1 shows, tobacco excise taxes have varied substantially over time, fluctuating from 42 percent of retail price in 1994 to 71 percent in 2002, before falling to 62 percent in 2008 and rising again to 74 percent in 2015. In real prices, with 1994 as 100, the price index would be 123 in 2002, 169 in 2008, and 262 in 2015. And in terms of affordability (again with 1994 as 100), 2002 would be 63, 2008 would be 62, and 2015 would be 70. The affordability index, which takes account of increases in per capita income as well as inflation, has generally fallen over time.[6] Outlines of tobacco tax reforms undertaken between 1996 and 2015 are as follows.

1996 Tobacco Tax Reform

The 1996 tobacco tax reform increased the price of a pack of cigarettes by 11 percent, and introduced the Local Education Tax and Waste Charge. As Local Education Tax is a surtax sharing its tax base with other taxes, it was levied on cigarettes and other tobacco products such as cigars, pipe tobacco, roll-your-own-tobacco, chewing tobacco and snuff solely as a tobacco excise tax. Local Education Tax under the 1996 reform accounted for 40 percent of total tobacco excise tax.

1997 Tobacco Tax Reform

Cigarette prices rose by a further 10 percent in 1997, coinciding with the newly imposed NHPC on cigarettes (and not on other tobacco products). The NHPC was a surtax to be used solely for the National Health Promotion Fund (NHPF), initially established to sustainably finance Korea's health promotion program. To begin with, funding for the NHPF came from national health insurance contributions (5 percent) and the remainder from the NHPC. Value added tax began to be imposed in 1999, while the price of cigarettes remained the same.

2001 and 2002 Tobacco Tax Reforms

In 2001, cigarette prices were increased by 18 percent. Excise taxes on cigarettes and other tobacco products such as cigars, pipe tobacco, roll-your-own-tobacco, chewing tobacco and snuff were also increased. In particular, excise tax on a pack of cigarettes rose by 42 percent,

[6] The affordability index of cigarettes presented here is relative income price (RIP) index using per capita GDP as a measure of income. Taking account of affordability is particularly important in the case of Korea, given its rapid growth in per capita income, providing the best overall measure of changes in consumer incentives.

and Local Education Tax (formerly 40 percent of tobacco excise tax) rose concomitantly. Cigarette taxes per a pack of cigarettes rose to 68 percent of the retail price.

One year later, cigarette prices rose by 15 percent, and excise tax as a percentage of price grew to 71 percent. The 2002 tax reform increased the NHPC more than 70-fold – from 2 won to 150 won – and introduced the Tobacco Production Stabilization Charge (TPSC). The 2002 reforms meant that national health insurance contributions were no longer needed to fund the NHPF. Instead, the NHPC began to fund 20 percent of national health insurance contributions, thanks to the inclusion of a temporary special article on subsidizing national health insurance expenditure.[7]

The newly imposed TPSC – commencing just as the privatization of KT&G got underway in 2002 – aimed to subsidize domestic farmers facing falling profits (following World Trade Organization agreements allowing the import of tobacco leaves and the privatization of KT&G) with funds from domestic and foreign manufacturers. TPSC was repealed in 2008 as the reserve fund rose and exceeded the target reserve ratio, but was re-imposed in 2015.

2004 and 2005 Tobacco Tax Reforms

In 2004 and 2005, the price of cigarettes rose by 33 percent and 25 percent respectively – the highest rises to date at that point. In 2004, the NHPC was increased, and, in the following year, tobacco excise tax and Local Education Tax also rose. However, excise tax as a percentage of tobacco prices fell to 63 percent under the 2005 tax reform. And when the TPSC was lifted in 2008, the proportion of tobacco tax as a percentage of retail price fell further, to 62 percent.

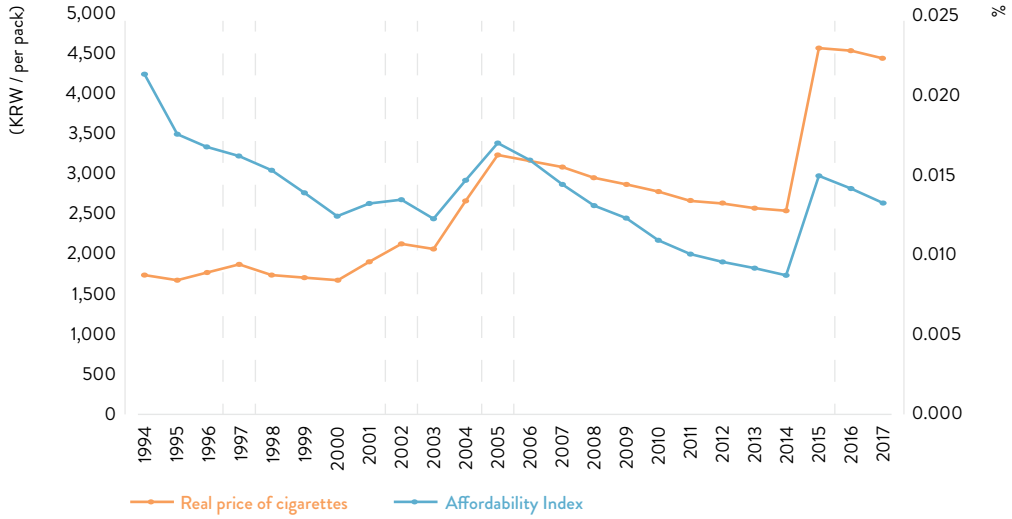
2015 Tobacco Tax Reform

Thanks to tobacco control policies, male smoking prevalence in Korea had been falling, as had cigarette prices. As part of the national health plan's goal to reach a 25 percent male smoking prevalence, other tobacco control policies such as banning advertising, regulations on no-smoking areas, and cigarette warning labels had been vigorously pursued. And strengthening tobacco price policy had been consistently called on to achieve further reductions in smoking prevalence.

However, the price of cigarettes remained unchanged between 2005 and 2015, raising concerns over artificially low tobacco prices, effectively falling tax revenue, and tobacco products becoming too affordable (see figure 1). And while health and welfare spending had consistently risen during that time, there was nonetheless a need for additional tax

[7] The article has been extended once, and remains current up to the time of writing.

Figure 1. Real price of cigarettes and affordability index, Korea



Sources:

1. KOSIS, CPI by item (Expenditure Category: 2015=100) (http://kosis.kr/).
2. KOSIS, Regional GDP, Gross regional income and Individual income per capita (http://kosis.kr/).

revenue to fill the shortfall. Ambitious attempts to increase cigarette prices in 2007 and in 2010 failed as a result of the strong public resistance with which they were met – not least from the media, which lobbied against the proposed tax reforms and dubbed them a 'sin tax', holding that "smoking and drinking are not sin." However, the higher policy objectives of generating greater tax revenue to finance consistently expanding welfare expenditure, and of using tobacco control policy for public health concerns, won the day, and the proposals for unprecedentedly large price hikes were finally passed by Congress in 2014.

The 2015 tobacco tax reform brought about a series of extensive tax increases for all tobacco products, including e-cigarettes, pipe tobacco, cigars, waterpipes, roll-your-own tobacco, chewing tobacco, snus, snuff, etc. (the NHPC was not imposed on other tobacco products and e-cigarettes until 2014). The price of a pack of cigarettes rose by 80 percent (from 2,500 won per pack to 4,500 won), and the Special Consumption Tax was newly levied on cigarettes. Tax as a percentage of cigarette retail prices increased from 62 percent to 74 percent. With the exception of the impact on e-cigarettes, which some feel could play a part in cessation initiatives, the 2015 tax reforms can be seen as a successful endorsement of the value of tobacco tax policy.

Taxes on Other Tobacco Products and E-cigarettes

Non-cigarette tobacco products have been treated in the same way as cigarettes since the very early days of tobacco taxation in Korea. With the exception of waterpipe tobacco and snus (which only began to be taxed in 2014), other tobacco products have always been included as part of the tax base for tobacco excise tax. In 2014, the unit of taxation for other tobacco products changed from 50 grams to 1gram of tobacco when waterpipe tobacco and snus were included. E-cigarettes were included as part of the tax base for tobacco excise tax in 2010. However, the NHPC was not imposed on other tobacco products and e-cigarettes until 2014. As of 2016, revenue generated by the NHPC on all other tobacco products was about 55.1 percent of NHPC collected from all types of e-cigarettes.

Table 2. Taxes on other tobacco products (Korean won per 1 gram)

	Year	Tobacco Excise Tax	Local Education Tax	National Health Promotion Charge	Special Consumption Tax	Total
Pipe tobacco	1989	14	-	-	-	14
	1996	14	5.6	-	-	19.6
	2001	18.2	9.1	-	-	27.3
	2006	23	11.5	-	-	34.5
	2014	23	11.5	12.7	-	47.2
	2015	36	15.8	30.2	21	103
Cigars	1989	40	-	-	-	40
	1996	40	16	-	-	56
	2001	52	26	-	-	78
	2006	65.4	32.7	-	-	98.1
	2014	65.4	32.7	36.1	-	134.2
	2015	103	45.3	85.8	61	295.1
Roll-your-own-tobacco	1989	14	-	-	-	14
	1996	14	16	-	-	30
	2001	18.2	9.1	-	-	27.3
	2006	23	11.5	-	-	34.5
	2014	23	11.5	12.7	-	47.2
	2015	36	15.8	30.2	21	103

	Year	Tobacco Excise Tax	Local Education Tax	National Health Promotion Charge	Special Consumption Tax	Total
Waterpipe tobacco	2014	455	227.5	442	-	1,124.5
	2015	715	314.5	1050.1	422	2,501.6
Chewing tobacco	1989	16	-	-	-	16
	1996	16	6.4	-	-	22.4
	2001	20.8	10.4	-	-	31.2
	2006	26.2	13.1	-	-	39.3
	2014	26.2	13.1	14.5	-	53.8
	2015	364	160.1	34.3	215	773.4
Snus	2014	232	116	225	-	573
	2015	364	160.1	534.5	215	1,273.6
Snuff	1989	10	-	-	-	10
	1996	10	4	-	-	14
	2001	13	6.5	-	-	19.5
	2006	16.4	8.2	-	-	24.6
	2014	16.4	8.2	9	-	33.6
	2015	26	11.4	21.4	15	73.8

Sources:

1. Local Tax Act, articles 52, 151.
2. Enforcement Decree of the Act on the Promotion of Saving and Recycling of Resources, article 11.
3. National Health Promotion Act, article 23.
4. Special Consumption Tax Act, article 1.

Taxes on E-cigarettes

Sales of e-cigarettes sales have increased rapidly since they appeared on the market in Korea in 2007, leading to tobacco excise tax being imposed according to volume of nicotine liquid solution in 2010. A year later the NHPC was also levied on nicotine liquid solution. As part of the 2015 tobacco tax reforms, taxes on e-cigarettes were increased by 117 percent (828 won per 1 ml to 1,799 won per 1 ml). However, this hike prompted the growth of tax avoidance by e-cigarette dealers. Liquid solutions containing flavorings started to be sold separately to the nicotine solution itself, leaving users to mix the two solutions for themselves (liquid solution without nicotine is not taxable). By selling the flavored liquid solution and the nicotine solution separately, sellers can avoid 95 percent of tax duties. However, it is not safe for users to perform the mixing for themselves, as high-nicotine solution can be very dangerous.

The price of e-cigarettes has not increased much despite the tax increases placed upon them. Taxes on e-cigarettes were intended to be like-for-like with cigarettes, but the tax-avoiding behavior of e-cigarette dealers (which reduce the taxable amount of liquid in the e-cigarettes) has resulted in de-facto differential tax rates between the two products. As a result, competitive distortions were caused in the market, and sales of e-cigarettes rose substantially after the 2015 tobacco tax reform.

With the problems of e-cigarette taxation unresolved, a new type of e-cigarette (using heat-not-burn tobacco such as IQOS and GLO) appeared on the market in 2017. Tobacco taxes were immediately levied on these products in the same way as for as cigarettes (applying tax rates similar to those for e-cigarettes per weight). However, from 2018 (realizing the difficulty of levying taxes per gram), excise taxes for heat-not-burn tobacco were levied based on 20 sticks. The tobacco tax reforms on e-cigarettes in Korea reflect the strong views that exist in the country on e-cigarettes, and which place them in the same category as traditional cigarettes.

Table 3. Taxes on e-cigarettes (Korean won per 1 milliliter)

	2010	2011	2015
Tobacco Excise Tax	400	400	628
Local Education Tax	200	200	276
National Health Promotion Charge	-	221	525
Special Consumption Tax	-	-	370
Waste Charge (KRW/20 cartridges)	7	7	24.4
Total Taxes (without Waste Charges)	600	821	1,799

Sources:

1. Local Tax Act, articles 52, 151.
2. Enforcement Decree of the Act on the Promotion of Saving and Recycling of Resources, article 11.
3. National Health Promotion Act, article 23.
4. Special Consumption Tax Act, article 1.

Table 4. Taxes on heat-not-burn tobacco (IQOS), Korea

	2017	2017	2018
Tobacco Excise Tax	88 (Korean won per gram)	88 (Korean won per gram)	897 (Korean won per 20 sticks)
Local Education Tax	38.7 (Korean won per gram)	38.7 (Korean won per gram)	394.6 (Korean won per 20 sticks)
National Health Promotion Charge		73 (Korean won per gram)	750 (Korean won per 20 sticks)
Special Consumption Tax	21 (Korean won per gram)	21 (Korean won per gram)	529 (Korean won per 20 sticks)
Waste Charge	24.4 (Korean won per 20 cartridges)	24.4 (Korean won per 20 cartridges)	24.4 (Korean won per 20 sticks)
Total Taxes (without Waste Charges)	147.7 (Korean won per gram)	220.7 (Korean won per gram)	2,570.6 (Korean won per 20 sticks)

Sources:

1. Local Tax Act, articles 52, 151.
2. Enforcement Decree of the Act on the Promotion of Saving and Recycling of Resources, article 11.
3. National Health Promotion Act, article 23.
4. Special Consumption Tax Act, article 1.

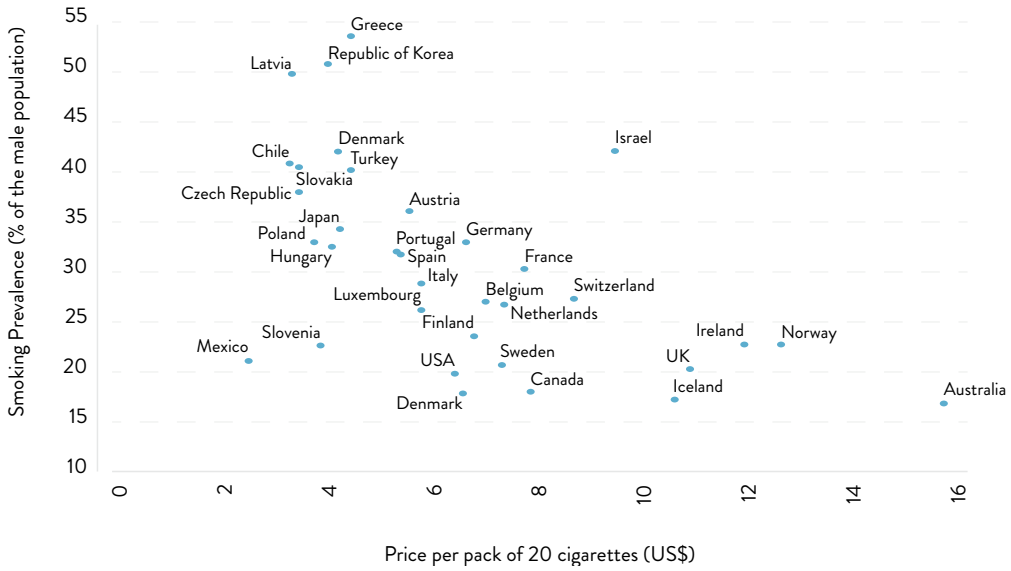
IMPACT OF TOBACCO TAX REFORM ON SMOKING PREVALENCE, CONSUMPTION, AND TAX REVENUE

Tobacco taxes are considered to represent a tobacco control policy as they reduce consumption of tobacco products and smoking prevalence – higher tobacco prices reduce the demand of tobacco products and smoking prevalence. The negative relationship between smoking prevalence and cigarette prices are seen in OECD countries (see figure 2). The reduction in smoking and smoking prevalence can be measured by price elasticity of cigarette demand and price elasticity of smoking prevalence. There is a considerable body of research that shows that, as addictive goods, cigarette and tobacco products are generally price inelastic: Korean studies report that the estimated price elasticity of cigarettes ranges from -0.19 to -0.66, depending on data, methodology, and period analyzed. Korean literature reports that the price elasticity of smoking prevalence is estimated to be -0.49 and -0.407 for males. Since Korean cigarette consumption is price inelastic, increases in tobacco taxes may reduce consumption of tobacco and smoking prevalence less than changes in the price of cigarettes. This implies that increases in cigarette taxes may increase tax revenue, while reducing smoking prevalence and consumption. Tax revenue may have an inverse U shape in relation to the price of cigarettes: if the price of cigarettes rises too high, tax revenue may begin to decline if consumption falls, if all other conditions are equal. However, growth of specific excise tax revenue is slower than other types of taxes, since the effective tax rate tends to be falling. The 2005 and the 2015 tobacco tax reform provide evidence on the impact of tax increases on smoking and tax revenue.

Impact on Smoking Prevalence

Smoking prevalence may be the most important issue for tobacco control policy to target. As smoking-related damage can cause disease later in life and premature death, it is important to help smokers quit smoking, prevent youth from starting to smoke, and reduce smoking overall. Male smoking prevalence in Korea was the second highest in the OECD countries as of 2015, although smoking prevalence has fallen substantially since the 2005 tax reforms. However, this decline in prevalence had slowed for a few years before the 2015 tax reform. The 2015 tobacco tax reform prompted male smoking prevalence

Figure 2. Price of cigarettes and male smoking prevalence (among ages 15 and above), OECD countries

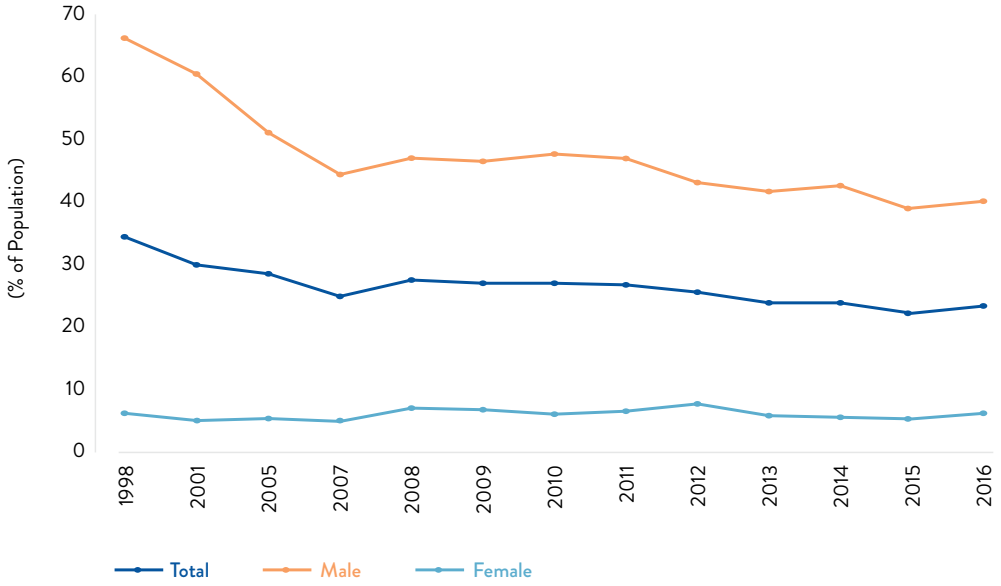


Source:
Based on WHO 2015 and WHO 2017, appendix IX.
* Smoking prevalence: 15 years and above, males, 2015 (% of aged ≥15 years).
** Price of a 20-cigarette pack of the most-sold brand in 2016.

to fall by 3.8 percent that year, and by 2.5 percent in 2016 (see figure 3). Total smoking prevalence decreased by 1.6 percent in 2015, though the effect was limited overall because of the very low female smoking prevalence in Korea.

Female smoking prevalence in Korea has followed a slightly different pattern to other countries (this may reflect the fact that female smoking is not as socially accepted). As Korean society transitions from traditional to modern, the prevalence of female smoking is rising. In this respect, responses of female smoking prevalence to changes in cigarette price may be due to factors other than cost. Still, female smoking prevalence decreased by 0.2 percent immediately after the 2015 price increase, but increased by 0.7 percent in 2016 compared to 2014 (see figure 3).

Figure 3. Smoking prevalence in Korea



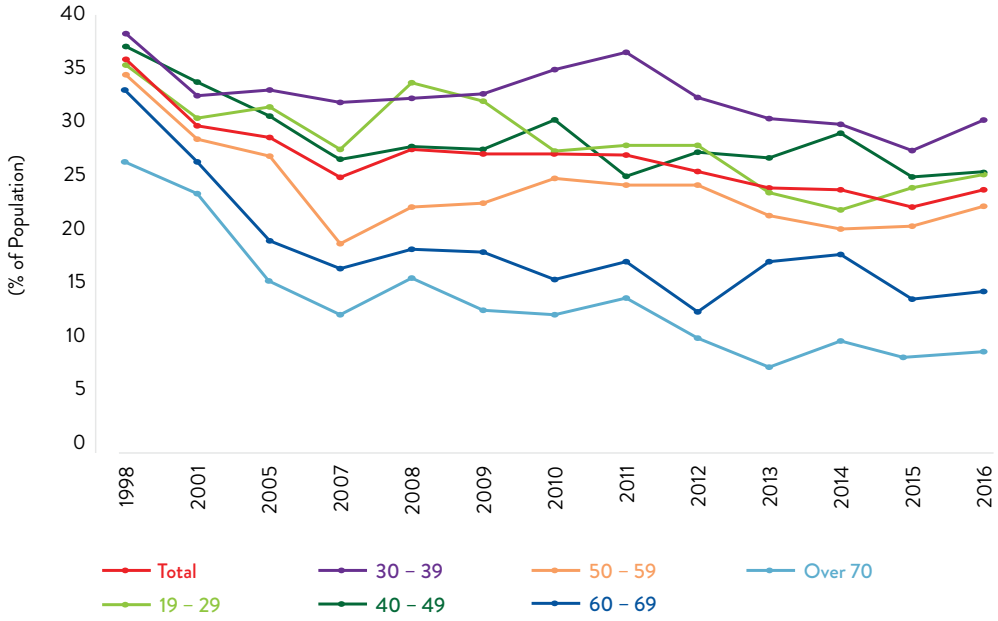
Source: KOSIS, Current Smoking Rate.

Smoking Prevalence by Age Group

Smoking prevalence in Korea is highest among those aged 30 to 39, and falls with age (see figure 4). The impact of tobacco price policy on smoking prevalence is most significant among those aged 40 to 49, and those aged 60 to 69. Those aged between 19 and 29 and those aged between 50 and 59 seem relatively unaffected by the 2015 price increase – in fact, smoking prevalence among the former group increased. Smoking prevalence among females aged 50 to 59 increased between 2014 and 2016, while smoking prevalence among males in the same age group decreased in 2015. Female smoking prevalence among those aged 19 to 29 fell in 2015.

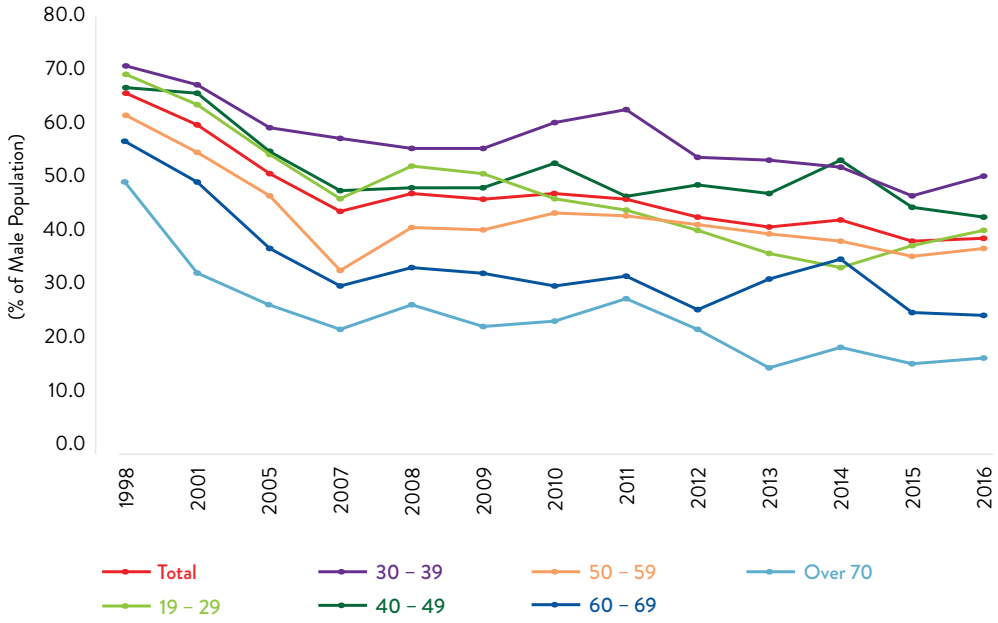
It is generally known that youth are more responsive to tobacco price policy, meaning tobacco price policy may be effective in preventing youth starting to smoke at an early age. Smoking prevalence among youth in Korea has been declining – after the 2015 tobacco tax reform, youth smoking prevalence significantly fell, from 9.2 percent in 2014 to 7.8 percent in 2015, and to 6.3 percent in 2016. The steady decline in prevalence among the young, particularly young girls (even before the big tax increase of 2015) is very encouraging and is the result of Korea's overall anti-tobacco efforts, including bans and regulations on sales of cigarettes to the young.

Figure 4. Smoking prevalence in Korea (by age group)



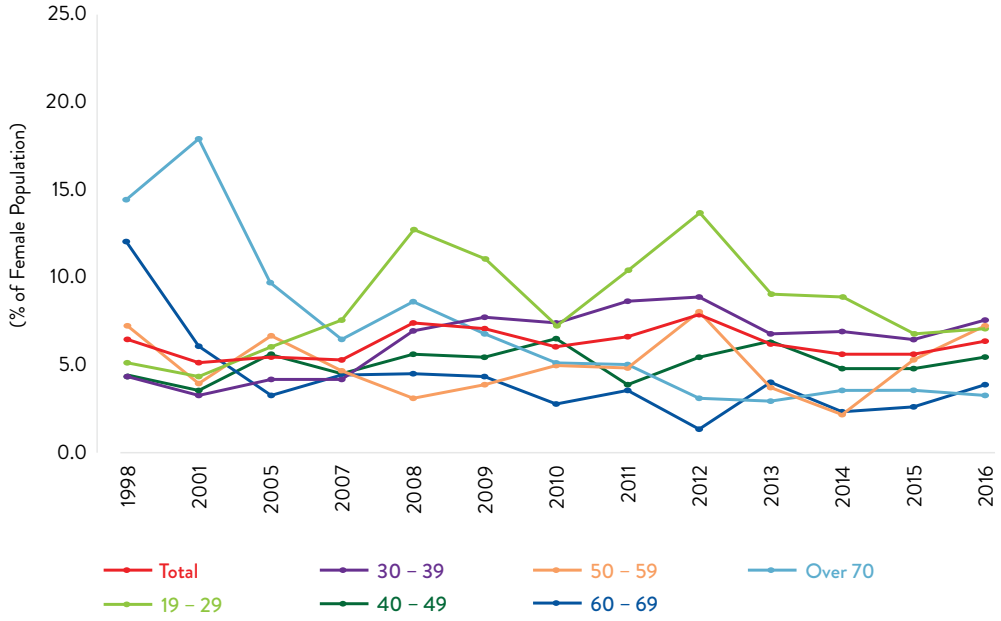
Source: KOSIS, Current Smoking Rate, (http://kosis.kr/).

Figure 5. Male smoking prevalence (by age group)



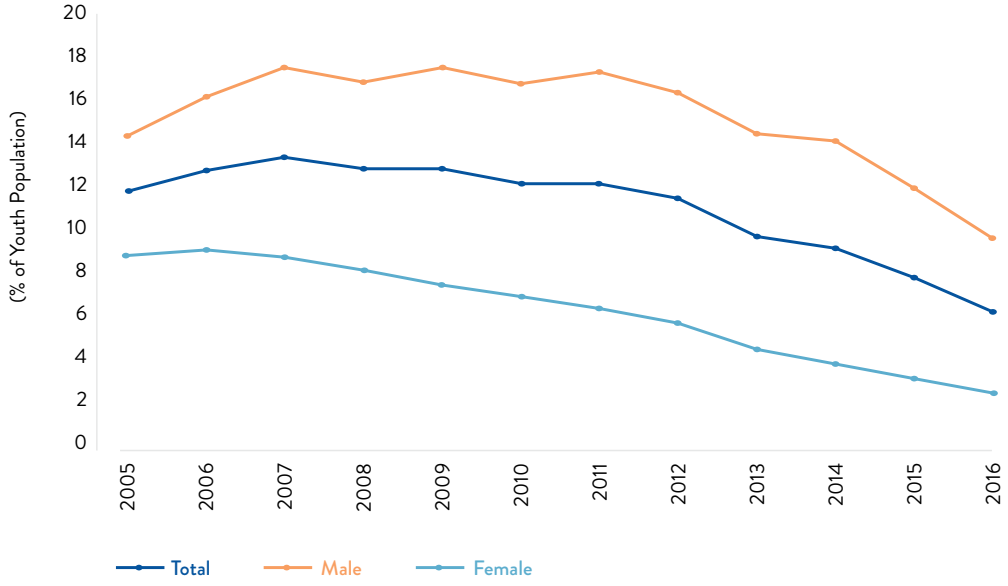
Source: KOSIS, Current Smoking Rate, (http://kosis.kr/).

Figure 6. Female smoking prevalence (by age group)



Source: KOSIS, Current Smoking Rate, (http://kosis.kr/).

Figure 7. Smoking prevalence among youth (ages 12 to 18 years)



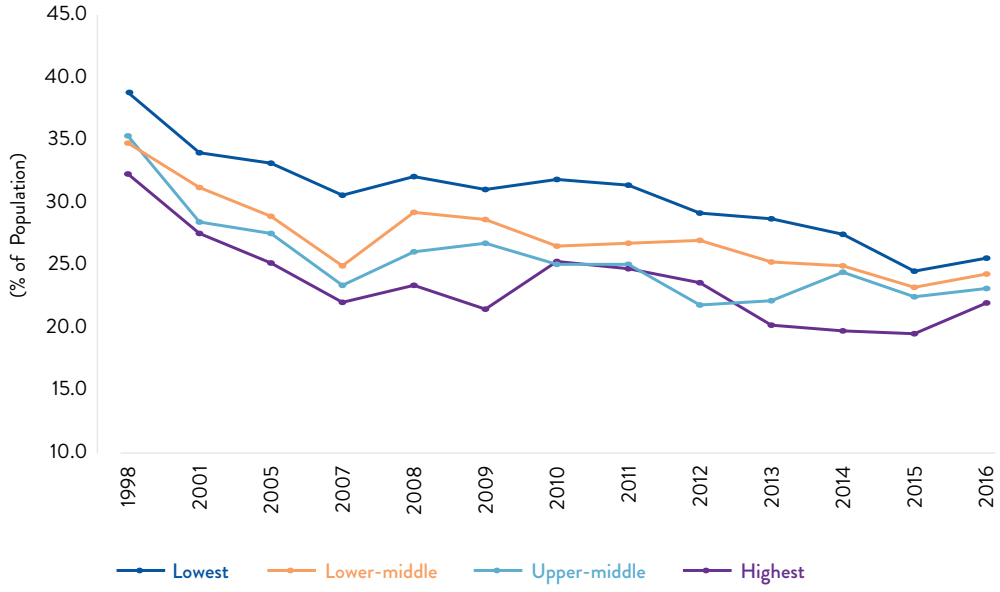
Source: KOSIS, Current Smoking Rate, (http://kosis.kr/).

Smoking Prevalence by Income Group

Smoking prevalence is generally higher among lower-income groups in Korea. In 2016, smoking prevalence among those aged 19 years or more was 25.6 percent for the 1st income percentile, 24.4 percent for the 2nd income percentile, 23.3 percent for the third income percentile, and 22.2 percent for the fourth income percentile. Not only do lower-income people smoke more, but they are also more likely to reduce smoking or quit smoking when cigarette prices rise – a trend noted by Choi (2016), who shows that lower-income Korean smokers are more responsive to changes in cigarette prices. While the overall price elasticity of cigarettes is estimated to be -0.425, price elasticity for the lowest income group is estimated to be -0.812, while that of the highest income group is estimated to be -0.325.

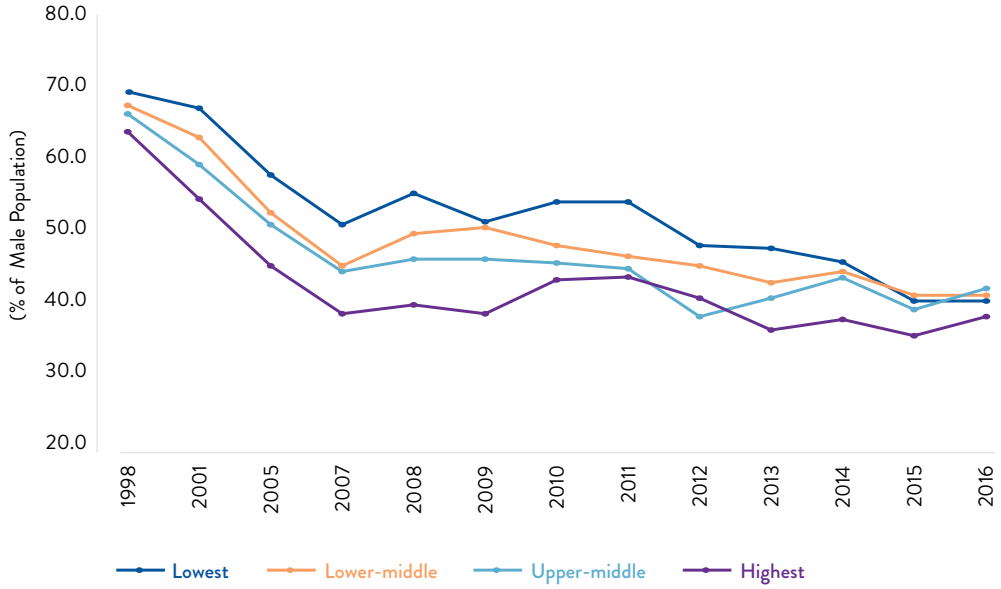
After the 2015 tobacco tax reform, the lowest income group reduced smoking the most, while the highest income group reduced smoking the least. Interestingly, after the 2015 tobacco tax reform, the upper-middle-income group (the third-wealthiest income quarter) reduced smoking to the second largest degree, possibly reflecting the middle-income group crisis in Korea. For males, smoking prevalence among the lowest income group was reduced by 5.2 percent, and that of the highest income group was reduced by 2.4 percent in 2015. Interestingly, the smoking prevalence of the highest income percentile increased

Figure 8. Smoking prevalence (by income group)



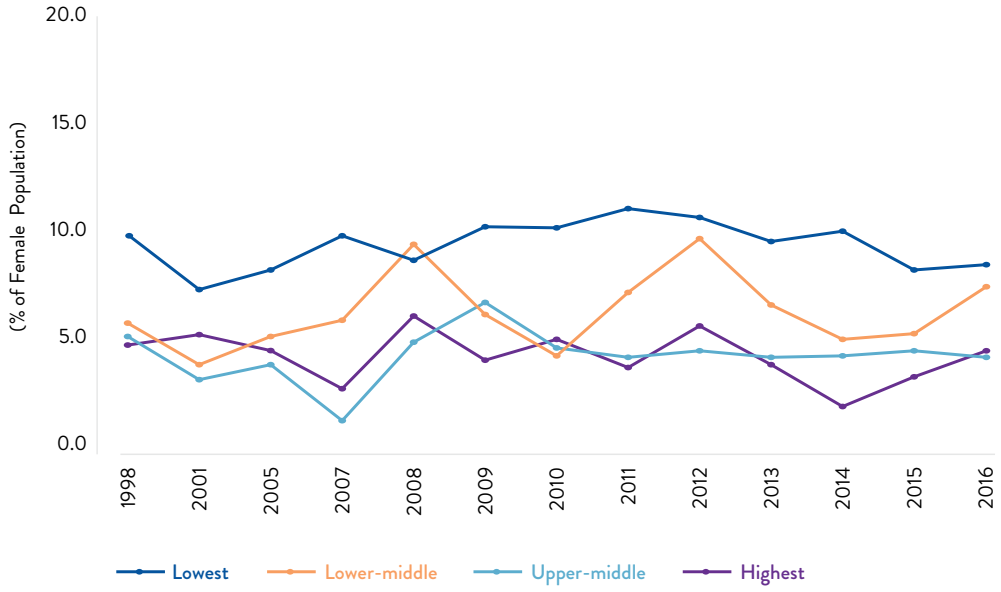
Source: KOSIS, Current Smoking Rate, (http://kosis.kr/).

Figure 9. Male smoking prevalence in Korea (by income group)



Source: KOSIS, Current Smoking Rate, (http://kosis.kr/).

Figure 10. Female smoking prevalence in Kora (by income group)



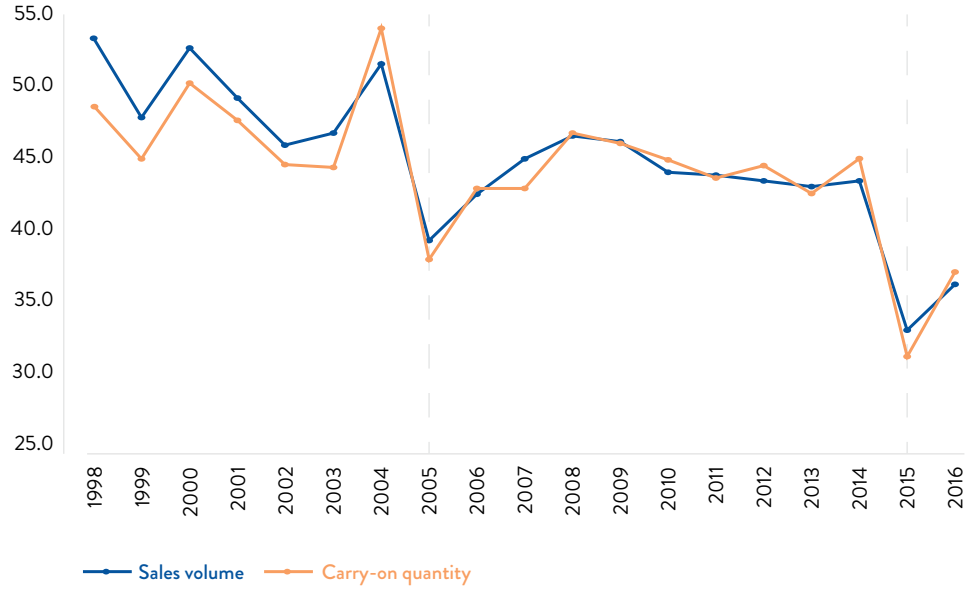
Source: KOSIS, Current Smoking Rate, (http://kosis.kr/).

by 0.2 percent in 2016 compared to the pre-reform period, showing that their incomes were high enough to make cigarette price rises of no concern. For females, the smoking prevalence among the lowest income group decreased by 1.7 percent in 2015, and by 1.5 percent in 2016 compared to 2014. However, in all other income groups except the lowest income group, female smoking prevalence increased after tax increases.

Impact on Consumption of Cigarettes and Tax Revenue

Korea's two most recent tobacco tax reforms (2005 and 2015) demonstrated that cigarette consumption declines when prices increase (see figure 11). Immediately after the 2005 reform, cigarette sales sharply decreased, partially because consumers had hoarded cigarettes in advance of the expected price hike. Sales subsequently grew again, but more slowly than in the pre-reform period. Only early outcomes are currently available for the impact of the 2015 tobacco tax reform, but it is known that sales of cigarettes fell by 23.7 percent immediately after the reform, and though they grew again slightly in 2016, they were still lower than in 2014.[8]

Figure 11. Consumption of cigarettes (100 million packs)



Source: Ministry of Health and Welfare, internal documents.

[8] Carry-on quantity of cigarettes rapidly rises after tax reforms (faster than sales volumes), suggesting the possibility of panic buying of cigarettes before the price surge. There is a possibility of slight overestimation of cigarette sales volume after 2015, since sales volume is estimated based on tobacco excise tax revenue collected. Tax revenue includes revenues from other tobacco products and e-cigarettes, sales of which have rapidly increased since the 2015 tax reform.

Tobacco Tax Revenues

Tobacco tax revenue rose sharply after the 2005 tobacco tax reform, despite falling sales – a trend that continued for several years post-reform. However, in 2009, tax revenue began to decline slightly as cigarette sales fell. Under the 2015 tobacco tax reform, total tax revenue derived from the NHPC and the tobacco excise tax significantly increased by 20 percent (0.9 trillion won) – a figure that continued to rise in 2016 as a result of 80 percent spikes in price and inelastic demand of cigarettes.

Table 5. Tobacco tax revenues (billion Korean won)

Year	Total	Tobacco Excise Tax (% of total)		National Health Charge (% of total)		Total excise tax as a % of GDP
1997	2,250	2,237	(99.4)	13	(0.6)	0.42
1998	2,281	2,268	(99.4)	14	(0.6)	0.43
1999	2,102	2,088	(99.4)	13	(0.6)	0.36
2000	2,266	2,251	(99.4)	15	(0.6)	0.36
2001	2,522	2,509	(99.5)	14	(0.5)	0.37
2002	2,749	2,238	(81.4)	511	(18.6)	0.36
2003	3,086	2,384	(77.3)	702	(22.7)	0.38
2004	3,529	2,722	(77.2)	806	(22.8)	0.40
2005	3,740	2,448	(65.5)	1,292	(34.5)	0.41
2006	4,199	2,705	(64.4)	1,494	(35.6)	0.43
2007	4,310	2,761	(64.1)	1,549	(35.9)	0.41
2008	4,560	2,923	(64.1)	1,637	(35.9)	0.41
2009	4,492	2,854	(63.5)	1,638	(36.5)	0.39
2010	4,460	2,875	(64.5)	1,585	(35.5)	0.35
2011	4,354	2,785	(64.0)	1,569	(36.0)	0.33
2012	4,433	2,884	(65.0)	1,550	(35.0)	0.32
2013	4,318	2,784	(64.5)	1,533	(35.5)	0.30
2014	4,584	2,956	(64.5)	1,628	(35.5)	0.31
2015	5,520	3,044	(55.1)	2,476	(44.9)	0.35
2016	6,836	3,704	(54.2)	3,132	(45.8)	0.42

Source:

1. KOSIS, Taxation Status of Tobacco Consumption Tax by Price Level, (http://kosis.kr/).
2. Ministry of Strategy and Finance, Report on Charge Management (2002-2016).
3. KOSIS, Regional GDP, Gross regional income and Individual income per Capita, (http://kosis.kr/).

Tobacco excise tax – a local government tax – accounted for 5 percent of total local government tax revenue in 2016. The NHPC (earmarked for the NHPF and currently providing 75 percent of its total revenue) is mainly used to subsidize national health insurance expenditure and government health promotion programs, including tobacco cessation programs. As of 2016, the NHPC was contributing about 4 percent of total national health insurance expenditures, and as of 2018, 54 percent of the NHPF is used to subsidize national health insurance, and about 46 percent is used for general health expenditures.

Impact on Health Expenditure

Smoking is a known cause of major noncommunicable diseases (NCDs), which account for 40 percent of deaths worldwide. Many studies estimating smoking-related national health insurance expenditure in Korea indicate that it accounts for between 3.38 percent and 6 percent of health insurance expenditure. For example, the National Health Insurance Corporation (NHIC) showed that national health insurance expenditure attributable to smoking was an estimated 3.38 percent (1.56 trillion won) of total health insurance expenditure in 2011(NHIC 2012). Meanwhile, the Korea Institute of Health and Social Affairs (KIHSA) estimated that smoking-related national health expenditure accounted for about 6 percent (1–1.2 trillion won) of total national health insurance expenditure between 2007 and 2009 (KIHSA 2011).

A Korea Institute of Public Finance (KIPF) analysis of the effects of smoking on health expenditure showed that a 1 percent increase in lifetime consumption of cigarettes increases out-of-pocket expenditure by 1.3 percent, in-hospital expenditure by 0.5 percent, outpatient expenditure by 0.9 percent, and expenditure on medicine by 1 percent (KIPF 2015). The analysis showed that past smokers also have higher risks of smoking-attributable diseases, since such diseases may appear in 20 to 30 years after the smoker quit tobacco use. Thus, reduction in smoking prevalence is an important factor for reductions in health expenditure as well as a healthy life. A second KIPF study shows that a 1 percent reduction in male smoking prevalence may reduce health expenditure by 6.8 billon won per year (KIPF 2017). According to this study, the 2015 tobacco tax reform may cut national health expenditure by 1.02 billion won and by 14.08 billion won over 10 years.

DISCUSSIONS

Tobacco tax reforms in Korea often face public resistance on the grounds that tobacco tax is perceived to be regressive and fuel illicit tobacco trade. Taxes on goods are generally considered regressive, as lower-income groups automatically have to use a greater portion of their income to buy them (as in most countries, smoking prevalence in Korea is higher among lower-income groups than among more wealthy income groups). Tobacco excise taxes on cigarettes, therefore, may be more regressive than general consumption taxes. However, Korean studies show that the price elasticity of cigarettes is greater among lower-income groups – data show that smoking prevalence and consumption smoking fell more among lower-income groups after tobacco tax reforms.

Korea's most recent tobacco tax reforms also show that lower-income and young people tend to be more responsive to price increases. Strengthening tobacco taxation can lead lower-income people to quit smoking, and the health benefits of quitting may be greater for lower-income groups. Tax revenue generally increases following tobacco tax reforms, leaving higher-income groups to bear most of the tax burden (as those on lower incomes are likely to make a more significant reduction in their smoking). Additional tax revenue, therefore, mainly comes from higher-income groups.

Another argument around regressivity is associated with swapping to cheaper tobacco products (mainly by lower-income groups) as tobacco prices rise. Korean tobacco price policy has addressed this issue by taking a strong stance on all other tobacco products, including e-cigarettes, and treating all other tobacco products and e-cigarettes as being as harmful as cigarettes. The 2015 tobacco tax reform was remarkable in that it simultaneously increased tax rates on all tobacco products and e-cigarettes.

In terms of illicit trade in tobacco products, which is closely related to the issue of swapping to lower-quality tobacco products, the Korean government is establishing a tracing system and reinforcing its monitoring system. The value of illicit trade in cigarettes rose quite rapidly between 2005 and 2014, from 5.2 billion to 66.8 billion won, and tended to spike after tobacco tax reforms. After the 2015 tobacco tax reform, illicit trade in cigarettes was estimated to be 10 times higher than the year before the tax reform. Korea has now signed the WHO Framework Convention on Tobacco Control to eliminate illicit trade in tobacco products, monitoring the distribution channels of tobacco products through networking local tax management systems, and an import and export management system.

In countries with tobacco industry monopolies (such as Korea), some argue that tobacco tax reforms may help boost industry profits. However, the 2015 tobacco tax reform increased tobacco taxes from 62 percent of retail price to 74 percent retail price, reducing the portion of retailers' margins and profits. Overall, tobacco tax reforms can be evaluated positively in reducing smoking in Korea, along with other tobacco control efforts, such as regulations, smoking bans, and restrictions on tobacco advertising and promotion. Despite the many arguments and public and political resistance against them, tobacco tax reforms in Korea have been made possible because of concerns about public health, as well as the need for additional tax revenue to fund welfare spending and universal health coverage. Nevertheless, increases in tax rates also occasionally caused difficulties in implementing tobacco price policy (Korean tobacco taxes increased only seven times over 30 years). As a consequence, tobacco taxation needs to be considered primarily as tobacco price policy to reduce smoking and to enhance public health, and secondarily as a source of additional revenue.

The health consequences of tobacco taxation may only become apparent in the longer run, as health risks may take decades to manifest themselves. In this respect, tobacco taxation as tobacco control policy needs to target younger people – both to prevent them starting to smoke in the first place, and to get them to quit as soon as possible if they have started. This requires a suitably high rate of tobacco tax.

The tobacco tax reform in 2015 created a strong spike in cigarette prices. However, the real price of cigarettes and affordability are already falling as income grows over time. If it takes another 10 years to raise cigarette prices, the effects of tobacco tax on smoking cessation gained so far could already be diminishing as affordability increases. This shows that tobacco taxes need to be adjusted over time to at least keep pace with inflation or income growth so that the real price of cigarettes and effective tax rates are not reduced over time, increasing affordability. This can also get consumers used to the idea of regular price increases, motivating current smokers to quit smoking and the young not to start.

One side-effect of tobacco price policy may be the swapping to cheaper or illicit (and possibly unsafe) tobacco products. Taxing other tobacco products and e-cigarettes in the same way as cigarettes may prevent this. In the near future, more tobacco products and e-cigarettes are expected to enter the market, meaning that Korean tobacco taxation requires more careful consideration to find the optimal tax rate that will maximize health benefits, and improve the tax system in order to meet the complex goals of tobacco taxation.

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