

Is It Possible to Reduce Cigarette Consumption by Taxes? A Comparison Between Turkey and The European Union

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Sigara Tüketimini Vergiler ile Azaltmak Mümkün Mü? Türkiye ve Avrupa Birliği Arasında Bir Karşılaştırma

Abstract

This study investigates whether tax structures are significant determinants of cigarette consumption patterns. The study analysed the tax burden on cigarettes in Turkey, and the tax rates were compared with the European Union (EU) countries. Then, it compares smoking trends in Turkey and EU countries. In the study, data from the statistical office of the European Union and the official institutions of Turkey were used. This study concludes that, in contrast to EU countries, ad valorem taxes in Turkey have a larger share than specific taxes. In addition, taxes on cigarettes have a deterrent effect in EU countries but not in Turkey. Thus, taxation techniques may be as important as tax rates in changing consumer preferences.

Keywords : Tax Burdens on Cigarettes, Cigarette Consumption, Comparative Tax Systems.

JEL Classification Codes : H20, K34.

Öz

Bu çalışma, vergi yapılarının sigara tüketim kalıpları üzerinde önemli bir belirleyiciliği olup olmadığını sorgulamaktadır. Çalışmada ilk olarak Türkiye’de sigara üzerindeki vergi yükü analiz edilmiş ve vergi oranları Avrupa Birliği ülkeleri ile karşılaştırılmıştır. Daha sonra Türkiye ve AB ülkelerindeki sigara içme eğilimlerini karşılaştırmaktadır. Çalışmada Avrupa Birliği istatistik ofisinden ve Türkiye'nin resmi kurumlarından alınan veriler kullanılmıştır. Bu çalışma, AB ülkelerinin aksine Türkiye’de nispi vergilerin spesifik vergilerden daha büyük bir paya sahip olduğu sonucuna varmaktadır. Ayrıca sigara üzerindeki vergilerinin, AB ülkelerinde caydırıcı bir etki yaratmasına karşın Türkiye’de böyle bir etkinin olmadığı görülmektedir. Dolayısıyla değişen tüketici tercihlerinde vergi oranları kadar vergilendirme teknikleri de önemli olabilmektedir.

Anahtar Sözcükler : Sigara Üzerindeki Vergi Yükü, Sigara Tüketimi, Karşılaştırmalı Vergi Sistemleri.

1. Introduction

Cigarette consumption remains a significant problem worldwide, including in Turkey. Much research has confirmed that smoking is the leading cause of significant health problems and has suggested public policies to reduce cigarette consumption (Horn & Waingrow, 1966: 21-26; Lewit et al., 1997: 17-24; Evans et al., 1999: 1-59). Governments often impose national and international measures to limit cigarette consumption. In 2003, for example, the World Health Organization addressed the problem of increased cigarette consumption by adopting the supranational-binding Framework Convention on Tobacco Control (FCTC). Unfortunately, this had little effect on smoking rates worldwide as it failed to curb the exposure of children and young people to addiction, and tobacco companies have remained highly profitable. According to Chung-Hall et al. (2019: 119), the FCTC has significantly affected tobacco control, but its implementation needs to be accelerated. Liber et al. (2015: 83) showed that minimum price laws on cigarettes in Malaysia did not significantly change licit or illicit cigarette prices. They, therefore, emphasised the importance of excise taxes to reduce cigarette consumption. Research shows that it will gradually increase without efforts to reduce cigarette consumption. Janda and Strobl (2019: 3), for example, predict that the number of smokers in the Czech Republic will increase by 4-8% until 2028 compared to 2013, with an increase of 7-26% in tax revenues.

Although it is desirable to reduce cigarette consumption for public health reasons, cigarette production is also a source of income for many countries. The tobacco industry strongly resists government control policies to neutralise government tobacco policies and increase demand. The tobacco lobbies show excellent resistance and resort to various tactics, especially against laws and regulations to implement control policies. The tobacco industry can be characterised by 5Ps (product, price, place, person, and promotion). In other words, it focuses on the right product, price strategy, people in the right place, and increasing attractiveness through promotions (Gilmore, 2012: 121). The tobacco industry seriously fears advertising bans, so it exerts effort to prevent such initiatives. Cigarettes have become the most important sector for transnational tobacco companies, especially since approximately 92% of their revenues are from the global tobacco market (Gilmore, 2012: 119). For example, as advertising bans became more common worldwide, the companies implemented a perception operation through Formula 1 races to suggest the importance of smoking in creating a strong adult male image and a relationship to active, exciting sports.

Similarly, in response to widespread advertising bans, companies achieve product placement through free product distribution or maintain advertising through sponsorship of organised events (Bilir et al., 2009: 44). Despite the economic benefits of tobacco sales, Immurana et al. (2021: 1) concluded that tobacco control policies enhance economic growth in both the short and long run because they lead to a healthier society. In Estonia, for example, tobacco-related costs outweighed the fiscal benefits in 2018 (Saar & Koitla, 2021: 286).

Tax policy is considered the most effective strategy to reduce tobacco consumption. Comparison of the effects of specific and ad valorem taxes is also a significant issue in public finance as most countries apply a mix of both types. Specific taxes impose a fixed amount per cigarette, whereas ad valorem taxes increase in proportion to the cost of the product. Various studies have investigated how different tax structures (ad valorem or specific) affect cigarette consumption and whether specific taxes raise prices too much (Immurana et al., 2021: 1; Shah et al., 2019: 2842; Delipalla & O'Donnell, 2001: 885).

After WHO published the FCTC in 2003, Turkey adopted it in 2004 with Law No.5261, published in the Official Gazette, number 25681. Since then, many measures have been implemented to reduce cigarette use, such as advertising bans, prohibition of cigarette sales to children, tobacco use in indoor areas, and the fight against counterfeit goods. Despite all these precautions, however, Turkey has been unsuccessful in reducing cigarette consumption.

In this framework, this study analyses the taxation system applied to cigarettes in Turkey and compares this with equivalent practices in European countries. In addition, it has been investigated whether the tax structure significantly determines cigarette consumption patterns. The analysis shows that cigarette consumption increases despite the heavy taxation of cigarettes in Turkey. To illustrate this, it first calculates the tax burden on cigarettes in Turkey and is compared with the European Union (EU) countries. Then, using the data obtained from the European Union Statistical Office (Eurostat) and Turkey's official institutions, smoking trends in EU countries and Turkey were compared.

The findings show that as the tax burden on cigarettes increases in European countries, cigarette consumption decreases. In contrast, cigarette consumption in Turkey is increasing despite the higher tax burden. This study is focused on determining whether these differences in cigarette consumption are related to the tax structure without considering other factors affecting cigarette consumption. The findings indicate that taxation technique is as important as tax levels in changing consumer preferences. In Turkey and EU countries, excise duty on cigarettes is collected as specific (lump-sum) and ad valorem taxes. However, while European countries¹ mostly levy specific excise duty fees, Turkey prefers ad valorem excise duty fees. In other words, in Turkey, ad valorem taxes on cigarettes have a much higher share than specific taxes. In conclusion, as in many EU countries, increasing the percentages of proportional and special taxes may be more effective in reducing cigarette consumption in Turkey.

2. Theoretical Background

Once smoking became viewed as an ill-advised activity leading to irrecoverable costs, even for those who do not consume cigarettes, public financing of the treatment of smoking-related diseases became a policy debate. According to orthodox welfare

¹ Table 6 compares the averages of ad valorem and specific taxes in 28 European countries with data for Turkey.

economics, if the consumption of a product has negative external effects, it is justifiable to subject that product to negative discrimination and taxes. In principle, consumption of that product should decrease, thereby curbing the behaviour causing negative outcomes and increasing social welfare (Hoffer et al., 2014: 47). Governments have introduced various tax policies to control tobacco consumption, reduce general public health spending, and prevent smoking-related environmental, hygiene, and safety issues. Generally, the individual country can use taxation policies to generate income, redistribute income, and deter or encourage certain activities (Avi-Yonah, 2011: 1). One such policy recommendation is excise taxes, or indirect taxes, on tobacco and alcohol since addictive products, especially cigarettes, have low price flexibility. In other words, demand is primarily independent of price. However, this can depend on age: Kjeld et al. (2021: 1) found that increased cigarette prices affect young people's smoking preferences.

Lee et al. (2004, para.4) showed that higher excise taxes on cigarettes reduced cigarette consumption and increased tax revenues in Taiwan. Van der Zee et al. (2020: 267) showed that higher value-added and excise tax encouraged illicit cigarette consumption in six South African townships. However, it should also be noted that advice from physicians to quit smoking is much more effective than raising tobacco prices (Wang et al., 2021: 2).

Tobacco consumption has an especially devastating impact on the poor and significantly contributes to wealth inequality. Here, the effect of taxes on cigarettes on consumption becomes important. In some cases, low-income populations are generally more responsive to cigarette excise taxes than high-income populations. Consequently, cigarette consumption among the poor decreases, breaking the relationship between cigarette consumption and poverty. However, low-income individuals may still not reduce their cigarette consumption despite an increased tax burden on cigarettes. In addition to the financial cost of higher prices, health costs burden people to increase further financial inequality (Prieger & Kulick 2018: 1706; Chaloupka et al., 2012: 172). Finally, cigarette consumption patterns may also be independent of tax levels, particularly among less educated, younger, and rural individuals. These groups are more likely to be influenced by non-price policies such as advertising bans public service announcements from raising public awareness (Çetinkaya et al., 2014: 1176).

European Parliament reports often emphasise that prohibiting tobacco products creates a black market and serious public health and safety concerns. The reports, therefore, advise focusing on the tobacco industry black market. Taxes on cigarettes can provide a significant income stream for governments and cause tax revenue losses to the black market (European Commission, 2017: 1). Furthermore, with the international liberalisation of certain tobacco companies in investment and trade, tobacco farming has shifted to low- or middle-income countries, and tobacco consumption rates have not decreased. In contrast, higher-income countries have experienced a decrease in tobacco consumption, especially those with tobacco control policies (Yılmaz et al., 2015: 4).

Public finance research has frequently compared the effect of specific and ad valorem taxes on cigarette consumption. In theory, cigarette consumption can be reduced by raising specific taxation to higher prices than consumers prefer (Delipalla & O'Donnell, 2001: 885). However, Schröder and Sorensen (2020: 1022) show that specific cigarette taxes shift market shares and profits toward firms with costs and prices above the industry average at the expense of low-cost firms, whereas ad valorem taxes only reduce the number of firms in the industry due to demand.

3. Materials and Methods

This study compares the complex tax structures for cigarettes in Turkish and EU legislation. It then calculates and compares the current tax burden on cigarettes in Turkey and European countries (Table 6). It also examines changes in tax burdens on cigarettes and cigarette consumption between 2016 and 2020. The study draws on data from the European Union Statistical Office (Eurostat) and Turkey's official institutions to calculate the tax burden on cigarettes in Turkey and EU countries.

3.1. Tax Burden on Cigarettes in Turkey

3.1.1. Excise Duty

Both EU countries and Turkey impose excise duties on certain products, whether and/or ad valorem taxes. Excise duties generate high revenues for states to fulfil social objectives. In 2002, Turkey enacted an excise duty on several products (e.g., cigarettes, fuel, alcohol, and other luxury goods) under the Law on Excise Duty No. 4760 and subsequent amendments under EU harmonisation. The scope of excise duty in Turkey is outlined in list no. (I), (II), (III), and (IV) of this law, which classify excisable goods based on manufacturing, import status, and first acquisition. Four separate tariffs are taxed in addition to the Law on Excise Duty (mineral oil and fuel under Tariff no. 1, vehicles under Tariff no. 2, alcohol and tobacco products under Tariff no. 3, and white goods and furniture under Tariff no. 4).

Table: 1
Excise Duties in Turkey, 2011-2019 (Billion TRY)

	2011	2012	2013	2014	2015	2016	2017	2018	2019*
Petroleum/natural gas products	33.5	35.9	45.1	45.6	50.8	56.2	63.6	55.5	45
Motor vehicles	8.5	8.4	10.5	12.8	17	18.8	22	17.3	7.2
Alcoholic beverages	3.8	4.6	5.1	5.8	6.7	7.9	10	12.4	10.7
Tobacco products	15.8	19.9	21.3	23	26.9	32.2	37.4	42.7	38.9
Cola drinks	0.28	0.27	0.29	0.31	0.34	0.36	0.4	0.85	0.74
Consumer durables and other goods	2	2.4	2.9	3.3	3.9	4.7	4.8	4.9	3.6
Communication	0.04	0.04	0.03	0.03	0.04	0.03	0.04	0.05	0.04
Electricity/coal-gas	0.74	0.91	1.1	1.1	1.3	1.1	1.2	1.5	1.5
TOTAL	64.9	72.6	86.5	92.2	107.2	121.6	139.6	135.5	108

* First three quarters only. Note: Excise duties collected under Laws no. 6111, 6736, and 7143 are not included in the table as these values are minimal.

Source: <<https://muhabat.hmb.gov.tr/genel-yonetim-butce-istatistikleri>>, 07.04.2020.

Table 1 shows Turkish excise duties for eight items: petroleum and natural gas products, motor vehicles, alcoholic beverages, tobacco products, cola drinks, consumer durables, communication tax, and electricity and coal-gas consumption. The largest share of petroleum and natural gas products is tobacco products, which contributed approximately 40% of revenues in the first three quarters of 2019.

The total share and tax revenues of excise duties on tobacco products have increased, likely due to public health and environmental awareness concerns. Indeed, informing the public that smoking is one of the leading causes of fundamental health problems and designing public policies to reduce cigarette consumption has been emphasised in every period and society. Studies have repeatedly suggested public policies to reduce cigarette consumption (Horn & Waingrow 1966: 21; Lewit et al., 1997: 17; Evans et al. 1999: 1). Table 2 shows total excise duties on tobacco products in Turkey from 2011 to 2019, which reached 36% in the first three quarters of 2019. In other words, approximately two-fifths of total excise duty comes from taxes on tobacco products, increasing from 0.61% in 2011 to 0.78% in 2019. Figure 1 shows this recent increase more clearly.

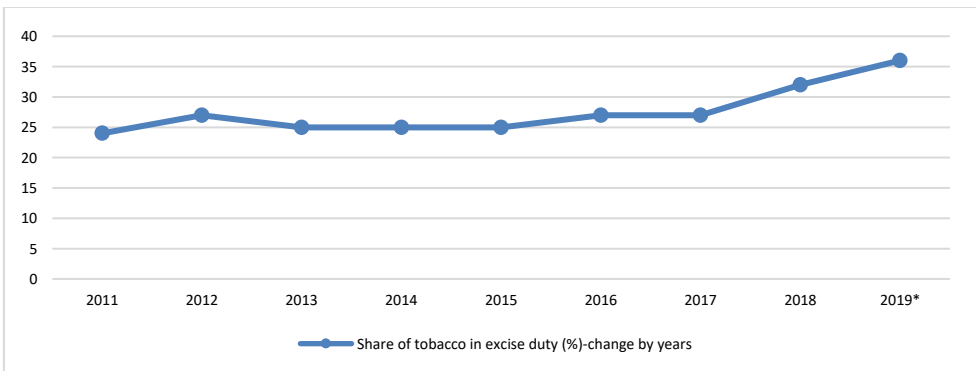
Table: 2
Excise Duties on Tobacco Products in Turkey, 2011 to 2019 Third Quarter

Year	Excise Duty (Billion TRY)	Total Excise Duty (Billion TRY)	Total Tax Revenue (Billion TRY)	Share of Tobacco in Excise Duty (%)	Share of Tobacco in Total Tax Revenue (%)
2011	15.8	64.9	260	24	0.61
2012	19.9	72.6	286	27	0.70
2013	21.3	86.5	334	25	0.64
2014	23.3	92.2	362	25	0.64
2015	26.9	107.2	419	25	0.64
2016	32.2	121.6	471	27	0.68
2017	37.4	139.6	550	27	0.68
2018	42.7	135.5	636	32	0.67
2019*	38.9	108	496	36	0.78

* Through third quarter.

Source: <<https://muhasebat.hmb.gov.tr/genel-yonetim-butce-istatistikleri>>, 17.05.2020.

Figure: 1
Share of Tobacco Excise Duties, 2011 through 2019 Third Quarter



Source: <<https://muhasebat.hmb.gov.tr/genel-yonetim-butce-istatistikleri>>, 17.05.2020.

Excise duties were first imposed on tobacco products in Turkey in August 2002 through ad valorem taxation based on the retail price. During this period, the tax rate was lower than in recent years. After 2005, the taxation of tobacco products was changed by introducing a specific tax and ad valorem taxation, which increased the tax burden on tobacco products. Following the amendment made under the Presidential Decision dated 13 May 2020 (no. 2537), the minimum specific tax rate increased slightly above the application on 15 August 2019. In 2020, the particular minimum tax for a single cigarette increased by 17.18%, from 0.3899 TRY on 15 August 2019 to 0.4569 TRY on 13 May 2020.

Table 3 shows changes in excise duty on cigarettes.

Table: 3
Changes in Excise Duty for Cigarettes in Turkey

Date	Ad Valorem Excise Duty (%)	Minimum Specific Tax (TRY/Pack)	Specific Tax (TRY/Pack)
01.08.2002	49.5		
08.01.2003	55.3		
26.02.2004	55.3		
09.08.2004	28		
25.07.2005	58	1.20	
29.12.2009	63	2.65	
12.10.2011	65	2.90	
01.01.2013	65.25	3.15	0.09
03.07.2013	65.25	3.23	0.0922
01.01.2014	65.25	3.75	0.13
01.07.2014	65.25	3.94	0.1366
01.01.2015	65.25	3.99	0.1866
01.07.2015	65.25	4.21	0.1968
01.01.2016	65.25	4.42	0.2468
01.07.2016	65.25	4.56	0.2546
01.12.2016	65.25	4.56	0.3246
01.01.2017	65.25	4.86	0.3246
01.07.2017	65.25	4.86	0.3246
01.07.2018	63	5.60	0.42
05.01.2019	67	0	0.42
15.08.2019	67	0.3899	0.4539
13.05.2020	67	0.4569	0.4539

Source: Çakmaklı et al., 2018; <https://www.gib.gov.tr/sites/default/files/fileadmin/mevzuatek/otv_oranlari_tum/ozeltuketimoranlari-OpenPage.htm>, 17.05.2020.

The Turkish taxation system uses ad valorem and minimum specific taxes for cigarettes. The tax amount may not be less than the tax amount calculated according to the minimum exact tax amount determined for each cigarette in a unit pack. The minimum specific tax amount helps prevent the sale of cigarettes at low prices. The retail price of the cigarette is multiplied by the ad valorem tax rate. If the result is greater than the minimum specific tax, the ad valorem tax is used. If it is lower, the minimum exact tax amount is used.

The excise duty on one pack of cigarettes is calculated by adding the specific tax determined for one box of 20 cigarettes to either the ad valorem tax amount or minimum exact tax amount, whichever is greater. The particular tax amount is calculated proportionally if the unit pack has different cigarettes. Therefore, the ad valorem tax amount is the price of cigarettes multiplied by the ad valorem tax rate. In contrast, the minimum specific tax amount is the number of cigarettes multiplied by the minimum specific tax rate.

Thus, in 2020, the excise duty on a pack of 20 cigarettes with a retail price of TRY 20.00 was TRY 13.85 (2.26 Euro), as shown in the following calculations²:

$$\text{Ad valorem tax: } \text{TRY } 20.00 * 0.67 = \text{TRY } 13.40$$

$$\text{Minimum specific tax: } 20 * 0.4569 = \text{TRY } 9.138$$

Using the most recent specific tax of 0.4539 from Table 3, the specific tax per pack of cigarettes is TRY 0.45. Because the ad valorem tax amount (TRY 13.40) is more than the minimum specific tax amount (TRY 9.138), the excise duty amount equals the ad valorem tax amount plus the specific tax amount:

$$\text{TRY } 13.40 + \text{TRY } 0.45 = \text{TRY } 13.85 \text{ (2.26 Euro)}$$

Using a retail price of TRY 30.00, the excise duty is TRY 20.55 (3.35 Euro), as shown in the following calculation (using the previous exchange rate):

$$\text{Ad valorem tax: } \text{TRY } 30.00 * 0.67 = \text{TRY } 20.10$$

$$\text{Minimum specific tax: } 20 * 0.4569 = \text{TRY } 9.138$$

Using the same specific tax of TRY 0.45, the ad valorem tax amount (TRY 20.10) is greater than the minimum specific tax amount (TRY 7.60). Therefore, the excise duty amount is the ad valorem tax amount plus the specific tax amount:

$$\text{TRY } 20.10 + \text{TRY } 0.45 = \text{TRY } 20.55 \text{ (3.35 Euro)}$$

Consequently, the increase in the minimum specific tax for a single cigarette to TRY 0.4569 on 13 May 2020 caused the minimum tax for a pack of 20 cigarettes to increase to TRY 9.138 ($20 * 0.4569$). In other words, the increase in the minimum specific tax increased the base price of relatively cheaper cigarettes sold in the market.

3.1.2. Value Added Tax

Value-added tax (VAT) is an important indirect tax for Turkey's budget revenues. This tax has been in effect since 1 January 1985, under Law No. 3065, which stipulates collections on expenditure with a share of 34% of total tax revenue for 2018. VAT is applied at three rates (1%, 8%, and 18%) for different commodity groups. By the laws on the excise duty and VAT, excise duty is calculated first, then VAT is calculated on the total amount (including excise duty). Thus, a significant criticism of this tax is that it is a tax on a tax.

In Turkey, VAT on tobacco products is subject to a special tax base, unlike other goods and services. This tax is calculated by taxpayers selling to retailers, including the economic profits of those dealers, and declared in the period in which deliveries are made

² *These equations use an indicative exchange rate of 1 Euro=TRY 6.1263, as announced by the Central Bank of Turkey at 15:30 on 02 January 2019.*

to these dealers (Value Added Tax General Application Communiqué III/A-4.4). In other words, when retailers buy cigarettes from wholesalers, the retailers pay VAT in advance on behalf of individual consumers. For a pack of cigarettes priced at TRY 20.00, the price with only the excise duty (as of 20 January 18) was TRY 16.95 (20/1.18) while the VAT was TRY 20.00 - TRY 16.95 = TRY 3.05. Thus, VAT at TRY 3.05 corresponds to 15.25% of the retail price (TRY 20.00), or 0.49 Euro³. For a pack of cigarettes priced at TRY 30.00, the cost with only the excise duty (as of 30 January 18) was TRY 25.42 (30/1.18), while the VAT was TRY 30.00 - TRY 25.42 = TRY 4.58. Thus, the VAT on TRY 4.58 corresponds to 15.25% of the retail price (TRY 30.00), or 0.74 Euro.

3.1.3. Total Tax Burden

Two separate taxes are levied on cigarettes in Turkey, namely excise duty and VAT. This is an important indicator of the excessive tax burden on cigarettes. However, even more, remarkable is that tax is also collected on the tax on cigarettes. First, excise duty is applied on cigarettes, then VAT is levied on the retail sales price, including the special consumption tax. In other words, VAT is also collected from the excise duty on cigarettes. In addition, two forms of excise duty are applied: ad valorem and specific.

Because the tax burden on cigarettes in Turkey is quite high, calculating the tax burden becomes quite complex. Continuing with the previous example, VAT of TRY 3.05 is added to a cigarette sold at TRY 20.00 (20 * 0.1525). Thus, the total tax burden on a pack of cigarettes is the excise duty (13.85) + value-added tax (3.05) = TRY 16.90, where approximately 84.5% of a pack of cigarettes selling for TRY 20.00 is paid to the state as tax. The same calculation in Euros is the excise duty (2.26) + value-added tax (0.49) = 2.75 Euro. Consider a pack of cigarettes retailing for TRY 30.00. Here, 30 * 0.1525 is used to calculate the value-added tax: excise duty (20.55) + value-added tax (4.58) = TRY 25.13. In this case, approximately 83.76% of the cost is paid to the state as a tax. The same calculation in Euro is excise duty (3.35) + value-added tax (0.74) = 4.09 Euro, where approximately 83.64% is paid to the state as a tax (the different rates for Euros and TRY are due to rounding of the resulting amounts).

In short, the above examples show that, in Turkey, where tobacco use is common, the total tax burden may fall for products with a high market price.

In addition, despite the increasing tax burden on cigarettes, cigarette consumption has not fallen, as shown in Table 4, which summarises cigarette sales in Turkey between 1925 and 2019. Instead, cigarette consumption has increased steadily.

³ These equations use an indicative exchange rate of 1 Euro = TRY 6.1263, as announced by the Central Bank of Turkey at 15:30 on 02 January 2019.

Table: 4
Cigarette Consumption in Turkey, 1925-2019

Year	Amount (Billion Pieces)	Year	Amount (Billion Pieces)	Year	Amount (Billion Pieces)
1925	2.42	1991	76.50	2006	107.91
1930	7.13	1992	78.50	2007	107.45
1935	9.07	1993	88.40	2008	107.86
1940	10.07	1994	91.30	2009	107.55
1945	9.17	1995	95.80	2010	93.35
1950	15.76	1996	96.60	2011	91.22
1955	22.43	1997	101.10	2012	99.26
1960	27.13	1998	108.60	2013	91.66
1965	31.84	1999	114.40	2014	94.68
1970	39.40	2000	111.70	2015	103.21
1975	52.20	2001	111.80	2016	105.48
1980	57.00	2002	110.00	2017	106.22
1984	63.00	2003	108.16	2018	118.54
1985	63.00	2004	108.87	2019	119.75
1990	73.30	2005	106.72		

Source: <<https://www.tarimorman.gov.tr/TADB/Menu/22/Tutun-Ve-Tutun-Mamulleri-Daire-Baskanligi>>, 07.04.2020.

3.2. Tax Burden on Cigarettes in European Countries

Both EU countries and Turkey impose high taxes on cigarettes. In the 1970s, EU member states harmonised tax rates and taxation structures for cigarettes to allow free movement and fair competition. Previously, EU members had applied significantly different rates and taxation structures to tobacco products. Under this framework, a minimum excise tax on cigarettes is applied to harmonise tax rates. At the same time, both the European Union and member states can set higher rates according to their national needs. The minimum amount includes both specific and ad valorem elements. The 2011 European Union Council Directive specifies the minimum and maximum amounts (between 7.5% and 76.5% of the total tax burden, expressed as a fixed amount per 1,000 cigarettes) that member countries must apply to cigarettes. The minimum must include an ad valorem tax, expressed as a percentage of the maximum retail price⁴. Additionally, the total excise duty must be at least 90 Euro per 1,000 cigarettes, while the weighted average should be at least 60% of the retail price. However, member states with an excise duty of 115 Euro or more are exempt from the 60% criteria.

EU members must also apply VAT to cigarettes, though they do not have to use any other tax VAT and excise duty on processed tobacco. Specific and ad valorem tax rates are the same for imported and domestic cigarettes. As in Turkey, the minimum excise duty on cigarettes in EU countries consists of the specific tax per product, the ad valorem tax on the retail price, and VAT⁵ (Bouw 2017:13). Table 5 shows an example of taxation for a pack of 20 cigarettes.

⁴ <https://ec.europa.eu/taxation_customs/business/excise-duties-alcohol-tobacco-energy/excise-duties-tobacco_en>, 04.10.2020.

⁵ <<https://taxfoundation.org/cigarette-tax-europe-2019>>, 25.04.2020.

Table: 5
Sample Taxation for A Pack of 20 Cigarettes in the EU

Base Retail Price	EUR 0.7
+ Excise duty specific	EUR 1.0
+ excise duty ad valorem	EUR 0.8 (27% of the retail price)
= Total excise duty	EUR 1.8 (60% of the retail price)
= Total excise price	EUR 2.5
+ 20% VAT	EUR 0.5
= Retail price	EUR 3.0

Source: <https://ec.europa.eu/taxation_customs/business/excise-duties-alcohol-tobacco-energy/excise-duties-tobacco_en>, 30.04.2020.

EU legislation only sets harmonised minimum rates so that members can apply higher excise duty rates based on their needs. For example, some regions, such as Azores and Madeira in Portugal, have lower rates (European Commission, 2020: 72).

3.3. Comparison of Total Tax Burden and Consumption in Europe and Turkey

This section compares total tax burdens and consumption in European countries and Turkey in Table 6.

Table: 6
Total Tax Burden on Cigarettes in Europe and Turkey as of 1 January 2020

Country	Specific Excise Duty % WAP*	Ad Valorem Excise Duty % TIRSP**	VAT %	VAT % TIRSP	Total Excise Duty % WAP*	Total Excise Duty + VAT % WAP
Finland	18.1	52	24	19.35	70.1	89.46
Estonia	40.27	30	20	16.66	70.27	86.93
Ireland	57.38	8.91	23	18.69	66.29	84.99
Greece	39.13	26	24	19.35	65.13	84.48
France	14.47	52.7	20	16.66	67.17	83.84
England	50.01	16.5	20	16.66	66.51	83.17
Poland	32.32	32.05	23	18.69	64.37	83.07
Czechia	35.33	30	21	17.35	65.33	82.69
Bulgaria	40.74	25	20	16.66	65.74	82.41
Latvia	43.89	20	21	17.35	63.89	81.25
Slovenia	39.91	21.87	22	18.03	61.78	79.82
Spain	10.86	51	21	17.35	61.86	79.21
Croatia	25.13	34	25	20	59.13	79.13
Hungary	34.64	23	27	21.25	57.64	78.9
Belgium	21.25	40.04	21	17.35	61.29	78.65
Malta	39.78	23.4	18	15.25	63.18	78.43
Netherlands	55.57	5	21	17.35	60.57	77.92
Denmark	56.9	1	25	20	57.9	77.9
Italy	8.56	51.23	22	18.03	59.8	77.83
Lithuania	34.87	25	21	17.35	59.87	77.22
Slovakia	37.52	23	20	16.66	60.52	77.19
Austria	22.94	37.5	20	16.66	60.44	77.11
Romania	46	14	19	15.96	60	75.96
Portugal	41.7	15	23	18.69	56.7	75.39
Cyprus	25.11	34	19	15.96	59.11	75.08
Sweden	53.71	1	25	20	54.71	74.71
Germany	32.57	21.69	19	15.96	54.26	70.22
Luxembourg	8.11	46.65	17	14.52	54.76	69.28
Turkey***	1.5	67	18	15.26	68.5	83.76

* WAP: weighted average price; ** TIRSP: tax-inclusive retail selling price; *** calculations for Turkey show the tax burden calculated on cigarettes sold at an average TRY 30.00 (4.89 Euro) per pack. As cigarette prices change, the total tax burden changes. The tax burden on cigarettes in countries outside Turkey was created using <http://ec.europa.eu/taxation_customs/tdb/advSearchForm.html>, 25.04.2020.

Both EU countries and Turkey collect excise taxes on cigarettes as specific and ad valorem taxes. Some studies suggest that specific taxes on goods with sales control yield

more effective results than ad valorem taxes (Delipalla & O'Donnell 2001:885; Shang et al. 2019). In Turkey, the ad valorem tax of 67% has a more significant share than the specific tax rate of 1.5%, as seen in Table 6 for 2019. Table 6 also shows that EU countries have a better balance between ad valorem and specific taxation, for example, Austria (22.94 versus 37.5%) and Germany (32.57 versus 21.69%).

Table 7 shows changes in the annual average tax burden on cigarettes in 28 EU countries and Turkey between 2016 and 2020. Based on 2020 and the individual 5-year country averages, Finland has the highest tax burden, including excise duty and VAT, while Luxembourg has the lowest. The bottom line of the table shows the overall average rates for each year and the individual 5-year country averages. Turkey has a higher 5-year average (81.9%) than the EU average (79.6%).

Table: 7
Tax Burdens on Cigarettes in Turkey and European Countries, 2016-2020

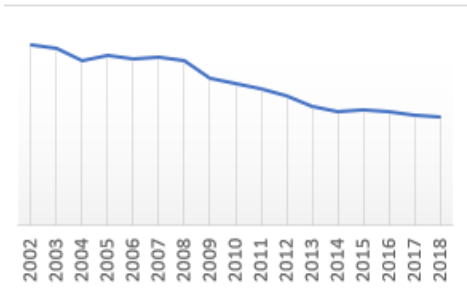
Country	2016 (%)	2017 (%)	2018 (%)	2019 (%)	2020 (%)	Average (%)
Finland	84.5	87.5	88.6	89.7	89.4	88.0
Estonia	81.0	85.8	85.8	87.6	86.9	85.4
Ireland	.	85.4	89.1	82.4	84.9	85.5
Greece	83.0	89.4	85.6	84.8	84.4	85.5
France	.	80.8	85.1	84.0	83.8	83.4
England	82.1	86.4	88.7	91.6	83.1	86.4
Poland	81.2	80.4	80.0	79.6	83.0	80.9
Czechia	79.0	78.2	78.3	76.9	82.6	79.0
Bulgaria	84.2	84.7	85.1	83.1	82.4	83.9
Latvia	80.3	83.7	83.9	83.5	81.2	82.5
Slovenia	78.4	81.3	81.2	79.8	79.8	80.1
Spain	79.2	79.5	79.2	79.2	79.2	79.3
Croatia	78.0	80.0	79.9	80.9	79.1	79.6
Hungary	75.9	75.8	75.2	77.2	78.9	76.6
Belgium	78.0	78.1	79.3	79.1	78.6	78.7
Malta	78.9	79.4	79.4	79.3	78.4	79.1
Netherlands	77.4	76.4	78.3	77.2	77.9	77.5
Denmark	78.8	79.6	79.8	78.7	77.9	79.0
Italy	76.7	77.1	77.1	77.5	77.	77.3
Lithuania	79.3	79.8	79.5	79.1	77.2	79.0
Slovakia	78.5	79.2	77.8	78.2	77.1	78.2
Austria	77.4	78.7	78.5	77.1	77.1	77.8
Romania	78.6	73.3	72.5	73.5	75.9	74.8
Portugal	78.3	79.9	76.1	76.4	75.4	77.3
Cyprus	76.1	75.5	75.	75.3	75.0	75.5
Sweden	74.0	74.7	74.2	74.0	74.7	74.3
Germany	74.4	73.5	72.49	71.37	70.2	72.4
Luxembourg	69.4	69.5	69.4	69.3	69.2	69.4
Total (%)	78.7	79.9	79.9	79.7	79.5	79.6
Turkey*	81.3	81.5	79.6	83.7	83.7	81.9

Source: <http://ec.europa.eu/taxation_customs/tedb/advSearchForm.html>, 01.03.2020.

Note: Calculations for Turkey show the tax burden calculated on cigarettes sold at an average TRY 30.00 per pack, as calculated by the authors.

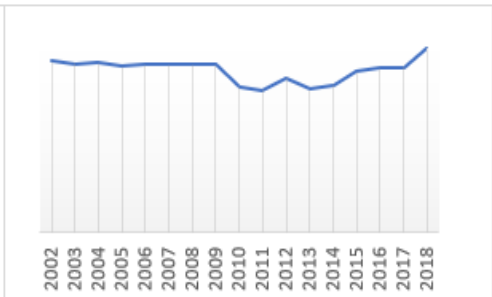
Given these high tax rates, it is helpful to assess changes in cigarette consumption. Figures 2 and 3 show changes in total cigarette consumption in EU countries⁶ and Turkey⁷ between 2002 and 2018. Total cigarette consumption in EU countries has fallen (Figure 2) but not in Turkey (Figure 3), increasing in recent years. Thus, higher taxes have not deterred smoking in Turkey, so that other measures may be needed.

Figure 2: Total Cigarette Consumption in European Countries, 2002–2018



Source: https://ec.europa.eu/taxation_customs/sites/taxation/files/docs/body/tobacco_products_releases-consumption.pdf (accessed on 17 May 2020)

Figure 3: Total Cigarette Consumption in Turkey, 2002–2018



Source: <https://www.tarimorman.gov.tr/TADB/Menu/22/Tutun-Ve-Tutun-Mamulleri-Daire-Baskanligi> (accessed on 17 May 2020)

4. Discussion and Conclusion

Taxation is one of the most important governmental tools to finance public spending and other endeavours, such as improving public health (e.g., taxing harmful products to discourage their purchase) and environmental protection (e.g., taxing non-renewable energy sources to encourage the use of environmentally friendly alternatives). Expenditure taxes, such as excise duty and VAT, have important roles in changing consumer consumption habits. However, the low-price elasticity of demand for addictive products like cigarettes, and the inconsistent outcomes of these policies, have made them controversial. This study examined the tax structure on cigarettes in Turkey by calculating the current tax burden and comparing it with similar burdens in EU countries. It also compared changes in tax burdens on cigarettes and changes in cigarette consumption in recent years. The findings align with

⁶ Annual data in Figure 2 are based on totals from 28 European countries, as discussed in Tables 6 and 7. Accordingly, the total amounts by years are as follows (numbers in parentheses show the values for a quantity in billions): 2002 (777), 2003 (761), 2004 (705), 2005 (728), 2006 (718), 2007 (722), 2008 (706), 2009 (632), 2010 (606), 2011 (590), 2012 (553), 2013 (512), 2014 (486), 2015 (493), 2016 (484), 2017 (471), and 2018 (465). Source: https://ec.europa.eu/taxation_customs/sites/taxation/files/docs/body/tobacco_products_releases-consumption.pdf, 17.05.2020.

⁷ Data in Figure 3 are based on values in Table 1. Source: <https://www.tarimorman.gov.tr/TADB/Menu/22/Tutun-Ve-Tutun-Mamulleri-Daire-Baskanligi>, 07.04.2020.

results from other studies (Uğur & Kömürçüler, 2015; Çetin & Özkan, 2018; Beşer & Aşkan, 2019), showing that taxes on cigarettes have increased government revenue in Turkey without reducing cigarette consumption. In contrast, higher taxation has correlated with falling cigarette consumption in EU countries.

Differences in excise duty's specific and ad valorem tax mix determine optimal tax rates. They can reduce cigarette consumption as differences in these rates likely affect consumption decisions. Specific taxes are considered more effective than ad valorem taxes in reducing sales (Imamura et al., 2021: 1; Delipalla & O'Donnell, 2001: 885; Shang et al., 2019: 28). Both EU member states and Turkey collect excise duty on cigarettes as specific and ad valorem taxes. However, there are significant differences in their proportions, suggesting that Turkey might more effectively reduce cigarette consumption by adopting the practice in many EU countries of gradually decreasing ad valorem taxes while increasing specific taxes. Such a policy might also reduce the injustice that the tax burden decreases as the market price of cigarettes increases.

The results also show that Turkey's latest tax regulations, enacted on 13 May 2020, slightly increased the minimum specific tax, which determines the base retail price of cigarettes (i.e., to prevent sales under a specific price). Cheaper cigarettes, which are consumed mainly by low-income populations, are also likely to have a negative impact by decreasing real incomes, thereby widening income inequality. Evaluating future regulations from such a perspective is essential for achieving the intended goals of these taxes.

In sum, Turkey imposes high taxes on cigarettes, as do many EU countries. However, whereas cigarette consumption has decreased in EU countries, it has increased in Turkey despite a rapid increase in tax rates. There may be many reasons for this difference in consumer behaviour (e.g., the prevalence of smuggling, user characteristics, tobacco industry tactics, and ineffectiveness of tobacco control policies). Future studies should investigate such aspects of cigarette consumption in Turkey to determine why increased taxes have not reduced consumption.

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